

TOP INCOMES  
IN FRANCE

IN THE  
TWENTIETH  
CENTURY

INEQUALITY AND REDISTRIBUTION, 1901-1998

THOMAS PIKETTY

TRANSLATED BY SETH ACKERMAN

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in the Twentieth Century



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1901–1998

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*The Belknap Press of Harvard University Press*

CAMBRIDGE, MASSACHUSETTS

LONDON, ENGLAND

2018

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Printed in the United States of America

First published as *Les hauts revenus en France au XX<sup>e</sup> siècle: Inégalités et redistributions, 1901–1998*. © 2001 Editions Grasset et Fasquelle; 2014 for the present edition.

First printing

*Library of Congress Cataloging-in-Publication Data*

Names: Piketty, Thomas, 1971– author. | Ackerman, Seth, translator.  
Title: Top incomes in France in the twentieth century : inequality and redistribution, 1901–1998 / Thomas Piketty ; translated by Seth Ackerman.  
Other titles: Hauts revenus en France au XX<sup>e</sup> siècle. English  
Description: Cambridge, Massachusetts : The Belknap Press of Harvard University Press, 2018. | “First published as *Les hauts revenus en France au XX<sup>e</sup> siècle: inégalités et redistributions, 1901–1998*. (c) 2001 Editions Grasset et Fasquelle; 2014 for the present edition.” |  
Includes bibliographical references and indexes.  
Identifiers: LCCN 2017045532 | ISBN 9780674737693 (alk. paper)  
Subjects: LCSH: Income—France—History—20th century. |  
Income distribution—France—History—20th century. |  
Income tax—France—History—20th century.  
Classification: LCC HC280.I5 P5413 2018 | DDC 339.2/209440904—dc23  
LC record available at <https://lcn.loc.gov/2017045532>

Book design by Dean Bornstein

Jacket design: Graciela Galup

Jacket image: oanav, creative #: 182874216

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## *Preface to the New Edition*

The present book, *Top Incomes in France in the Twentieth Century*, is an exact reproduction of a work first published in September 2001 by Grasset. The book has its limits. It also has its own logic, and it launched an international research program that led me, twelve years later, to publish *Capital in the Twenty-First Century*, which was released in September 2013 by Seuil. Rather than updating this new edition in what would inevitably be a partial and arbitrary way, it seemed preferable to leave the work in its original state. The following preface will simply try to place this 2001 study in perspective, and in particular to briefly describe the main steps that led from *Top Incomes* to *Capital*.

My 2001 book was somewhat monomaniacal. In *Top Incomes*, I relied almost entirely on a single source, namely, the tabulations of income declarations that resulted from France's creation of a general income tax with the law of July 15, 1914, a few weeks before the outbreak of war. I also used the bequest declarations that resulted from France's transformation of its death duties into a progressive tax via the law of February 25, 1901, along with a few other sources on wages and finance, though in a much more limited way. The advantage of this monomaniacal approach is that this central source was subjected to a rather systematic treatment, including analysis of its social and institutional context. In particular, in Chapters 4 and 5 the reader will find a relatively detailed legislative and political history of the income tax in France in the twentieth century. I hope this might interest readers fascinated by political and cultural history, and not just those interested in economic and social history. The issue of taxation, once one moves past its apparently technical nature, forces political actors, in effect, to set aside abstract rhetoric about what is fair and what is not, and offer very precise definitions of the social groups that in their eyes merit the government's favor or disfavor. At that point, taxation becomes a force that both reveals and generates the different conceptions of social justice prevailing in a given era.

Compared to my 2001 book, *Capital in the Twenty-First Century* covered far broader thematic, geographical, and historical terrain. In that 2013 book, I dealt with the history of wealth rather than just income. I studied twenty different countries rather than just one, and the work ranged over three



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centuries—sometimes a bit more than that—rather than just one. I tried to analyze and offer an encompassing interpretation of the overall evolution of the wealth distribution on a world scale since the eighteenth century based on historical materials gathered by several dozen scholars over the previous fifteen years. It was written in a more supple and personal way, and it placed the sources used in greater perspective than was done in my 2001 book.

Nevertheless, that vaster work would not have been possible without *Top Incomes*, or without the many colleagues who helped me expand on that initial work. In particular, not long after the publication of *Top Incomes*, I was fortunate to receive the enthusiastic support of Anthony Atkinson and Emmanuel Saez. Having been a model for me during my formative years as a scholar, Tony was the first reader of my historical work on inequality in France. He immediately turned his attention to the UK case, followed by those of many other countries. Together, we organized two weighty volumes published by Oxford University Press in 2007 and 2010, covering more than twenty countries in total and constituting the largest database so far available concerning the historical evolution of income inequality. Together with Emmanuel, we also treated the American case. We brought up to date the dizzying rise in the incomes of the richest 1 percent starting in the 1970s and 1980s, which had an influence on debates in the United States. My subsequent work was also deeply influenced by my encounter with Gilles Postel-Vinay and Jean-Laurent Rosenthal and the historical research we continue to undertake together in the Paris bequest archives, from the time of the French Revolution to the present. This whole research program also owes an enormous debt to all the graduate students and young scholars with whom I have been fortunate to work over the last fifteen years. In particular, I thank Facundo Alvaredo, Camille Landais, and Gabriel Zucman.

Last but not least, this research program would not have gotten underway without the confidence of Grasset, which agreed in 2001 to publish *Top Incomes* in full, with no space limitations. I would like to thank them here, and hope the reader won't hold it against them.

Paris, September 3, 2014

## *Acknowledgments*

As I carried out this research, many people offered their advice, their encouragement, or their expertise on this or that particular issue. I would especially like to thank Luc Arrondel, Tony Atkinson, Christian Baudelot, Alain Bayet, François Bourguignon, Jacques Bournay, Adrien Friez, Jean-Michel Hourriez, Anne Lafferère, Sylvie Lagarde, Stefan Lollivier, Fabrice Loones, André Masson, Bernard Salanié, and Pierre Villa. I would also, and above all, like to thank all the employees of the Ministry of Finance who, throughout the twentieth century, tabulated and ranked declarations of income, wages, and bequests. Without them, no research of this kind would have been possible. I must also give heartfelt thanks to CNRS, CEPREMAP, and the MacArthur Foundation for their financial support.

Finally, my thanks to Nathalie, without whom I might never have set out to write history.

September 2001



# Introduction

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## Why Study Top Incomes?

### *1. The Substantive Reason: Top Incomes and the Dynamics of Inequality*

Although top incomes occupy a central place in political discourse and in perceptions of what is and isn't fair, very little is actually known about them. Above what level of income should one be regarded as having a "high" income, and what are the sources of income for the social groups in question? How have these realities—and these perceptions—changed in France over the course of the twentieth century? Has inequality between recipients of high incomes, on the one hand, and low and medium incomes on the other, tended to diminish or increase over the course of the twentieth century? What is the "natural" evolution of income inequality in a market economy? These are the basic questions that this book will try to answer.

#### 1.1. Top Incomes, from the "Middle Classes" to the "200 Families"

First, high incomes pose a problem of characterization: How do we define what a "high" income is, and what names should we give to the social groups in question? There is obviously nothing innocent about these questions of definition and terminology. "Middle classes," "upper-middle classes," "upper classes," the "200 families":<sup>1</sup> all of these concepts are used in public discourse to refer to social groups whose incomes are significantly higher than truly average incomes. But the concepts themselves have weighty implications for the question of redistribution, and those who invoke them in their rhetoric seldom venture to specify at what income level the definitive switch—from the realm of the "middle classes" (or "upper-middle classes") to that of "upper classes" or "200 families"—takes place.

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To illustrate how we will be examining the question of the structure of top incomes, and also in order for anyone to be able to immediately locate their own place within the income hierarchy of their time, we think it is useful at this point to lay out the orders of magnitude of high and very high incomes in France at the dawn of the twenty-first century. Generally speaking, the most neutral way to depict the income hierarchy, which we will be employing throughout this book, is to sort incomes into “deciles,” “percentiles,” tenths of a percentile, and so forth. We arrange incomes in increasing order, and then consider ten equally sized groups (“deciles”), made up of the bottom 10 percent of incomes, the next 10 percent (and so on), and finally the highest 10 percent. To refine the analysis, we may also consider 100 equally sized groups (“percentiles”) made up of the bottom 1 percent of incomes, the next 1 percent (and so on), and finally the highest 1 percent of incomes. We can extend the exercise by considering 1,000 equally sized groups (“permilles,” or tenths of a percentile) composed of the bottom 0.1 percent of incomes, the next 0.1 percent (and so on), and the highest 0.1 percent, and so forth. Table I-1 presents the results of this ranking procedure for French incomes in 1998, as declared to the tax authorities (before any deductions).

In 1998, there were more than 32 million tax units,<sup>2</sup> about half of which were nontaxable households, that is, households whose incomes were too low for them to owe income tax. The average income declared by these 32 million households was around 130,000 francs per year, or less than 11,000 per month. The median income, that is, the income below which half of households are located in the income hierarchy, was just over 100,000 francs per year, that is, barely more than 8,000 per month. The fact that the median income is about 20–30 percent lower than the average income is a classic phenomenon: the upper half of the income hierarchy is always far more spread out than the lower half, pulling the average (but not the median) upward. Indeed, the figures shown in Table I-1 highlight how rapidly incomes rise as we enter the top decile of the hierarchy. To be among the best-off 10 percent of households in late twentieth-century France (that is, roughly 3.2 million out of 32 million households), one needs “only” to report an annual income above 262,000 francs, which is less than 22,000 francs per month. To be among the best-off 5 percent of households, one must have more than 336,000 francs in annual income, which is around 28,000 per month. And to join the circle of the best-off 1 percent of households (that is, around 320,000 households out of 32 million), one must

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TABLE I-1  
*Top incomes in France in 1998*

Threshold	Income	Fractile	Income	Fractile	Income
P90	262,000	P90-100	420,000	P90-95	297,000
P95	336,000	P95-100	542,000	P95-99	428,000
P99	589,000	P99-100	996,000	P99-99.5	675,000
P99.5	765,000	P99.5-100	1,316,000	P99.5-99.9	1,010,000
P99.9	1,428,000	P99.9-100	2,542,000	P99.9-99.99	2,040,000
P99.99	3,998,000	P99.99-100	7,058,000	P99.99-100	7,058,000

*Sources:* Appendix B, Tables B-11, B-12, and B-13 (all incomes are in 1998 French francs and have been rounded to the nearest thousand).

*Explanation:* To belong to the 10 percent of households with the highest reported incomes in 1998, one had to report an annual income exceeding 262,000 francs (the P90 threshold); to belong to the top 5 percent, one had to declare an annual income exceeding 336,000 francs (the P95 threshold); to belong to the top 0.01 percent, one had to declare an annual income exceeding 3,998 million francs (the P99.99 threshold). The average income of the 10 percent of households with the highest declared incomes was 420,000 francs (the P90-100 fractile); the average income of the top 5 percent was 542,000 francs (the P95-100 fractile), etc.; the average income of the top 0.01 percent was 7,058,000 francs (the P99.99-100 fractile). The P90-95, P95-99, etc., refer to intermediate fractiles; thus the average income of households between the P90 and P95 thresholds was 297,000 francs (the P90-95 fractile); the average income of households between the P90 and P95 thresholds was 428,000 francs (the P95-99 fractile), etc.

*Note:* As will be the case throughout this book, it goes without saying that the various fractiles referred to here are defined in relation to all households (those that are subject to income tax as well as those that are not). The best-off 10 percent of households are the best-off 10 percent of all households—that is, roughly 3.2 million households out of a total of around 32 million households (in 1998).

exceed 589,000 francs in annual income, which is around 49,000 per month. Within the top percentile of the income hierarchy, this progression accelerates further: one needs more than 765,000 francs in annual income (around 64,000 per month) to be among the best-off 0.5 percent of households, 1.4 million in annual income (around 120,000 francs per month) to belong to the most affluent 0.1 percent of households, and 4 million in annual income to break into the very small circle of the most affluent 0.01 percent of households (which is around 3,200 households out of 32 million).

We can see, then, that the top decile of the income hierarchy, which will be our focus in this book, is truly a world unto itself: it includes both households with incomes that are barely more than twice the average annual income of the entire population, and households whose resources are several dozens of times greater. This probably explains why, frequently, not all “top” incomes are seen as

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such. At the dawn of the twenty-first century, the bottom half of the top decile—that is, the households of the P90–95 fractile—is made up of households whose incomes range from 22,000 to 28,000 francs per month, and whose average income is roughly 300,000 francs per year, which is 25,000 francs per month. The next 4 percent, that is, the households of the P95–99 fractile, have incomes that range from 28,000 to 49,000 francs per month, and their average income is 428,000 francs per year, which is just over 35,000 per month. The people in question, and society as a whole (or at least an important part of it), perceive precisely these income levels as “middle class” (or perhaps “upper-middle class” for the incomes of the P95–99 fractile).

We were provided with an especially characteristic example of this sort of usage of the concept of “middle class” during the recent debate about child benefits. In June 1997, having just been named prime minister, Lionel Jospin announced his intention to deny child benefits to households with incomes above 25,000 per month, a measure that, according to figures quickly released by the government, would affect “less than 10% of families.”<sup>3</sup> The announcement immediately provoked fierce reactions. François Bayrou, leader of the centrist UDF Party (Union for French Democracy Party), and Robert Hue, general secretary of the Communist Party, along with a very large number of figures of every political stripe, chimed in to denounce a reform that would “come at the expense of average families.”<sup>4</sup> Faced with this pressure from both its right and left, the Jospin government ultimately decided to backpedal: on the one hand, family allocations would continue to be granted to all households whatever their income level; on the other hand, starting with the 1998 fiscal year, tax advantages arising from the “family-quotient” system of dependents allowances would be reduced for the highest incomes, so that families with monthly incomes exceeding thresholds of around 35,000–40,000 francs (depending on the number of children)—less than 3 percent of families—would see their income tax rise slightly, by an amount that was generally less than what a cap on child benefits would have cost them. Yet the affair was not over. In the fall of 1999—that is, as taxpayers were receiving their first tax assessment notices incorporating this increase—the press was still almost unanimously stigmatizing the way the Jospin government was mistreating the “slightly upper-middle classes,”<sup>5</sup> and many eminent members of the government majority were already promising a “gesture for the middle classes” in the coming years, in the form of an income tax cut.

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It is interesting to note that, during the debates and controversies elicited by this family-benefits affair, the question was never about whether it was actually true that less than 10 percent of households had incomes above 25,000 francs per month (a figure no one sought to contest);<sup>6</sup> rather, it was about whether describing the world in this way was causing us to fall victim to a kind of “statistical illusion,” with no relationship to “sociological” reality. In other words, even if households with 25,000 francs of monthly income statistically belong to the highest 10 percent of incomes, they are nevertheless “sociologically” very close to the average, and it would thus be unfair to treat them like fat cats by asking them to make extra sacrifices. This is obviously not the place to take a position on the substance of the controversy, but rather the intention is to try to understand these perceptions and how they have evolved. In a certain sense, the “middle classes” with 25,000–30,000 of monthly income really are the classes that have “succeeded a little more than average” (which still leaves them with a purchasing power five times greater than that of the minimum-wage worker earning 5,000–6,000 francs per month, and ten times greater than that of the welfare recipient). The gap between “middle-class” incomes and genuinely average incomes can often be found within a single family, between brothers and sisters, between cousins, or even, often, over the course of a single person’s life, depending on circumstances that are perceived as being more or less contingent, such as whether there is only one working income or two within the same household. As the opponents of means-testing family benefits forcefully put it, “25,000 francs per month, that’s two average salaries, for example two teachers’ salaries.”

This sense of “the middle class’s proximity to the middle” is reinforced objectively if we look at the composition of different people’s incomes (see Table I-1).

Indeed, we observe that the “middle class” of the lower half of the top decile (P90–95 fractile) collects nearly 90 percent of its income in the form of “labor income” (wages, retirement pensions, other social benefits), roughly the same as the share for the bottom 90 percent of households. In this sense, the middle classes are indeed “in the middle,” and this radically distinguishes them from the upper strata of the top decile, for whom wage and pension shares of income steadily decline as so-called mixed income, and especially capital income, becomes predominant. Mixed income is so named because it compensates self-employed workers for both the labor the workers provide and the capital they



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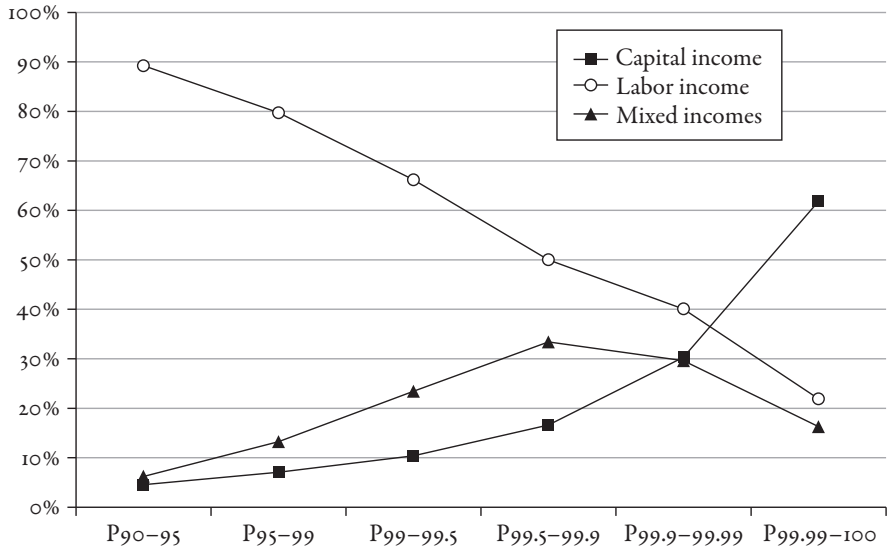


FIGURE I-1. The composition of top incomes in 1998: from the “middle classes” (P90-95 fractile) to the “200 families” (P99.99-100 fractile)

Source: Table B-16 (Appendix B)

invest. Therefore, following standard practice, we have included within this category “farm profits” (*bénéfices agricoles*, or BA) collected by farmers; “industrial and commercial profits” (*bénéfices industriels ou commerciaux*, or BIC) collected by shopkeepers, artisans, and other heads of “industrial or commercial” firms who do not have a wage-earning status; and “noncommercial profits” (*bénéfices non commerciaux*, or BNC) collected by doctors, lawyers, notaries, artists, and so on. We may note that these incomes do in fact occupy an intermediate position in the income hierarchy, between labor income and capital income: while the weight of labor income steadily declines and that of capital income steadily increases as we move up through the income hierarchy, mixed incomes reach their maximum level of importance at the middle of the top percentile (at the level of the P99.5-99.9 fractile), before declining further up (see Figure I-1). In other words, while there are many affluent doctors and lawyers among those with incomes around 1 million francs per year (though they are still slightly less numerous than executives, as shown in Figure I-1), it is much rarer to attain an income of several million francs per year without receiving significant capital

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income. For the 0.01 percent of households reporting the highest incomes (P99.99–100), around 3,200 households out of 32 million, whose average annual incomes reach more than 7 million francs (see Figure I-1), the share of wage and pension income falls to around 20 percent, as does the share of mixed income, whereas the capital-income share exceeds 60 percent (see Figure I-1). The share of rental income (rents collected by owners of houses, buildings, land, and other real-estate assets) rises only very slowly with the level of income,<sup>7</sup> and the explosion in the capital-income share among very high incomes is mainly due to investment income (dividends received by stockholders, interest received by bondholders, and other incomes paid out to the owners of investment assets). Households in the P99.99–100 fractile thus collect (on average) more than 4 million francs per year, per household, in investment income! It must be stressed that this concerns only income declared for income-tax purposes and excludes a significant volume of legally exonerated financial income, especially capital gains, which, as we will see, significantly increases the real weight of capital income, as well as the levels of very high incomes. Figure I-1 thus confirms that the “200 families,” defined as a very small fraction of the population living on incomes derived from considerably sized fortunes, do indeed exist.<sup>8</sup> Thus, the “middle classes” are above all defined by the fact that they live mainly from their labor, like the overwhelming majority of the population, in contrast to the “200 families” and the owners of large fortunes.

Nevertheless, dividing society in this way, into an overwhelming majority of the “working and middle classes living from their labor” on the one hand, and a minuscule fraction of the population living off their property income, on the other hand, is hardly satisfactory. This “proximity of the middle class to the average” still doesn’t resolve the central question: How far up do the “middle classes” extend? Some would not hesitate to describe as “middle class,” or perhaps “upper-middle class,” households made up of very high-level executives with monthly incomes of 50,000 or 60,000 francs, or even more, even though this would put them comfortably within the top 1 percent of incomes. In practice, obviously, there is no discontinuity, no clear and distinct break between the “middle classes,” the “upper classes” and the “200 families.” At each income level ranging from 25,000 per month to several million francs per year, there are a certain number of households whose numerical importance and social characteristics gradually and continuously change (see Table I-1 and Figure I-1). In particular, it would be totally fanciful to try to establish an airtight border

between workers, on the one hand (whatever their wage level), and wealth-holders on the other. Executives often collect a growing part of their total income in the form of capital income (either by virtue of their own saving or through participation in the profits paid out by their employer) as they rise to the highest levels. But large wealth-holders often receive wages by virtue of their employment as chief executives of large companies, so the most affluent 0.01 percent of households in 1998 did, after all, collect more than 20 percent of their 7 million francs of annual income in the form of wages, which is more than 1.4 million in annual wages on average! All of these borders are thus extremely porous, and a dichotomy between the “working and middle class” and the “200 families” does not help us to think through this gradual shift among the various strata of the top decile of the income hierarchy.

One of the main objectives of this book is precisely to study the structure of these shifts and frontiers between high incomes and very high incomes, and above all to study how these frontiers have been transformed in France over the course of the twentieth century. Based on a meticulous analysis of tax sources that have until now gone largely unused in France (income tax returns, wage declarations, and bequest declarations), we will analyze the evolution of the structure of the top decile of the income hierarchy, from the early years of the twentieth century to the late 1990s. Were income disparities between the “middle classes” and the “upper classes” or “200 families” at their widest in the early years of the century, in the interwar period, in the 1950s and 1960s, or at the end of the century? Have there been profound changes since the early twentieth century in the composition of income received by the various strata within the top income group, and has there always been a distinction between “middle classes” who live off their wages and the “200 families” who live off their capital incomes? How has the economic and sociological divide between the “middle classes,” the “upper-middle classes,” the “upper classes,” and the “200 families” evolved over the course of the twentieth century?

## 1.2. Top Incomes and the Kuznets Curve

A long-term study of the incomes of the top 10 percent of households, the top 1 percent of households, the top 0.1 percent, and so forth, allows us not only to study the internal structure of top incomes, but it also offers a unique vantage point for analyzing the overall evolution of income inequality in the twentieth

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century, a question that has been studied very little in France. We will compare the evolution of incomes within the various fractiles of the top decile with the evolution of average incomes for the entire population, and we will try to understand which economic factors can explain why the top-income share of total income evolved in the observed way. We will see that making relatively fine-grained distinctions among the different worlds that cohabit within the top decile of the income hierarchy greatly facilitates the analysis. Indeed, the processes that might explain why the top-income share of total income has followed this or that path vary enormously depending on which specific hierarchical level of top incomes is being considered. While the relative position of the “middle classes” (P90–95 fractile) vis-à-vis the average income depends mainly on the narrowing or widening of the wage distribution, the position of the “200 families” (P99.99–100 fractile) depends chiefly on disturbances to capital incomes and the profits of the firms from which they originate. Thus, by separately examining the paths followed by the various top-income fractiles’ shares of total income, as well as concomitant shifts in the composition of the incomes received by these various fractiles, we will be able to precisely identify the economic and political factors in play. Obviously, the central question we will attempt to answer concerns the “spontaneous” nature of the evolution of inequality: To what extent is the evolution we see the “natural” consequence of the process of economic development, and to what extent has it been affected by external shocks and political interventions?

In particular, we will see how far the “Kuznets curve,” named for the American economist Simon Kuznets, who proposed the theory in 1955, allows us to account for the French experience. Analyzing statistics compiled from American income tax returns for the years 1913–1948, Kuznets arrived at the observation that the top-income share in total income had declined significantly between the early 1910s and the late 1940s, and it was on the basis of that observation that he formulated the idea of the Kuznets curve. According to this theory, income inequality is destined everywhere to follow an “inverted U-curve” over the course of the industrialization and economic-development process: that is, after a phase of rising inequality characterizing the initial stages of industrialization, which for the United States corresponded to the nineteenth century, there would come a phase of sharp reductions in inequality, which in the United States began in the early twentieth century. Kuznets’s work had a considerable impact: it was the first large-scale historical work attempting to

rigorously measure the evolution of income inequality, and in the context of the Cold War the political stakes of these discoveries were clear. Kuznets's theory has been strongly challenged since the 1950s, especially because of the secular rise in income inequality observed in the United States since the 1970s. But that shift in the 1980s and 1990s still does not settle the question of the decline in inequality observed over the first half of the twentieth century, and the Kuznets curve remains an inescapable point of reference in historical work on inequality.

Unfortunately, although the issue of income inequality sparked important historical studies in the United States (in the tradition of Kuznets's work) and the United Kingdom, as well as, to a lesser extent, most countries in Continental Europe (with the notable exception of the southern European countries), works of this kind are extremely rare in France.<sup>9</sup> Generally speaking, very few estimates of the French income distribution exist. Every five to six years since 1956, INSEE (National Institute of Statistics and Economic Studies) has carried out studies known as *Revenus fiscaux* (fiscal income), based on samples of income tax returns transmitted to INSEE by the tax administration, which INSEE supplements by adding a certain number of nontaxable incomes that do not appear in income tax returns (child benefits, social assistance payments, etc.) to the various households' incomes. Unfortunately, these studies, which examine incomes in the years 1956, 1962, 1965, 1970, 1975, 1979, 1984, 1990, and 1996, do not allow us to measure top incomes specifically. Besides the fact that they deal only with a few isolated years, which poses a problem because of the sharp, short-term fluctuations experienced by high incomes, the *Revenus fiscaux* studies are based on samples of insufficient size, so that the income level estimates for the different top-income fractiles suffer from significant sampling error.<sup>10</sup>

Available estimates for periods prior to 1956 are even more limited. In particular, Statistique Générale de France (SGF), which in theory served the same function as INSEE before the latter's creation in 1946, never carried out any studies comparable to the *Revenus fiscaux* studies—the first national study of incomes in France dates to 1956. Alfred Sauvy, in his *Histoire économique de la France entre les deux guerres*, published a table presenting an income distribution for the year 1929. But Sauvy was not specific about the sources and methods he used, and his estimates were far from consistent with statistics from tax-

return samples from the period (in particular, Sauvy underestimated the number of very high incomes by a factor of around three to four).<sup>11</sup> Paul Doumer and Joseph Caillaux, finance ministers in the late nineteenth and early twentieth centuries, accompanied their 1896 and 1907 plans for the creation of an income tax with income distribution estimates formulated by their finance ministry staffs. These estimates, which were revised and adjusted by Clément Colson, a well-known economist of the period, were far more specific about their sources and methods than Sauvy's were, but there is every reason to think that they, too, significantly underestimated the weight of very high incomes.<sup>12</sup> We may also mention the estimates carried out independently by Jankeliowitch (1949) and Brochier (1950) based on tax-return statistics from 1938 and 1946, although they, too, suffer from serious imperfections.<sup>13</sup> We should also mention an estimate recently carried out by Christian Morrison and Wayne Snyder for the French income distribution prevailing in 1780, based on statistics derived from the *capitation*.<sup>14</sup>

For the twentieth century, therefore, we ultimately have the estimates that INSEE has carried out periodically since 1956, the Sauvy estimates for 1929, Doumer-Caillaux-Colson for 1900–1910, and Jankeliowitch-Brochier for 1938 and 1946. These estimates are certainly not consistent, and none of them are truly satisfactory with respect to top incomes. Such disparate estimates clearly do not allow us to study the evolution of twentieth-century French income inequality in a satisfactory way.

This book therefore attempts to fill the void. Systematic analysis of the tax sources mentioned earlier (income tax returns, wage declarations, and inheritance declarations) will make it possible to situate France in relation to the Kuznets curve, leading us to challenge conclusions advanced by a number of authors, especially Anglo-Saxon authors. Are there strong French particularities in comparison with developments observed in the other European countries and the United States, and if so, why? Which years have seen significant declines in French inequality? Did they affect the “middle classes” or very high incomes more, and what has been the situation in other countries? What were the roles played, respectively, by the evolution of property income, the evolution of wage income, and by redistributions carried out by governments? Can the idea of a “natural tendency” toward less income inequality account for the French experience, and has this thesis really been demonstrated in other countries?

## 2. *A Practical Reason: The Sources Available*

Top incomes are an object of intrinsic interest, but there is a more practical reason to study them. In France, as in all other countries, top incomes are actually the least poorly understood incomes over the long run because they are the only ones that have been regularly declared to the public authorities, in the context of the income tax, and they have been since almost the beginning of the twentieth century. Other available sources for studying the evolution of inequality in twentieth-century France can usefully complement the information supplied by income tax returns, but none of those provide information as rich and systematic as this central source.

### 2.1. The Central Source: Income Tax Returns (1915–1998)

#### 2.1.1. General Description of the Source

The income tax in France was established by the law of July 15, 1914, and the system was finalized by the law of July 31, 1917. In reality, it was a composite tax, since it included both a set of so-called schedular taxes, levied separately on each category (or “schedule”) of income (wages, profits from self-employment activities, investment incomes, etc.), and a “general income tax,” known as the IGR (*impôt général sur le revenu*), which was a progressive tax on the overall income of each taxpayer, that is, on the sum of all the incomes from the different categories. This progressive tax on total income is obviously the more interesting one from our point of view because it was in that framework that all taxpayers subject to the tax were required each year, generally in March, to declare all of their incomes from the previous year. The IGR went into effect for the first time in 1916, and the first taxpayers submitted their 1915 income tax returns in March 1916. The name of the IGR has been changed several times since then (IGR for the 1915–1947 tax years; the “progressive surtax” of the “tax on incomes of natural persons,” or IRPP, for the 1948–1958 tax years; then simply IRPP since the 1959 tax year),<sup>15</sup> but the principle of a progressive tax on total income, based on taxpayers’ declarations of the totality of their incomes from the preceding year, has remained in effect, and without interruption, since the levy on 1915 incomes.

The continuity in the practices of France’s tax administration is even more remarkable than that of its legislation. Each year since the 1915 tax year, even



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during the Second World War, the tax administration has tabulated all submitted tax returns and compiled a number of statistical tables on the basis of these tabulations. The tables, which exist without exception for the 1915–1998 income-years, are public documents. They were mostly published in the various statistical bulletins that the Finance Ministry has disseminated over the years, and while they have not been published anywhere since the early 1980s, any interested person can still obtain them by contacting the relevant agency. The most interesting table, which has existed without interruption since the 1915 income-year, shows the number of taxpayers and the total amount of income declared within each of a certain number of taxable-income brackets: taxpayers with taxable incomes between 500,000 and 1 million francs, taxpayers with incomes above 1 million francs, and so on. The second table, which was compiled by the tax administration only for the 1917, 1920, 1932, 1934, 1936, 1937, 1945, and 1946 income-years, and then for all years from 1948 onward, also shows, for each taxable-income bracket, the income amounts within the different categories of income (not just the total amount of income).

Because of inflation and overall income growth, the numbers reproduced in these tables are obviously not usable in raw form. A relatively long and laborious statistical treatment is needed to transform the raw figures produced by the tax administration into consistent and economically intelligible series. Through statistical analysis of these raw materials, we have been able to estimate for each year of the 1915–1998 period the income levels of the various fractiles that make up the top decile of the income hierarchy in France, as well as their composition for all years for which the second table is available.

Once these estimates are complete, the great richness of this source becomes clear. In particular, homage must be paid to the tax administration for having used extremely high income brackets over many years in tabulating the tax returns. For example, for each year of the interwar period, we know the number and the total amount of income for taxpayers with taxable incomes above 1 million of that era's francs—a maximum of 700–800 taxpayers per year.<sup>16</sup> These very high income brackets have allowed us to carry out very precise estimates of income levels not only for the top decile (P90–100), the top half-decile (P95–100), and the top percentile (P99–100), but also for the top half-percentile (P99.5–100), the top 0.1 percent of incomes (the “top tenth of a percent” (P99.9–100), and the top 0.01 percent of incomes (the “top hundredth of a percent” (P99.99–100)). In this way, we can follow which top-income



fractiles have seen their shares of total income rise or fall year by year, over the entire 1915–1998 period, and thus identify the economic and political factors at play. These estimates allow us to study in a relatively fine-grained way both the large-scale, long-term transformations of income inequality and the “details” of short- and medium-term changes; these details, as we will see, are often intimately related to the many great turning points in twentieth-century French economic and political history, especially in the interwar era.

We invite readers interested in the technical aspects of these estimates to refer to the technical appendixes found at the end of the book, where we thoroughly describe all of the raw tables from which we have drawn, the estimation procedures used and the results obtained, as well as references to the Finance Ministry bulletins where all of the raw statistics were published (these appendixes should contain all of the information and intermediate calculations necessary to replicate our calculations, from the raw figures published by the tax administration down to our final estimates).<sup>17</sup>

### 2.1.2. Why Have These Sources Never Been Used in France?

As we have already noted, these tax statistics have never before been systematically used in France. The only two attempts we have been able to find are the works of Jankeliowitch (1949) and Brochier (1950), who both used the income statistics from 1938 and 1946.<sup>18</sup> The authors of tax law and public finance treatises in the interwar and immediate postwar periods also mentioned these statistics, but they were content merely to reproduce the raw tables compiled by the tax administration, making no attempt to homogenize raw figures from different years. Instead, their objective was to provide their readers with orders of magnitude for incomes declared under the income tax, not to estimate the income distribution.<sup>19</sup> From the 1950s onward, the annual statistics compiled by the tax administration were no longer even mentioned, with authors usually limiting themselves to citing the results of the *Revenus fiscaux* studies carried out periodically by INSEE since 1956.<sup>20</sup> Generally speaking, these studies quickly became practically the only source that statisticians and economists used to measure income inequality in France, and in a sense they cannibalized the annual statistics compiled by the tax administration.<sup>21</sup>

It is possible that this underuse of the statistics compiled by the tax administration might be explained (at least in part) by the very high degree of pessimism in France vis-à-vis tax fraud. In France, it is often believed that tax fraud

## INTRODUCTION

reaches epic proportions, and this is sometimes seen as stemming from a characteristic of French “culture,” thus linking us to the Latin cultures of southern Europe, as opposed to those of the Anglo-Saxon, Germanic, and Scandinavian countries, where fraud is supposedly far less widespread. And if everyone is engaged in appalling levels of fraud (with the sole exception of the person issuing the judgment), then what’s the point of studying tax and income-distribution statistics? But as we will see, the few serious quantitative studies on this question suggest that tax fraud in France at the level of tax returns is not significantly greater than in a country like the United States, so it is hard to understand how the existence of fraudulent practices could explain why tax statistics remain especially underused in France.

Obviously that does not mean that the figures listed in income tax returns must be taken as gospel. The problems of tax fraud and, to an even greater extent, of income legally exempted from the income tax, are quite real, in France as well as every other country, and tax sources must always be used with a great deal of caution. Just as we must avoid the trap of rejecting any use of tax statistics on the grounds that the evolution of declared incomes provides no valid information on the evolution of real incomes, we must also avoid falling into the opposite trap. In Part Three of this book (Chapter 6), we will revisit in detail the ways in which undeclared income (for legal or extralegal reasons) is liable to bias our estimates and conclusions, with respect to both the level and the evolution of very high incomes over the course of the twentieth century. For the moment, we will simply note that the argument based on tax fraud (or on income legally exempt from income tax) is in itself wholly insufficient to dismiss changes in inequality observed at the level of declared incomes. That is, if the rate of tax fraud is always more or less the same, or if it changes in equal proportions for the different fractiles of the income hierarchy, then the evolution of inequality of real income will be the same as that of declared income. If we were to dismiss the observed evolutions, then we must explain why the extent of fraud changed significantly over time, in the opposite direction from declared income, and only for some income groups and not for others. As it happens, we will see that trends in the probable extent of tax fraud tend to confirm and amplify the observed movements in inequality of declared income. Besides, even if the possibilities for manipulating declared income were so large and so unpredictable that no reliable conclusions could be drawn from the trends in these incomes (we will endeavor to show the opposite), we think there would still be a certain

interest in examining these trends. Declared incomes represent “public” incomes, that is, the incomes that people can manifest publicly. Indeed, since the early 1920s, the tax administration has been able to reassess declared income based on “aspects of standard of living” or “outward signs of wealth,” which at a minimum means that the gap between real income and declared income cannot exceed certain limits. Declared incomes are also “public” incomes in the sense that they form the basis on which the tax contributions from top incomes have been calculated throughout the century, and the history of these contributions and the corresponding degree of redistribution strikes us as an interesting question in itself.

Tax sources have other limits. In particular, only those subject to tax have been included in the statistical tables compiled by the tax administration since the creation of the income tax. In France, the share of households subject to tax fluctuated at around 10–15 percent in the interwar period, and it was only in the 1960s and 1970s that the share reached a level around 50–60 percent. Thus, the tax statistics do not allow us to estimate incomes below the 90th percentile for the entire period under study, which is why we have limited ourselves to estimating the income of the top decile (the P90–100 fractile) and beyond (P95–100, P99–100, etc., up to the P99.99–100 fractile), and we have done this for the entire 1919–1998 period (for 1915–1918, the small share of taxable households required us to limit ourselves to the incomes of the top percentile and beyond). This is a very important limitation: for example, tax sources do not let us see the evolution of inequality between low incomes and mid-level incomes. But this problem arises in all countries. In particular, the taxable share of households was also around 10 percent in the United States, and in most countries in the interwar period. That is why historical studies of inequality, starting with those undertaken by Kuznets, have most often been limited to the top decile of the income hierarchy. So this is not a limitation specific to France.

Finally, let us note that the French underuse of tax sources is perhaps partly because France, more than other countries, has developed other tools for observing inequality, especially the socioprofessional categories (*catégories socioprofessionnelles*, or CSPs).<sup>22</sup> Indeed, the “vertical” CSP classifications developed in France at the end of the Second World War—as opposed to the more “horizontal” classifications based mainly on industrial sectors, rather than position in the social hierarchy, in the manner of France’s pre-World War II censuses—are among the most sophisticated in the world, and the CSPs

quickly gained paramount importance in representing inequality and the different social positions. For example, the notion of *cadre* (salaried white-collar managers and professionals) is a specifically French notion. It is quite possible that the development and use of the CSP classifications helped to limit interest in tax statistics, and, more generally, in the study of income inequality in terms of fractiles rather than in terms of socioprofessional groups. For example, Bégué (1987, 242–243) explains that one of the main motivations behind the first of INSEE’s *Revenus fiscaux* studies in 1956 was the fact that the annual statistical tables compiled by the tax administration on the basis of income tax returns did not “offer results by socioprofessional category.”<sup>23</sup> Bégué explains very clearly that the objective at the time was to make it possible “to shed light on problems arising from social conflicts and negotiations between different groups.” In other words, in the eyes of all, the CSPs provided a more appropriate framework for understanding social inequality than did income fractiles: social conflicts, as they appeared to society, were clashes between socioprofessional groups, not between fractiles. From this perspective, Marchal and Lacaillon’s treatise on *La répartition du revenu national* (The Distribution of National Income), which served as a reference handbook for generations of students, seems to make for particularly instructive reading. In four volumes published between 1958 and 1970, a total of 1,800 pages, the treatise does not contain a single reference (even *pro forma*) to income (or wage) distributions expressed in terms of fractiles: the question of “distribution” is viewed solely through the prism of socioprofessional groups.<sup>24</sup> The problem is that the CSPs do not permit satisfactory study of the long-term evolution of inequality. In addition to the fact that they have existed only since the 1950s, the main problem posed by the CSPs is that the numerical size of the different categories constantly changes, so that comparisons between the average incomes (or average wages) received by the different CSPs cannot yield reliable conclusions regarding the true evolution of inequality: only comparisons between the average incomes (or average wages) of groups representing a constant fraction of the total population under study (that is, fractiles) permit such conclusions. Indeed, as we will see, comparisons between CSPs have often led to important errors in estimates of the evolution of inequality in France.<sup>25</sup> Another limitation of CSPs is that they do not allow us to “see” very high incomes, since those incomes are buried within much vaster categories. In a sense, then, CSPs offer a “pacified” vision of inequality.<sup>26</sup>

We will conclude by observing that France's distinctiveness with respect to the underuse of tax statistics should not be exaggerated. While it is true that statistics derived from income tax returns have been especially little-used in France, it is also true that the use of these statistics in other countries, including the United States and the United Kingdom, has hardly been as thorough as it could be, as we will see when we compare our results for France with available estimates for other countries. In all countries, not only France, transforming raw tax sources into consistent and intelligible series would seem to be a painstaking and relatively unattractive job. The statistical techniques that allow the income-distribution curve to be estimated from tax statistics divided into brackets have not changed since Pareto's discovery of "Pareto's law" in 1896. Kuznets later applied these techniques in all of his historical studies of inequality, and we will be applying them in this book. Although they are not very sophisticated, these statistical techniques nevertheless require a certain technical investment. In a sense, the long-term use of tax sources represents a sort of academic "no man's land": it is too economic for historians and too historical for economists, thus attracting few scholars. We will show that the tax sources used here are, nevertheless, richly informative, for both historians and economists.

## 2.2. Other Sources Used in This Book

### 2.2.1. Sources on Income-Tax Legislation (1914–1998)

In order for us to properly interpret and use the statistics based on income tax returns, it was essential to obtain a solid understanding of the evolution of income tax legislation since the foundational law of July 15, 1914. For example, the deductions that taxpayers are permitted to subtract from their incomes have changed a great deal over the twentieth century. Thus in order to create rigorously consistent series on the income levels of the various top-income fractions (before any deductions), we had to take into account all of these legislative changes and apply some adjustments to estimates derived from the raw tax statistics (which are always expressed in terms of taxable income, that is, after taking deductions into account).<sup>27</sup>

Moreover, in addition to being of interest in this purely technical way, income tax legislation is also an extremely valuable source for studying how income inequality was perceived in twentieth-century France. For example, to

study how the notion of “top” incomes has evolved in France over the course of the century, we have taken into account all of the tax-rate schedules in force since 1914 and carried out year-by-year estimates of the average tax rates that successive governments have seen fit to impose on the various top-income fractiles. As we will see, the specific ways in which different income categories (wages, profits from self-employment, financial income, etc.) have been taxed are also quite revealing about the major shifts in perceptions and images of inequality over the course of the twentieth century.

Finally, a detailed examination of the evolution of income-tax legislation was all the more necessary because, in our view, the development of progressive taxation represents one of the main explanatory factors that allow us to understand the long-term evolution of income and wealth concentration documented by our estimates. To assess the plausibility of the proposed explanation, it was, again, necessary to examine when, and for which income fractiles, average tax rates reached substantial levels in twentieth-century France.

For all these reasons, we have assembled in this book the most complete information possible on the evolution of income tax legislation since the law of July 15, 1914. Because the secondary literature devoted to these issues is extremely limited, we have in most cases had to go back to the texts of the laws published in the *Journal Officiel (JO)*, France’s official government publication.<sup>28</sup> We must keep in mind that historians, generally speaking, have shown little interest in the income tax. There are a few works devoted to the parliamentary process that led up to the July 15, 1914, law,<sup>29</sup> but the evolution of progressive taxation since the institution of that foundational reform has almost never been studied as such.<sup>30</sup> As for political history textbooks and narratives of parliamentary history, they generally refer only superficially to the evolution of the income tax, and they have been useful to us mainly in locating the political contexts in which the various tax laws were adopted.<sup>31</sup> To better understand how these laws were perceived by the political actors, we have also referred to parliamentary debates, as well as to the election programs published by the political parties.<sup>32</sup>

With respect to the legislation itself, we have also used textbooks in tax law written by jurists from various periods. These texts generally limit themselves to outlining the legislation of their era, but we have also found them very useful for understanding certain points of jurisprudence that the laws themselves do not elucidate.<sup>33</sup> In addition, we have made use of the legislative notices published

by the Finance Ministry along with the statistical tables derived from the tax-return tabulations, although these notices are often relatively incomplete and unfortunately have not been compiled for the entire period under consideration.<sup>34</sup> In fact, besides the texts of laws published in the *JO*, the most useful and systematic source on legislation comes from the statistical tables themselves: for each income bracket, the tables compiled by the tax administration show not only the number of taxpayers and the total amount of income, but also the total amount of tax owed by the taxpayers in question. By recalculating the hypothetical tax on the basis of our legislative information and comparing it with the actual taxes appearing in the tables, we have thus been able to verify year by year that our legislative parameters correspond closely to those actually enforced.<sup>35</sup> Finally, we should mention the *Guides pratiques du contribuable* (Practical Guides for the Taxpayer), published almost every year since 1932 by the SNUI (the trade union of French tax administration employees) and its forerunners, which we have also used.<sup>36</sup>

### 2.2.2. National Accounts (1900–1998)

As we have already noted, the use of statistics derived from income tax returns makes it possible to estimate the twentieth-century evolution of income levels for the best-off 10 percent of households, the best-off 1 percent, the best-off 0.1 percent, and so forth. In order to situate these top incomes within the context of the society of their times, and in particular to calculate the evolution of the top-income share of total income, it was essential to understand the evolution of total income for the overall population as well as average income per household for all households (both taxpayers and nontaxpayers). For this, we referred to the macroeconomic series from the national accounts (whose purpose is to account precisely for the economic activity of the whole country), which thus provide us with estimates of the overall mass of income at the national level: total wages paid to workers, total profits of self-employed workers, total dividends paid to shareholders, and so on. The method of estimating top-income levels from income tax returns and estimating average income levels from the national accounts is not new (it has been used in all historical studies on inequality, including those of Kuznets), but it requires a great deal of caution. The concepts of wages, profits, and so forth, used in the national accounts are not actually the same as those used by the tax authorities, so we have had to make certain adjustments to the macroeconomic national-accounting series in



order to compile a series for average income that is as consistent as possible with the top-income series derived from tax returns. In addition, the national accounts will allow us to identify the macroeconomic context within which the income inequality depicted by our estimates evolved, thus helping to interpret and evaluate the plausibility of that evolution.

Finally, since the official national accounts began only in 1949, for years prior to 1949 we have made use of macroeconomic series compiled by a number of scholars working independently. In particular, we have used the series compiled in the interwar era by Dugé de Bernonville, as well as the retrospective series recently compiled by Pierre Villa. All of the sources used, the adjustments made, and the results obtained, are described in detail in a technical appendix at the end of the book.<sup>37</sup>

### 2.2.3. Wage Declarations (1919–1998)

To round out the findings from our income inequality estimates, it was necessary to study the evolution of wage inequality, and the results we obtained from incomes allowed us to formulate a certain number of hypotheses—which, of course, could be confirmed or disconfirmed only by studying wage inequality as such. To do so, we used the most reliable and most systematic source on wages that we have, that is, employer wage declarations. The creation of the general income tax and the schedular tax on wages in 1914–1917 led the authorities to require employers to submit an annual declaration stating the amount of wages paid to each of their workers over the previous year, and this annual requirement has been in effect ever since. Using this source allowed us to create the same type of estimates for wage inequality as for income inequality. Thus we have estimated the evolution of the shares of total wages going to the highest-paid 10 percent of workers, the highest-paid 5 percent, the highest-paid 1 percent, and so forth. Because the tax authorities only began analyzing wage declarations and compiling corresponding statistical tables starting from the 1919 wage-year, our estimates begin in 1919, and we will make use of occupational and sectoral data (wages of blue-collar workers, wages of civil servants, etc.) to study years prior to 1919.

The employer wage declarations have apparently never been used for the entire period considered here. They have been used by INSEE as a source for statistical analyses carried out almost every year since 1947–1950, and in 1979 those analyses gave rise to the publication of an important retrospective study



of wage inequality in France since 1950 by Christian Baudelot and Anne Lebaupin. This work was recently expanded and carried forward to the 1990s.<sup>38</sup> However, because those works provide no estimates of the share of total wages going to the top-wage fractiles, we have reanalyzed all of the raw statistical material that INSEE has compiled from wage declarations since 1947–1950 to obtain such estimates for the 1947–1998 period. In addition, and most importantly, the interwar wage declarations, which were tabulated by the tax administration, apparently have never been used to study wage inequality: all studies carried out since the Second World War begin with 1947–1950, and the very existence of an equivalent source allowing pre-1947 wage inequality to be studied has mostly likely been forgotten.<sup>39</sup> As we will see, the study of the evolution of wage inequality over the entire twentieth century (especially the position of top wages) reveals important features of France’s interwar and early twentieth-century social structure and provides a better understanding of the long-term dynamics of income inequality. The raw statistical materials we have analyzed, the methodology we have used to obtain these estimates, and all of the series thus obtained are described in detail in a technical appendix at the end of the book.<sup>40</sup>

#### 2.2.4. Bequest Declarations (1902–1994)

Finally, given the central role played by wealth inequality in the structural changes in French income inequality in the twentieth century, we thought it essential to supplement the findings derived from our estimates of income and wage inequality with an examination of the evolution of wealth inequality. To do so, we have used the statistical tables that the tax administration has compiled since 1902 from tabulations of bequest declarations. These inheritance statistics have allowed us to estimate the evolution of the size of bequests left by the richest 10 percent of deceased, the richest 1 percent of deceased, the richest 0.1 percent, and so on, over the course of the twentieth century. We will thus be able to examine whether developments observed at the level of incomes are consistent with developments observed at the level of wealth.

Here again, this source has never been used for the entire period under study. Inheritance-declaration samples created by the tax administration in the 1980s and 1990s have given rise to important studies,<sup>41</sup> but no one appears to have tried to analyze the long-term inheritance statistics that are available.<sup>42</sup> The result, as with income inequality, is that no historical study of the evolution of wealth inequality in twentieth-century France exists (whereas in the

Anglo-Saxon countries, such studies, based on the same type of bequest statistics, do indeed exist).<sup>43</sup> The raw inheritance statistics we have used, the methodology we have applied, as well as all of the series obtained, are described in detail in the technical appendix at the end of the book.<sup>44</sup>

### 3. *Plan of the Book*

The three parts of this book are organized in the following way: Part One presents the overall evolution of income and wage inequality in France in the twentieth century. Chapter 1 begins by reviewing the major stages in the growth of average purchasing power in France over the twentieth century; this chapter presents no genuinely new facts, but such a broad orientation is useful before we move on to the original findings. Chapter 2 is, to a great extent, the central chapter of this book: we present results obtained from tax-return statistics on the evolution of the composition of top incomes and of top-income shares of total income, and we formulate the hypotheses that will be studied more precisely in the chapters that follow. Chapter 3 deals with the evolution of wage inequality; notably, we present results obtained from wage-declaration statistics concerning the evolution of the top-wage share of total wages.

Part Two is devoted to studying the progressive income tax and its impact on top incomes in twentieth-century France. Chapter 4 presents the evolution of income tax legislation since its creation in 1914. Chapter 5 studies the evolution of the average tax rates to which the various top-income fractiles have been subject. Part Two makes it possible to refine some of the hypotheses formulated in Chapter 2, as well as to study the evolution of perceptions of income inequality.

Finally, Part Three of this book reviews the conclusions arrived at in the previous chapters and seeks to situate France in relation to the Kuznets curve. In Chapter 6, we examine the extent to which undeclared incomes (whether for legal or illegal reasons) are liable to bias the conclusions we obtained from tax returns: to do so, we notably use the information provided by our analysis of bequests statistics. In Chapter 7, we compare the French experience to experiences abroad and propose an overall assessment of the Kuznets theory, which brings us to our conclusion.



PART ONE

THE EVOLUTION OF  
INCOME INEQUALITY  
IN FRANCE IN THE  
TWENTIETH CENTURY



## A Fivefold Increase in “Average” Purchasing Power in the Twentieth Century

Before examining the evolution of income inequality, it is useful to have in mind the orders of magnitude of “average” purchasing power and the key stages of its growth in twentieth-century France. The facts presented in this preliminary chapter deal with the general economic history of twentieth-century France and are relatively well known for the most part. But we feel that a brief review is necessary to put the original results that will be presented in the following chapters into perspective. We begin by reviewing the broad outlines of the evolution of inflation (section 1), the population structure (section 2), and then the composition of household income (section 3), before tackling the question of the evolution of “average” purchasing power properly speaking (sections 4 and 5). Readers familiar with these general developments can easily make do with a quick glance and then skip directly to Chapter 2.

### *1. Current Francs and Constant Francs: Inflation in France in the Twentieth Century*

To compare the incomes of the past with those of the late twentieth century, we must first take stock of the various episodes of rising prices in twentieth-century France. As we will see in the following sections and chapters, inflation had an important impact on the distribution of real income over the course of the twentieth century—beyond the purely monetary or accounting issue of converting current francs into constant francs—so at this point it will be useful to become familiar with the chronology.

From the beginning of the century to the end of the century, retail prices paid by consumers multiplied by about 2,000, which corresponds to an annual inflation rate of nearly 8 percent.<sup>1</sup> But, as indicated in Figure 1-1—which shows

## THE EVOLUTION OF INCOME INEQUALITY IN FRANCE

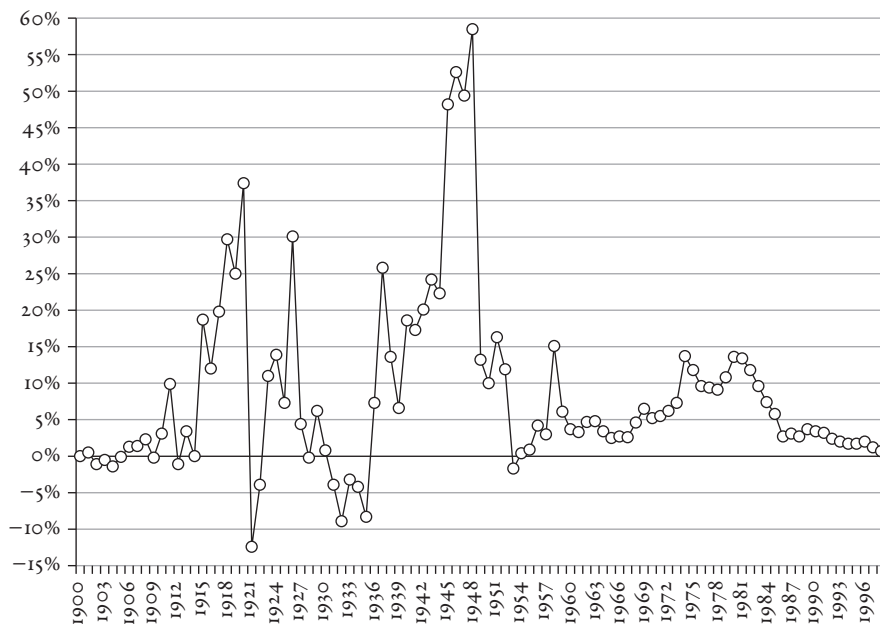


FIGURE 1-1. The inflation rate in France from 1900 to 1998

Source: Column (6) of Table F-1 (see Appendix F)

the evolution of inflation rates in France from 1900 to 1998 as measured by the SGF and then INSEE, based on the price sampling that the two institutes carried out throughout the century—inflation in twentieth-century France was not a long, tranquil river. After several periods of high inflation in the middle of the century, mainly in connection with the two world wars, inflation at the end of the century returned to the very low level that had characterized it at the start of the century.

Before the First World War, average inflation was very close to 0 percent. Prices rose or fell slightly depending on the year, and these low-amplitude movements often reversed themselves in the space of a few years. This monetary stability had persisted since the early nineteenth century. Between 1820 and 1914, the total growth of retail prices was around 30 percent, which corresponds to an average annual inflation rate of about 0.3 percent.<sup>2</sup> Note, however, there was the slight inflationary burst of 1910–1911 (with an inflation rate of nearly 10 percent in 1911), which is usually attributed to the catastrophic harvest of

1910 and the Moroccan crisis of 1911.<sup>3</sup> But it was the First World War that marked France's real entry into the era of "modern" inflation: between 1914 and 1918, prices multiplied by a factor of 2.1, with annual inflation rates on the order of 20 percent for four consecutive years, something not seen since the revolutionary period. Inflation accelerated in 1919–1920, then turned to deflation in 1921–1922 during the recession that accompanied the reconversion of war industries.<sup>4</sup> But inflation resumed with the economic recovery in 1922, and it would truly be stopped only with the stabilization and tax levies carried out by the Poincaré government in August 1926 (at the cost of a new recession in 1927). The monetary stabilization, effective beginning in late 1926, became a matter of law with the monetary statute of June 1928, which set a new gold parity for the franc as the *franc Poincaré* officially replaced the *franc Germinal*.<sup>5</sup> Barely two years after the official stabilization, France entered the global depression and the traumatizing experience of deflation: inflation rates were negative in every year from 1931 to 1935, and the cumulative drop in retail prices from 1930 to 1935 reached 25 percent. The wage increases carried out by the Popular Front and the devaluation of September 1936 put an end to the deflationary episode and restarted inflation, which continued in 1937–1938 and then through every year of the Second World War. The peak of French inflation in the twentieth century was reached in the immediate postwar years, with annual inflation rates on the order of 50–55 percent for four consecutive years in 1945–1948. Price increases continued at a more moderate pace in 1949–1952 (at a rate of 10–15 percent per year), but they would not truly end until the stabilization undertaken by the Pinay government in March 1952, again at the cost of a recession in 1953, the last year of (slightly) negative inflation in twentieth-century France. Except for the years 1954–1955, which featured a return to complete price stability, and 1958, when inflation exceeded 15 percent (an inflationary burst, generally attributed to the war in Algeria, that came to a halt with General de Gaulle's return to power and a new Pinay stabilization), French inflation stabilized at a level of around 5 percent per year in every year of the 1950s. The 1970s, which featured large wage increases (especially in the minimum wage) in the wake of the May 1968 events and a particularly tense social and political climate, as well as the oil shocks of 1973 and 1979, were the last episode of high inflation in twentieth-century France. For ten consecutive years, from 1974 to 1983, the inflation rate would be above (or very slightly below) 10 percent—the greatest period of high and prolonged peacetime inflation in



France. The disinflation strategy was instituted in 1982–1983 with a freeze on wages and prices, and then the de-linking of wage increases from inflation adopted by the Mauroy government; by 1985–1986 inflation was “definitively” stamped out. Since 1986, the inflation rate has fluctuated between 2 percent and 3 percent per year, and the annual rise in prices even fell below 1 percent in 1998. At century’s end, then, France had returned to the zero-level inflation with which it began the century.

The major conclusion that emerges from this brief chronology of twentieth-century French inflation is the central role played by the two world wars and the immediate postwar periods. In each case, inflation was significantly higher in the immediate postwar years than it had been during the war years themselves. Prices rose by a factor of 2.1 between 1914 and 1918, then by a factor of 2.7 between 1918 and 1927, yielding a total multiplication of the price level by a factor of 5.5 between 1914 and 1927; prices rose by a factor of 2.5 between 1939 and 1944, then by 8.7 between 1944 and 1952, a total multiplication of 22 between 1939 and 1952.<sup>6</sup> We may also note that the inflation brought about by the Second World War was nearly 4 times as large as that brought about by the First World War (prices rose by a factor of 5.5 between 1914 and 1927; they multiplied by 22 between 1939 and 1952). These three major facts—high inflation during the wars, even higher inflation in the postwar periods, and a Second World War that was more inflationary than the first—may be explained in the following way.

First, inflation is always characterized by a wage-price spiral: prices rise, workers demand to be compensated, firms make up for it by raising their prices, and so on. Often this spiral has no “real” effects, in the sense that prices and wages generally rise in roughly equal proportions, yet it is in no one’s interest to let up as long as others don’t. Periods of disordered and declining production, of deprivation and shortages, which are always a feature in wartime, are especially propitious moments for setting off a wage-price spiral. The years immediately after wars are even more propitious than the war years themselves, since everyone is trying to benefit quickly from the peace dividend, even though production always takes a certain amount of time to regain levels that could allow these demands to be satisfied—not to mention the fact that for several years the reconstruction effort generally requires the devotion of an abnormally large share of production to investment rather than consumption. According to available estimates, production did not regain its 1913 level until 1923, and it took until 1948 for production to regain its 1938 level: in both cases, then, pro-

duction took ten years to regain its prewar level.<sup>7</sup> From this perspective, the post-World War II period was objectively more conducive to the outbreak of very high inflation than was the post-World War I period. Production fell to significantly lower levels during the Second World War than it had during the First, which is largely explained by the fact that in 1914-1918 much less than half the national territory was directly affected by hostilities, whereas destruction hit the entire country in 1944, the year annual production reached its lowest level of the entire twentieth century.<sup>8</sup> Levies imposed by the occupiers, a source of additional shortages, reinforced the particularly sharp drop in production during the Second World War. Moreover, inflationary pressures after the war were worsened further by the intense political tensions of the Cold War, which were hardly conducive to wage moderation.<sup>9</sup>

The second explanatory factor is that firing up the printing presses is generally the only feasible way for the state to finance war, and then to pay off the war's costs. During each of the two world wars, the French state accumulated considerable public debt, and in both cases budget deficits and debt repayment were the leading political problems of the postwar periods. Since state debts are usually denominated in nominal francs (not indexed to inflation), it was inflation that allowed the state to get rid of the debt, by repaying it in funny money. Here again, the post-World War II period was more conducive to this kind of inflation than the post-WWI period. In the 1920s, the memory of the pre-1914 "gold franc" was still quite fresh, and most politicians demanded a return to the gold standard and respect for the "sacred promise" made to those who had lent to finance the war through massive purchases of "National Defense Bonds" and other debts issued by the state. Of course, this "sacred promise" was never honored; to push through a gigantic increase in the tax burden on workers to pay back *rentiers* who had had the means to accumulate bonds would have been unimaginable. Yet governments of the 1920s were reluctant to resort to inflation too massively and too openly. The strong attachment to the monetary stability of the pre-1914 era also explains why, once monetary stability had been regained in 1927-1928, governments in power during the 1930s deflation obstinately refused to devalue the franc and restart inflation. After the Second World War and the traumatic experience of the deflation of the 1930s, governments were distinctly more relaxed about inflation, and they resorted to it more freely.

In total, the inflationary episodes brought on by the two world wars involved a more than one hundred-fold multiplication of the price level (prices

multiplied by 5.5 between 1914 and 1927, and by 22 between 1939 and 1952). In other words, without the wars, prices would have multiplied by less than 20 in a century (rather than by 2,000)—that is, an average inflation rate from 1900 to 1998 of barely 3 percent per year, excluding the 1914–1927 and 1939–1952 periods.<sup>10</sup> By the 1950s, the rise in prices relative to those of the pre–World War I era had reached such proportions that in late 1958 the De Gaulle government decided to create a new franc worth 100 old francs—a purely accounting-based monetary measure, but one that, in a highly symbolic way, communicated the desire for stability and national power that the new regime expressed. Starting on January 1, 1960, all prices, wages, and incomes were to be expressed in new francs. In this book, when quantities (prices, wages, incomes, wealth, etc.) are expressed “in current francs” (without further specification), that will mean they are expressed in old francs for the years 1900–1959 and in new francs for the years 1960–1998 (unless otherwise specified). When these same quantities are expressed “in 1998 francs,” that will mean that we have multiplied quantities in current francs from prior years by the conversion rates for 1998 francs presented in Figure 1-2, which are calculated from the inflation rates in Figure 1-1. The visible jump in 1960 in Figure 1-2 corresponds to the switch to new francs.<sup>11</sup> Because of this switch to new francs, incomes from the early part of the century must be multiplied by a factor of roughly 20 (rather than roughly 2,000) to obtain incomes from the early part of the century expressed in 1998 new francs. The conversion rate into 1998 francs falls to around 17–18 in 1911–1914 (taking account of the slight inflationary bump of 1910–1911), 5–6 in the early 1920s, and 3–4 during the 1930s. The conversion rate into 1998 francs is close to 1 in 1943–1944: prices rose by a factor close to 100 between 1943–1944 and 1998, so the purchasing power of a 1943–1944 old franc was approximately equal to that of a 1998 new franc. The conversion rate dips significantly below 1 in the late 1940s and 1950s, years when even the most modestly paid workers were “millionaires”; the subsequent creation of the new franc set the clocks right and brought about a conversion rate above 1. In the late 1960s and early 1970s the conversion rate into 1998 francs was around 5–6: prices had multiplied by 100 since the early 1920s, returning approximately to the same conversion rate into 1998 francs. It would obviously be pointless to try to memorize all these figures, but the important thing is to keep in mind the orders of magnitude that characterize the main episodes and to refer to exact figures when needed.

## A FIVEFOLD INCREASE IN "AVERAGE" PURCHASING POWER

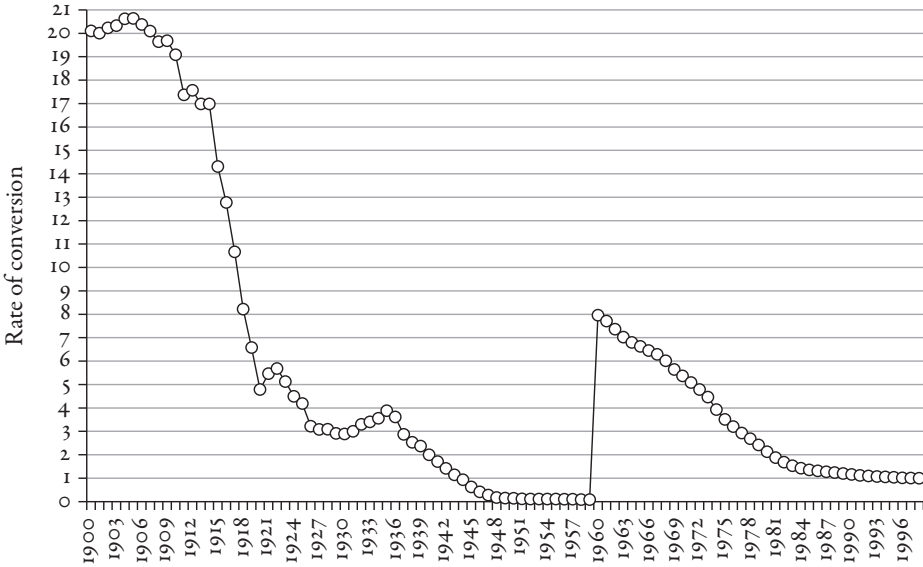


FIGURE 1-2. Rate of conversion from current 1900–1998 francs to 1998 francs  
*Source:* Column (7) of Table F-1 (see Appendix F)

### *2. Population, Households, Tax Units, and Workers: Demography in Twentieth-Century France*

Before examining the evolution of “average” living standards over the course of the twentieth century, it is also useful to keep in mind the orders of magnitude of demographic growth and the major transformations in the population structure of twentieth-century France. Being aware of the widely varying growth rates in numbers of inhabitants, numbers of households and family tax units, and the number of workers, respectively, can dispel confusion concerning the growth rate of “average” income—an “average” that may be calculated “per capita,” “per household,” “per family tax unit,” “per worker,” or even by combining these different denominators.

Let us start with the number of inhabitants. The population of metropolitan France rose from barely 40 million at the start of the century to nearly 60 million in the late 1990s,<sup>12</sup> a roughly 50 percent increase in one century. Let us recall as well that this demographic growth was due entirely to the demographic

circumstances of the second half of the century: between 1900 and 1946, the population grew very little, rising from around 39 million at the start of the century to just around 40 million in 1946, and this despite the reincorporation of Alsace-Lorraine into the national territory at the end of the First World War. This well-known contrast between the century's two halves is explained by the bloodshed of the two world wars, the recovery in French birth rates at the end of the Second World War (the "baby boom"), as well as significantly more rapid increases in lifespans in the second half of the century. Obviously, given the increase in lifespans and the aging of the population, demographic growth was not the same in all age groups. The population of those aged twenty to sixty rose from about 20 million at the start of the century to about 30 million in the 1990s,<sup>13</sup> a total growth rate of around 50 percent in a century, and very close to the overall population growth rate. In other words, throughout the century, population aged twenty to sixty represented approximately half the total population (20 million out of 40 million at the start of the century, 30 million out of 60 million at century's end), with the other half dividing between the "young" (less than twenty years old) and the "old" (sixty and over). But these two groups' respective shares changed profoundly over the course of the century as the "young," a very large majority at the start of the century, became a minority by the end of the century. The population aged sixty and over grew far more rapidly than the overall population, rising from about 5 million at the start of the century to nearly 12 million in the late 1990s,<sup>14</sup> roughly a 140 percent increase in a century. Inversely, the population of those younger than twenty grew far more slowly than the average, rising from around 13 million at the beginning of the century to around 15 million in the late 1990s (after reaching 17 million in the early 1970s),<sup>15</sup> a total increase of barely more than 15 percent in a century.

The distribution of population within households, that is, in groups living in the same dwelling, irrespective of any family ties, as measured by censuses since the start of the century, changed profoundly as well. Throughout the century, the average household size continually declined, falling from nearly 3.6 persons per household at the start of the century to less than 2.5 in the late 1990s (see Figure 1-3). The postwar baby boom temporarily stabilized the average household size in the 1950s and 1960s, but the historic fall in household size resumed at an extremely rapid pace after the late 1960s. The number of households thus grew from less than 11 million at the start of the century to

more than 23 million in the late 1990s,<sup>16</sup> an overall increase of more than 100 percent in a century, more than twice the overall rate of population growth. This development is explained by the decline in the number of children per household, the increase in the number of elderly (and thus the number of elderly households with only one or two members), and decline in the number of so-called complex households (that is, households that combine several generations or several nuclear families under the same roof). This secular decline in the average size of households is an important phenomenon to keep in mind when studying changes in "average" incomes and living standards, because it implies mechanically that average income per capita will tend to rise structurally faster than average income per household. It also means, for example, that a period of stagnation, or even a slight decline, in average income per household, as we observe in the 1980s–1990s, can in reality mask a period of rising average income per capita (see section 4 in this chapter).

In this book, we will be more concerned with family tax units (*foyers fiscaux*, or simply *foyers*) than with households (*ménages*).<sup>17</sup> A family tax unit (or, simply, tax unit) is a unit defined by the tax code: it comprises all individuals required by law to jointly file a single income tax return. It is a narrower unit than the household for two essential reasons. First, only a nuclear family (that is, parents and their children) may jointly file a single tax return. With very rare exceptions—for example, a case of infirm grandparents lacking their own resources—different generations, or different nuclear families sharing a dwelling, may not file the same income tax return; nor, *a fortiori*, may individuals who share a dwelling but lack a family relationship (these would, however, constitute a single "household") jointly file a tax return. In addition, not all nuclear families may file their taxes jointly. On the one hand, adult children living under the same roof as their parents may not generally file a joint tax return with their parents, except in very rare and quantitatively unimportant cases, such as infirm children lacking their own resources and living under the charge of their parents. On the other hand, and most importantly, couples may file a joint tax return only if they are married (and in this case, they are required to do so: a married woman is not allowed to file a separate return). In other words, a household made up of two unmarried partners still constitutes two tax units. Luckily for the researcher, all of these major rules have remained exactly the same since the establishment of the French income tax by the law of July 15, 1914, and since the first tax returns for the 1915 income-year were submitted by taxpayers in 1916.<sup>18</sup> The practical upshot for

## THE EVOLUTION OF INCOME INEQUALITY IN FRANCE

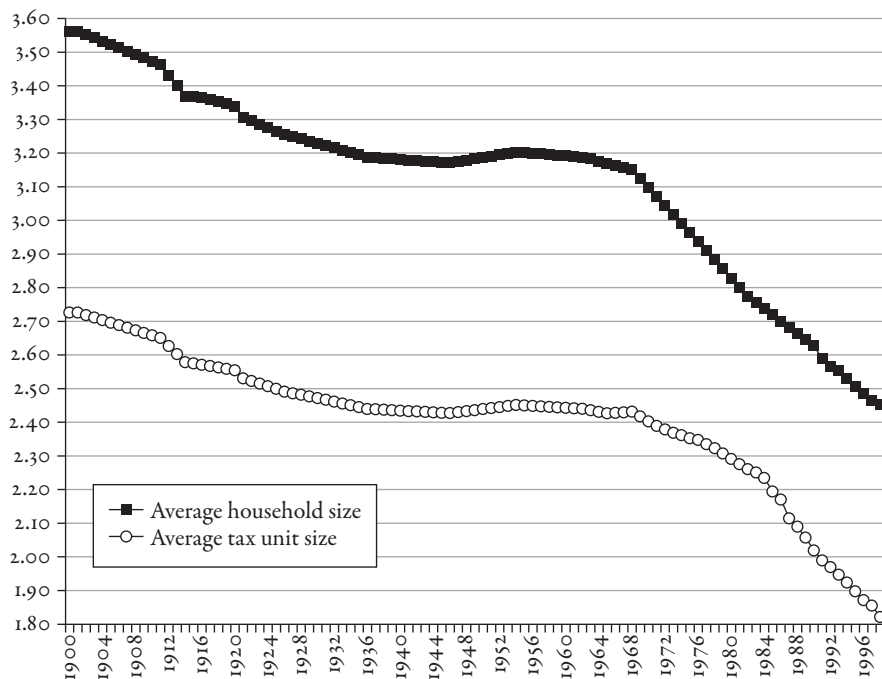


FIGURE 1-3. The average size of households and families from 1900 to 1998

Source: Columns (7) and (11) of Table H-1 (Appendix H)

our study is that all of the statistical tables compiled by the tax administration based on tax-returns tabulations were indeed compiled on the basis of a consistent statistical unit over time, and this has been the case since the 1915 tax year.<sup>19</sup> That is why we will adopt the tax unit as the elementary unit of analysis in studying income inequality and its evolution: we will speak of the share of total income held by the top 10 percent of tax units, the share held by the top 0.01 percent of tax units, and so on. Likewise, when we speak of “average income” (without further specificity), we will in fact be referring to “average income per tax unit.”

To estimate the level of declared income for the top 10 percent of tax units, the top 0.01 percent, and so on, and to compare these incomes with “average” income per tax unit, we need to know the evolution of the total number of tax units over time (including both those subject to tax and those not subject to tax).<sup>20</sup> Should we expect the total number of tax units to have grown more rapidly or less rapidly than the total number of households over the course of the



twentieth century? On the one hand, the share of complex households has tended to decline, and the share of households made up of a single nuclear family has increased, which would mean that the number of tax units per household should have fallen. But on the other hand, unmarried partnerships have also been on the rise, which would automatically lead to an increase in the number of tax units per household (all else being equal). According to the available data on family structure, which come from the censuses carried out since 1901, as well as the *Revenus fiscaux* studies carried out by INSEE since 1956, it would appear that these two opposing forces roughly offset each other over the long run, so that the total number of tax units was around 30 percent greater than the number of households throughout the twentieth century.<sup>21</sup> In other words, each household on average contained 1.3 tax units, and this was the case throughout the century. This implies especially that average income per household was always around 30 percent greater than average income per tax unit, and that average income per tax unit grew at exactly the same rate as average income per household over the course of the century, and, in particular, at a structurally slower rate than the growth rate of average income per capita. While the number of households rose from barely 11 million at the start of the century to more than 23 million in the late 1990s, the total number of tax units (taxable as well as nontaxable) grew from barely 15 million at the start of the century to more than 32 million in the late 1990s.<sup>22</sup> For the same reasons, the average size of tax units fell by roughly the same proportion as the average household size, from more than 2.7 at the start of the century to less than 1.9 in the late 1990s (see Figure 1-3). Here again, these orders of magnitude are worth remembering. When we refer to the top 10 percent of tax units, we will be talking about the approximately 1,500 highest-income tax units at the beginning of the century, and the 3,200 highest-income tax units in the late 1990s.<sup>23</sup>

The final major demographic transformation of twentieth-century France that it is useful to keep in mind concerns the size of the economically active population. The main phenomenon to remember is that, compared with the total population and the number of households and tax units, the active and employed population practically did not increase over the course of the century, rising from around 19 million workers at the start of the century to around 22 million in the 1990s. Throughout the entire twentieth century, the total number of jobs in France remained at around 20 million (a bit less at the start of the century, a bit more at the end of the century),<sup>24</sup> even though the population between the ages



of twenty and sixty (the age group containing most of the “working-age population”) went from 20 million to 30 million from the beginning to the end of the century. A full analysis of the demographic, cultural, and economic factors that might explain this historic drop in the “employment rate” (that is, the number of jobs per working-age resident) would lie far beyond the scope of this book, and here we will merely recall the essential aspects.<sup>25</sup> First of all, the employment rate for men has fallen considerably since the Second World War, the result of the extension in years of schooling and the fall in the retirement age, as well as the rise in unemployment in the 1980s and 1990s.<sup>26</sup> In addition, the employment rate for women has risen much less than we sometimes imagine: in fact, the female employment rate has followed a “U-shaped curve” over the course of the twentieth century, with a decline in the first third of the century, a stabilization from the 1930s to the 1960s, and a historic increase that began only in the late 1960s, and that by century’s end only just permitted the level reached at the start of the century to be regained.<sup>27</sup> In particular, this “historic” growth in women working was significantly smaller than the decline in the male employment rate observed over the same final third of the century, so that the overall employment rate (for men and women together) declined continually throughout the twentieth century (due mainly to the trend in the female rate in the first half of the century, and mainly to the male rate in the second half<sup>28</sup>). From the point of view of incomes, the major consequence of this declining trend in the employment rate is that average income per worker grew at a structurally faster pace than average income per capita (and therefore faster than average income per household or tax unit) over the course of the twentieth century: one worker in the late 1990s supports nearly three people (a bit more than 20 million workers for a population of 60 million), versus just over two people at the start of the century (a little under 20 million workers for a population of 40 million).

### 3. *Workers and Nonworkers, Labor Income and Capital Income: The Composition of Household Income in France in the Twentieth Century*

After inflation and demography, the third great structural shift that we feel is useful to recall before examining the general evolution of living standards concerns the “average” composition of household income in twentieth-century

France. This composition may be analyzed using the usual three categories of (1) "labor income" (wages, retirement pensions, and other social benefits received by workers and ex-workers as a supplement to their wage); (2) "capital income" ("rental income" taking the form of rents paid to the owners of houses, apartment buildings, lands and other real-estate assets, as well as "investment income," or income from investment capital, which takes the form of dividends or interest paid to stockholders, bondholders, owners of savings accounts, and owners of other investment assets); and (3) "mixed incomes" (profits earned by self-employed workers in the course of their occupational activities, representing a return to their labor as well as to the capital they have invested in their business, two elements which, generally speaking, cannot be clearly distinguished). We have already encountered these categories in the introduction when we referred to the composition of top incomes in 1998.<sup>29</sup>

In examining changes in the relative importance of these three major income aggregates—labor income, capital income, and mixed income—we are, in a sense, getting to the heart of the matter: although understanding the "average" composition of income is obviously insufficient for drawing firm conclusions about income inequality among tax units, the trends we will deal with here are nevertheless part of a general framework to which we will frequently refer in the chapters that follow.<sup>30</sup> Indeed, two major structural shifts in the composition of household incomes in the twentieth century must be identified, and both represent some of the most fundamental transformations that France's economy and society experienced over the course of that century. The first trend concerns incomes arising from an occupation (which we will sometimes call "earned income"), that is, labor income received by wage earners and mixed income received by self-employed workers: throughout the twentieth century we observe a continual decline in the mixed-income share of household income, compensated by a continual increase in the labor-income share (section 3.1). The second trend, more complex and less well known than the first, but just as important, concerns the capital income share of household incomes: over the twentieth century this has followed a U-shaped curve, with a trough in the middle part of the century and a sharp increase at the end of the century that has allowed it to regain its high level from before the First World War (section 3.2).<sup>31</sup>

### 3.1. The Trend of “Wageification” of Earned Incomes

The first major structural shift is hardly surprising, since it corresponds to the massive trend of “wageification” of employment that we observe over the course of the century: while the total number of jobs remained stable overall throughout the twentieth century (around 20 million), the distribution of these jobs between wage-earning and self-employed jobs was utterly transformed, with a continual increase in the number of wage earners compensated by an equivalent decline in the number of self-employed workers. This phenomenon, in which society was transformed into a “wage-earning society,” is well known, but the orders of magnitude are worth recalling. Whereas self-employed jobs constituted nearly 50 percent of all jobs at the start of the century (around 10 million wage-workers and 10 million self-employed workers), they constituted just over 40 percent in the interwar period, 35 percent in the 1950s, 25 percent in the 1960s, 15 percent in the 1970s, and finally reached a level of just over 10 percent in the late 1990s (more than 19 million wage-workers, fewer than 3 million self-employed workers) (see Figure 1-4).<sup>32</sup> At century’s end, nearly 90 percent of jobs were held by wage-workers, and wage employment had become the “normal” mode of exercising an occupation. This irresistible decline in self-employment over the course of the twentieth century is explained mainly by the vertiginous drop in the number of farmers, which declined from around 6 million at the start of the century (nearly 30 percent of total employment) to barely more than 600,000 at the end of the century (less than 3 percent of total employment).<sup>33</sup> But the number of self-employed nonfarmers, that is, artisans, shopowners, independent professionals, and other nonfarm business owners not classified as wage earners, has also fallen greatly, from around 4 million at the start of the century (more than 20 percent of total employment) to around 2 million at the end of the century (less than 10 percent of total employment).<sup>34</sup> Unlike farmers, however, whose decline never stopped and is still ongoing today, we may note that the number of these self-employed nonfarm workers has stabilized in the neighborhood of 2 million since the late 1950s.<sup>35</sup>

This trend of “wageification” mechanically implies a gradual replacement of mixed incomes with labor incomes within household earned income; throughout the century, wages and pensions received by workers and ex-workers slowly but surely replace the farm profits received by farmers (*paysans*) and other industrial and commercial profits earned by artisans and shopkeepers. Of course, this

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FIGURE 1-4. The number of wage workers and self-employed workers in France from 1901 to 1998 (as a percentage of total employment)

Source: Columns (6) and (7) from Table H-5 (see Appendix H)

process unfolded more rapidly in some periods than others, depending in particular on the pace of the rural exodus as well as short-term fluctuations in economic activity. For example, in the interwar years, we see that the period of inflationary growth in the 1920s corresponded to a phase of recovery for the mixed-income share of household income,<sup>36</sup> with wages often following price increases with a lag, while self-employed workers benefited immediately from economic growth and from the effect of inflation on their sales prices. Inversely, the deflationary recession of the 1930s corresponded to a collapse in the mixed-income share.<sup>37</sup> Whereas wage-workers benefited from the fact that wages are fixed in nominal terms (or fall less rapidly than prices), self-employed workers, especially shopkeepers and farmers, immediately suffered from the price declines, which also helped to exacerbate the very intense political tensions between wage-earning and self-employed workers, tensions expressed particularly by very turbulent farmer unrest in the deflationary years.<sup>38</sup> Since the Second World War, there has been much greater wage indexing against inflation than

in the past, so that the effect of inflation on short-term fluctuations in the distribution of income between labor and capital income has become far less clear than it was in the interwar period. These fluctuations are now more influenced by the macroeconomic business cycle as such (independently of inflation), as it always takes a certain amount of time for wage-workers to take advantage of an economic recovery, and inversely, self-employed workers more quickly feel the consequences of a short-term slowdown. For example, during the crises of the 1970s, we observe the mixed-income share experiencing an increase in its rate of decline (even though that period was one of high inflation), and a temporary slowdown in that rate during the very sharp economic recovery of the late 1980s (even though the latter period was accompanied by a slowing of inflation).<sup>39</sup> But the important fact to remember is that these fluctuations are always of a purely short-term nature, and they do not call into question the long-term trend, namely, the inexorable decline in the mixed-income share of earned income.

Indeed, over the long run, the share of mixed income in total household earned income seems to have declined at roughly the same pace as the share of self-employed workers in total employment. According to macroeconomic data from the national accounts, which is the only source that permits us to measure the major income aggregates at the level of the whole population, mixed income was nearly 50 percent of households' earned income at the beginning of the century, only about 40–45 percent in the interwar period, 35 percent in the 1950s, 25 percent in the 1960s, 15–20 percent in the 1970s, and it finally reached a level around 10–15 percent in the 1990s.<sup>40</sup> Thus, according to these estimates, the pattern of change in the division of earned income between labor and mixed incomes was practically identical to that of the division between wage-earning and self-employed workers in total employment, as shown in Figure 1-4. These numbers would tend to indicate that throughout the century, average earned income per self-employed worker was basically equal to average earned income per wage earner. Taking into account the fact that mixed incomes as measured in the national accounts, which are the source of the estimates cited earlier, are always “gross” profits (termed “gross operating surplus”), meaning that depreciation of capital and inventories and their replacement costs are not taken into account—as is the case for all quantities measured in the national accounts (that is, why we always speak of GDP, or “gross” domestic product)—we are led to the conclusion that true average earned income per self-employed

worker has always been slightly below average earned income per wage-worker. Such a conclusion seems entirely reasonable: of course, the nonwage category includes independent professionals as well as big business owners and other self-employed entrepreneurs, who often receive profits that very few workers could hope to attain. But the category also includes a very large number of small farmers and craft workers, who generally live on meager profits that compare poorly with those of even the most modest wage-workers, and thus there is nothing surprising about the "tyranny of numbers" causing the latter effect to (slightly) predominate.

Although this idea of a broad equality between the average earned incomes of wage-earning and self-employed workers over the twentieth century may be taken as valid to a first approximation (with the former having a slight advantage), we must be aware nevertheless that the nature of the available data do not permit us to go further or to specify what its limits are. Besides the poor quality of the data on "small" self-employed workers (no one will ever really know the "income" of small peasant farmers at the beginning of the century, in the 1930s, in the 1950s, etc., especially since the latter lived largely by self-provisioning their food<sup>41</sup>), evaluating the "net" profits of self-employed workers necessarily involves a certain amount of imprecision, which prevents any perfectly rigorous comparison between the average earned incomes of wage-earning and self-employed workers on the basis of the national accounts (and there is no other source that might allow us to systematically estimate average incomes at the level of the whole population). In addition, the concept of a "self-employed worker" is in itself problematic: the concept used by the national accounts when measuring incomes is not perfectly equivalent to that used in the census when measuring headcounts, which again introduces a certain amount of imprecision when we seek to estimate average earned income per self-employed worker.<sup>42</sup>

In any event, this overall equivalence between the "average" earned incomes of wage-earning and self-employed workers (with the former having a slight advantage) obviously tells us nothing about trends in the distribution of these "average" earned incomes. By definition, the national accounts allow us only to estimate "averages," and they provide no information about distributions. In this book, one of the central questions we will seek to answer concerns precisely the impact of this "wageification" trend on the structure of top incomes: Is the appearance of top wage earners among top incomes a recent phenomenon, the result of self-employed business owners turning into salaried senior executives,

a category that did not exist before (or very little)? Or did “wageification” involve all income strata in the same proportions, so that the growth of high wages among those with top incomes took place at more or less the same pace as the overall growth of wages in household incomes, and of wage-workers in total employment? The fact that the average earned income of self-employed workers remained equivalent overall to that of wage-workers throughout the twentieth century provides us with a general framework for thinking about these issues, but it does not allow us to answer them. This overall equivalence would, of course, be perfectly compatible with a process of “wageification” affecting every stratum of individual businesses in the same proportions, from the most impoverished to the most prosperous, but it could just as well mean that the process affected “small” self-employed workers and “big” self-employed workers in significantly greater proportions than “average” self-employed workers, in such a fashion that the average remained approximately constant. Thus small peasant farmers living off tiny plots of land and miserable profits, as well as a significant number of small shopkeepers and small independent craftsmen, would have been the first to disappear, much more so than “average” farmers and shopkeepers whose operations were of an economically viable size, but these “small” ones would have been quickly joined in the wage-earning workforce by a certain number of “big” self-employed workers choosing to transform the structure of their businesses and become executives (for tax reasons, for example). The consequences for inequality and the structure of top incomes would obviously be entirely different, and only in the chapters that follow will we be able to make a determination.

### 3.2. The U-Shaped Curve of the Capital Income Share

The second major structural shift in the composition of household incomes, the U-shaped curve traced out by the capital income share of household income, is more complex than the first, but it is at least as important and, in particular, far less well known, and thus merits further elaboration. Here again, the national accounts are the only source that can give us reliable estimates of the major income aggregates at the level of the entire population, and this is especially true of capital income because the legal forms it assumes are often extremely varied. Only the national accounts, which are based on the use and cross-referencing of a very large number of sources, especially the accounts of banks and insurance



companies, can provide us with overall estimates of the entirety of capital incomes received by households, whatever their precise form, even when they take forms that are often ignored in the tax sources because of their nontaxability (for example, interest accruing to life-insurance contracts, savings accounts, etc.<sup>43</sup>). Using the estimates from the national accounts, we observe that the capital-income share of household income was around 20 percent at the beginning of the century, before falling to around 15 percent in the interwar period and less than 10 percent in the 1940s–1950s, then climbing again slightly to levels around 10–15 percent in the 1960s–1970s and 15–20 percent in the 1980s, and finally returning to a level around 20 percent in the late 1990s.<sup>44</sup> Corresponding to this U-shaped curve of the capital-income share is, of course, an “inverted U-shaped curve” for earned incomes (labor and mixed incomes): the latter represented 80 percent of household income at the beginning of the century, 90 percent in mid-century, and 80 percent again at the end of the century.

The national accounts also permit us to see that both components of household capital income were affected by the U-curve, and in roughly equal proportions. At the start of the century, as well as in the late 1990s, rental income and investment income each represented around 10 percent of household income (thus, a total of about 20 percent for all capital income), whereas each represented just 5 percent at mid-century (thus, less than 10 percent in total). In other words, to a first approximation, household capital income has always divided into two roughly equal halves made up of rental income and investment income, and this was the case throughout the century.

However, it should be noted that within the category of rental income the national accounts include not only rents paid by tenants and actually received by property owners, but also the imputed, or “fictive” rents that property owners who live in their own residences (or who keep second homes for their own use) are deemed to pay to themselves—that is, the amount of rent that these property owners could obtain if they rented out the properties. This inclusion of fictive rents makes sense, insofar as the national accounts seek to account for all goods and services produced by the national economy, and the value of “housing services” produced by owner-occupied dwellings is the same as that produced by rental housing (for a given size and quality of housing unit). If fictive rents were not taken into account, it could, for example, lead to the conclusion that rental income is higher in a society where everyone owns a



home and rents it to his neighbor than in a society where everyone owns a home and lives in it himself, and that average income is thus higher in the first society than in the second, which would obviously be totally artificial. However, we must be aware that if only those rents actually received by property owners were taken into account, the total volume of rental income would be far smaller than that of investment income (rather than being roughly equivalent to it). For example, in the 1990s, “real” rents represented less than half the total rental income estimated by the national accounts,<sup>45</sup> and thus the amount of “real” rental income is less than half the amount of investment income. In addition, the rental incomes measured in the national accounts, as is the case with self-employed workers’ mixed incomes, are “gross” incomes, meaning that the depreciation of real estate and the corresponding costs are not taken into account.

Moreover, if we look more closely at the two trends, we see important differences, which can provide a better understanding of what has happened to household capital income over the twentieth century. Indeed, we see rental incomes collapse earlier than investment income: the share of rental income in household income, which was around 10 percent at the start of the century, fell suddenly during the World War I years, ending up at around 3 percent at the end of the war, while the investment-income share persisted through the 1920s at levels very close to those at the beginning of the century (around 10–11 percent of household income).<sup>46</sup> It was only in the 1930s that the investment-income share began to fall, though still relatively gently, since it never fell below 7–8 percent of household income in the 1930s, and it was not until the Second World War and the immediate postwar years that investment incomes reached their lowest levels.<sup>47</sup> How can we explain the fact that it was the First World War that led to the collapse of rental income, whereas investment income had to wait until the Second? We also observe that the collapse of rental income was more massive than that of investment income: according to the available estimates, the investment-income share never fell below 5 percent of household income, whereas the rental-income share fell to 3 percent after the two world wars,<sup>48</sup> and this minimum level would probably be little more than 1 percent if we were to take into account only “real” rents. Why is it that the investment income share always fluctuated within relatively narrow bands (between 5 percent and 10 percent of household income), while rental incomes could fall to such negligible levels?

Generally speaking, the evolution of the rental share of household income in the twentieth century is relatively easy to explain, since it was an immediate consequence of movements in inflation and the vagaries of the rent-control policies instituted by the government during each of the two world wars and the years after them, which led to a collapse in the level of rents vis-à-vis the general price level. We will return later to the fluctuations in the rent index vis-à-vis the general price index when we situate ourselves with respect to the evolution of "average" household living standards,<sup>49</sup> but it is important at this point to note that this explanatory factor can account very well for the entire trend in the rental-income share of household income over the course of the century, in particular for the fact that the share started to collapse with the First World War and that the collapse was particularly massive, commensurate with inflation and the strictness of rent controls. Movements in inflation also explain why the rent share of household income returned practically to its prewar level during the deflation of the 1930s (rents were still frozen in nominal terms, this time to the benefit of property owners, since other prices were falling), before collapsing again following the return of inflation in 1936 and during the Second World War, finally reaching its lowest level of the century in 1940.<sup>50</sup> It is especially interesting to note that it took nearly a century for rental incomes to regain their level from the beginning of the century: since 1950, we observe a process of recovery in rental incomes, temporarily interrupted by the high inflation of the 1970s, but the fact is that this process was extremely slow, proceeding at the pace of rental-contract renewals and of rent increases authorized in the legislation prevailing at the time of these renewals, so that it was only in the late 1990s that the rental-income share of household income regained its level from the beginning of the century, around 10 percent.<sup>51</sup> The case of rental income is probably the purest possible illustration of the real effects of inflation and the clear commonalities shared by the century's two endpoints.

The U-curve traced out by the investment-income share of household income is a more complicated phenomenon. To be sure, the path may in part be explained by the vagaries of inflation, as is the case for the U-curve traced out by the rental-income share: a portion of investment income takes the form of interest whose nominal amount is fixed in advance (not indexed to inflation), so that the general price rise caused by the two world wars led to a collapse in the real value of interest, as was the case for rents. But that is not the case for a key

portion of investment income, namely, the dividends received by shareholders, who in principle have no reason to be affected by inflation: the real value of business profits and of the dividends that flow from them depend on the real value of production and on the share of this production going to profits and dividends, not on the price level. Of course, as with the split between labor income and mixed income, inflation may have short-term effects on the real value of the dividends distributed to shareholders, but the direction of these effects is fundamentally ambiguous. If inflation is due to a very sharp surge in wages that businesses only partially manage to pass on into their prices, then inflation can indeed lead to a fall in real profits and dividends; but if, in contrast, it is price increases that are running ahead of wages, then inflation can, inversely, have a positive effect for shareholders. In the interwar period, it happened to be the second scenario that tended to dominate, so inflation had a diametrically opposite impact on rental incomes and investment incomes, as shown by the deflationary episode of 1931–1935, which allowed rental incomes to recover while business profits and investment incomes suffered from the price decline and from the relative nominal stability of wages. Thus the real-estate owner delighted in deflation, while the shareholder feared it (and vice versa for inflation). In fact, this well-known distinction between recipients of “fixed incomes” (that is, real-estate owners and holders of annuities, bonds, and other investments paying fixed interest) and recipients of “variable incomes” (mainly shareholders)—whom we already encountered in the case of earned income (where the “fixed incomes” are those received by workers and retirees, while self-employed workers receive “variable incomes”)—offers insight into the role of inflation and the short-term movements of the interwar period, and it rightly holds a central place in the classic studies of interwar economic history.<sup>52</sup> But, in addition to the fact that the distributional effects of inflation became much less clear after the Second World War, especially because of the greater indexation of wages against the price level (which explains, for instance, why the 1970s, when inflation was pulled up by wages and the oil shocks, were hardly favorable for business profits or recipients of “variable incomes”), the key fact is that all of these effects of inflation on the real value of dividends can only, in any event, be short-term effects. This marks an essential distinction between rental and investment incomes, which explains why the investment-income share of household income experienced less dramatic fluctuations over the course of the century than did the rental-income share, with a far less marked U-curve: only a portion of investment income

(fixed interest) could be durably affected by the hyperinflation of the two world wars, and it thus makes sense that investment incomes, taken as a whole, were affected less strongly than were rental incomes.

To understand the origins of the U-curve traced out by the investment-income share of household income, it is also useful to go back to the level of the firm and to examine the evolution of the profit share within production accounts over the course of the twentieth century. First, we must recall the high degree of stability that ordinarily characterizes the distribution of business output between profits and wages. More precisely, a firm's "value-added"—that is, the value of the goods and services output sold by the firm after subtracting the value of goods and services purchased from other firms, which thus measures the firm's real contribution to national output—can always be decomposed into "labor income" and "capital income." "Labor income" represents the sum of everything the firm pays to remunerate workers (wages properly speaking, but also social-insurance contributions, fringe benefits paid directly by the firm, etc.), and "capital income," called "gross operating surplus" in national accounting, represents what remains of business value-added after these "labor incomes" have been paid. When we look at the long-term division of business value-added between labor and capital income, we actually see a very high degree of stability: throughout the century, with the exception of the World-War-II years, to which we will return later, the labor share always stood around an average value of about 65–70 percent, whereas the capital share was situated around an average value of about 30–35 percent (see Figure 1-5).<sup>53</sup>

Recall, too, that the stability of this two-thirds–one-third split in firms' value-added between labor and capital is hardly a new discovery: already in the interwar period, Keynes considered it to be the best established regularity in all of economic "science," and we observe the same two-thirds–one-third split in every country and in every period for which we have adequate statistical sources, in particular in all Western countries since the beginning of the twentieth century.<sup>54</sup> Because of their quality, statistical sources in France from before the First World War do not inform us about the short-term movements in this split in an entirely satisfactory way for the early part of the century, especially during the First World War years, and that is why we have chosen to start the annual series presented in Figure 1-5 at 1919, the date from which the trends that can be estimated from available data are considered reliable.<sup>55</sup> But the sources for prior periods are nevertheless of sufficient quality to assure us that

## THE EVOLUTION OF INCOME INEQUALITY IN FRANCE

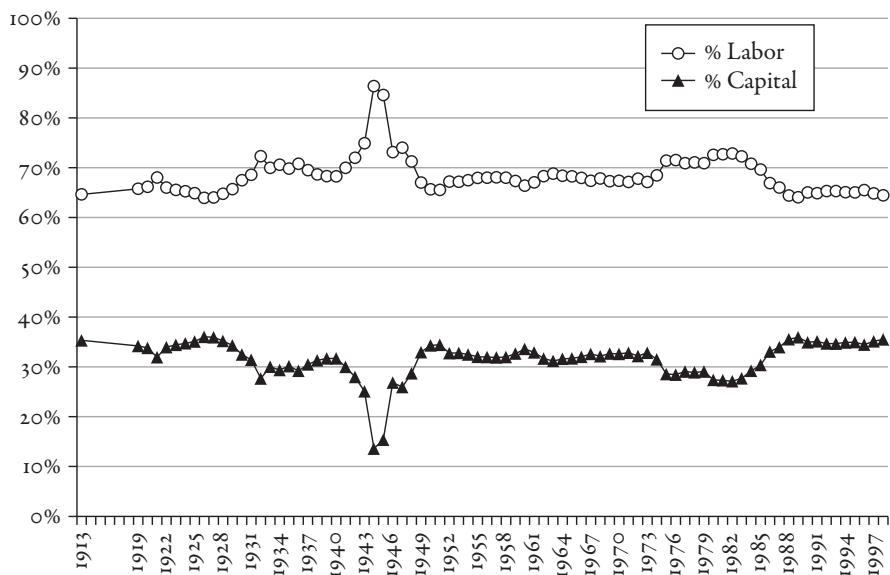


FIGURE 1-5. The distribution of firms' value-added between labor and capital in 1913 and from 1919 to 1998

Sources: Columns (16) and (17) of Table G-3 (1913 and 1919-1948) and columns (7) and (8) of Table G-4 (1949-1998) (Appendix G)

firms' value-added was distributed on roughly the same terms before the First World War: as indicated by the estimate we have reproduced in Figure 1-5 for the year 1913, the labor share of firms' value-added then stood at a level around 65-70 percent, or perhaps even slightly higher at the very beginning of the century.<sup>56</sup> The regularity we are dealing with here is crucial to keep in mind as we study income inequality, for it shows in particular that what made possible the increase in workers' purchasing power was certainly not a decline in the profit share received by firms, or at the very least, not in the long run. However, this stability must not overshadow the U-shaped curve of the capital-income share of household income over the twentieth century, which, to our knowledge, has gone largely unnoticed.

Let us return to this U-curve. First, we should note that, like the capital-income share of household income, the capital share of firms' value-added also presents us with a kind of U-curve. Between 1939 and 1948, the capital share of value-added was significantly below its usual level, and it even fell to a trough

level not much above 10 percent in 1944–1945 (see Figure 1-5). Of course, the precision of the estimates available for the war years suffered because of the chaotic situation then prevailing, but qualitatively, the dip that can be seen between 1939 and 1948 in Figure 1-5 leaves no doubt: all available information for this period confirms that the Second World War years were marked by a collapse in firms' profits, even greater than the collapse in production, and thus a rise in the wage share of output.<sup>57</sup> In particular, the fact that the labor share of income reached its highest level (nearly 90 percent of value-added) of the whole twentieth century in 1944 is entirely consistent with everything we know about the year the national territory was liberated. Production had then reached its lowest level of the entire twentieth century, wages had just been increased by fiat of the provisional government to limit the deprivation and loss of purchasing power suffered by workers, and business profits were not even enough to replace materials destroyed.

In fact, the collapse in the capital share during the Second World War, and especially in the year 1944, is merely an extreme version of a more general phenomenon seen in other periods in France, and also in every other Western country, namely, the fact that the capital share generally tends to rise in times of strong growth and fall in times of weak growth or recession. The capital share is said to be "pro-cyclical," in the sense that it moves in the same direction as the overall business cycle, and by the same token, the labor share is "countercyclical." This phenomenon reflects the fact that profits are always more volatile than wages (they rise faster and further during booms, but on the other hand they collapse more rapidly and more massively during recessions). Moreover, this represents one of the fundamental elements of the wage relationship: compensation paid to workers does not depend (or depends very little) on the overall level of economic activity; profits are what is left over once wages have been paid, and it is thus firms and their shareholders that bear the risks arising from any collapse in economic activity (and by the same token, they are the first to benefit from an upturn). In fact, we can see, for example, in Figure 1-5 that the capital share fell brutally during the economic crisis of the 1930s. Inversely, the years of strong economic recovery and reconstruction that immediately followed the Second World War were years of recovery in business profits and a strong increase in the capital-income share. Then, the 1950s and 1950s, which were marked by continual growth and the almost complete absence of a business cycle, ushered in a high degree of stability in the capital-labor split. The

changes seen over the 1970s and 1980s arose from a more complex dynamic. On the one hand, these fluctuations corresponded to the classic phenomenon of a countercyclical labor share: the pace of wage growth was not significantly affected by the oil shocks or the growth slowdown of the 1970s, leading automatically to a rise in the labor share. By the same token, the period of strong growth in the late 1980s corresponded to a phase of business-profit recovery and a decline in the wage share. But this “classic” business cycle was amplified by a medium-term cycle of a far more political nature, as already mentioned: the wage increases of the 1968–1983 period were amplified by the period’s climate of strong social contestation, especially via the increase in the minimum wage, which explains the exceptionally large decline in the capital share of value-added. Inversely, the decision in 1982–1983 to put an end to the period of large wage increases and to let firms rebuild their profits was obviously a political decision, which led to an exceptionally rapid increase in the capital share of value-added during the second half of the 1980s, which even slightly surpassed its late 1960s level; the situation has calmed down since then, and since the early 1990s the capital–labor split has stood at the “classic” 35–65 percent level (see Figure 1-5). Over the following chapters we will revisit the implications of these cyclical fluctuations for the trend of income inequality. For now, let us simply note that the capital share collapse in 1939–1948 is only an extreme version of the more general phenomenon of pro-cyclical capital shares in firms’ value-added.

This dip in 1939–1948 thus shows that the U-curve traced out by the investment-income share of household income reflected a quite real decline in the profit share within firms; it was not solely a monetary phenomenon caused by the fixed-interest component of investment income being decimated by the inflation of the two world wars. Furthermore, the fact that the capital share of firms’ value-added had regained its prewar level by 1949 does not mean that the “real” component of the explanation applies only to the 1939–1948 years. It must be remembered that “capital income” as defined in the business production accounts, which are used to measure the “capital share” of value-added, reflect firms’ “gross profits.” The category is thus significantly vaster than investment incomes received by households, since a firm never distributes all of its gross profits. Gross profits are used not only to pay dividends to shareholders and interest to bondholders and other firm creditors (banks, other firms, etc.), but also to pay certain taxes levied on profits (especially the profit tax), and most importantly, to finance the cost of replacing used materials and equipment and



build up reserves that the firm will be able to use to finance new investment without having to issue new stock or undertake new borrowing. The share of these "undistributed profits" within gross profit varies greatly depending on the firm and the state of the business cycle, but it is often higher than 50 percent, which explains why the investment-income share of household income is always significantly less than the capital-income share of firms' value-added.

But the key fact that interests us here is that at the end of the Second World War, the undistributed-profit share seems to have settled at a structurally higher level than it had been in previous periods. Moreover, this issue of undistributed profits and the "self-financing" of firms was very much present in the 1950s, with many scholars at the time attempting to quantify the growth in the undistributed-profit share. According to the estimates in Malissen (1953, 1957), the undistributed-profit share, which was around 50 percent in the 1920s before collapsing to around 20–30 percent in the 1930s crisis, had stabilized since 1946–1947, with the early 1950s at levels around 70–80 percent; indeed, the real value of dividends distributed by firms in 1948 was less than a quarter of those distributed in 1938, despite the fact that the firms' profits rose by more than 30 percent between those two dates (again, in real terms).<sup>58</sup> In respect to this phenomenon, Malissen shared the interpretation and general impression held by most observers at the time: the French economy had been devastated by the destruction of the Second World War, and it was also still paying a price for the underinvestment that had characterized the 1930s, which had been due to the fall in the capital share of value-added and made worse by firms' choosing to distribute most of their profits to accommodate their shareholders, and the country's recovery now required that firms rebuild their reserves and invest the bulk of their profits, which meant finally de-prioritizing the interests of their shareholders. Moreover, this phenomenon pertaining to private companies would be amplified by the nationalizations undertaken at the Liberation: by definition, public enterprises, which are included in the estimates of the distribution of business value-added shown in Figure 1-5, do not distribute any profits at all to private shareholders.

There is no doubt that this structural increase in the undistributed-profit share after the Second World War explains a key part of the U-curve traced out by the investment-income share of household income. However, it is difficult to quantify precisely what role was played by this "real" portion of the explanation and what role was played by the purely monetary explanation involving fixed



interest. The data available for the interwar period permit only relatively approximate estimates of the undistributed-profit share and the distribution of investment-income between dividends and interest, and these estimates do not lend themselves easily to highly precise comparisons vis-à-vis the far more satisfactory estimates available for the postwar and late-century periods.<sup>59</sup> Moreover, these two components of the explanation are closely linked, since one of the main reasons firms in the postwar period and 1950s could distribute only a small fraction of their profits is precisely because inflation had relieved them of the burden of interest payments on debt issued before, during, and immediately after the war. It should also be mentioned that the path leading from profits paid out by firms to investment income received by households is greatly complicated by the fact that certain dividends paid out by firms can sometimes end up in household incomes in the form of interest, due to the presence of financial intermediaries standing between firms and households, namely, banks and insurance companies. For example, interest on life insurance contracts, which assumed great importance in the household portfolios of the 1980s and 1990s, might very well come from dividends received by insurance companies on shares that the insurance companies acquired using households' long-term savings. For all of these reasons, it is impossible for us to untangle the various explanatory factors in a completely satisfactory way.

Based on the data available, however, it would seem that the central role was played by the strictly real part of the explanation: the inflation of the two world wars certainly devastated the real value of a significant mass of annuities, bonds, and other fixed-income investments, but a good part of that interest reflected debts recently issued, especially by the state to finance the wars. That explains, for example, why in the 1920s the investment-income share of household income settled at the same level as at the beginning of the century (around 10–11 percent of household income). Thus the inflation of the First World War certainly made it possible to get rid of a considerable quantity of debt, but a good part of that debt had been issued during the war and the early 1920s (especially by the state), so the collapse of the interest burden did not affect the overall volume of investment income. In the absence of hyperinflation, the extra interest would have ended up adding to “normal” investment income—made up, among other things, of dividends paid out by firms—and the investment-income share of household income in the 1920s would have settled at a level significantly higher than 10–11 percent. Inversely, without the additional

interest—created by the state, notably—the investment-income share probably would have settled by the 1920s at a level lower than its prewar level, since the undistributed-profit share had probably been less elevated before the war than at the end of the war, for reasons similar to those we have mentioned for the Second World War.<sup>60</sup>

To a first approximation, then, we can interpret the U-curve traced out by the investment-income share of household income over the course of the twentieth century as a reaction to the quite real phenomenon of the destruction arising from the Second World War. At the end of the global conflict, the French economy entered a phase of "primitive capital accumulation," taking place mainly within firms, which were choosing to make it their priority to devote their profits to a rebuilding of reserves and equipment, temporarily deprioritizing shareholder interests. Only gradually did household investment income begin to recover, tracing a gently rising curve as a share of household income starting in the late 1950s, through the 1960s and 1970s, and ultimately regaining its level from the beginning of the century and interwar period during the 1980s and 1990s. A smaller-scale version of this "primitive accumulation" phase had probably begun after the First World War, but, in addition to the fact that the level of material destruction was significantly greater in the Second World War, this phase was heavily masked by the new investment income created by the state in the form of interest on the public debt, and most importantly, it was brutally interrupted by the 1930s crisis, which resulted in a collapse of investment. This interpretation of the facts leaves some areas unclear, but it is consistent with the available data. As in the case of rental incomes, it leads to the conclusion that nearly a half-century would be needed for investment incomes to recover from the two world wars.

In any event, as in the case of the overall equality between the average earned incomes of wage-workers and self-employed workers over the century, this capital-income U-curve expresses facts about "averages," but tells us nothing about distribution. In particular, the fact that the capital-income share of household income was roughly the same at the beginning and the end of the century does not in any way allow us to conclude that the contribution of capital income to income inequality was the same at the beginning and the end of the century: it all depends on how ownership of this capital was distributed among households. For example, holding all else equal, for a given total volume of investment income, a society where most household wealth takes the form of

millions of savings accounts or small stock portfolios would obviously be far more egalitarian than a society where a small number of big individual shareholders owned most household investment wealth. The same is true for rental incomes: for a given volume of rental income, income inequality would obviously be very different in a society where many households owned and rented out one or two apartments to supplement their earned incomes, versus a society where most of the real-estate stock was owned by a small number of big real-estate-holding households. The national accounts tell us only about overall capital income aggregates in different periods, and obviously tell us nothing about changes over time in the distribution of real-estate or investment capital. Here we can see all the limitations of analyzing the “average” composition of income, as the national accounts permit us to do. Knowing the broad outlines of how the “average” composition of income evolved gives us a general chronological framework, to which we will frequently refer, but it can in no way substitute for an analysis of income inequality at the household level. In particular, it is only by analyzing the evolution of the level and structure of top incomes, which we will do in the chapters that follow, that we can obtain an understanding of how this U-curve impacted income inequality in twentieth-century France.

#### 4. *The Evolution of “Average” Purchasing Power in France in the Twentieth Century*

Now that the major structural trends in prices, demographics, and the composition of income have been accounted for, we can examine the evolution of “average” purchasing power in twentieth-century France. The first important fact to note is that in the twentieth century the purchasing power of French households grew by exactly the same proportion, and at the same rate, as the volume of goods and services produced on the national territory. From 1900 to 1998, according to the estimates from the national accounts, the share of household income in gross domestic product (GDP) always fluctuated between 80 percent and 90 percent, depending on the period and on whether we are looking at disposable income (after taxes and transfers) or at primary income (before taxes and transfers).<sup>61</sup> As we have seen, the composition of household income was completely transformed over the course of the century, especially due to the “wageification” of work, but when we examine the overall level of this household income, we observe

that its share in GDP remained extremely stable, with no clear upward or downward trend in the long run.

This stability in the household-income share of GDP should not be surprising, but it simply reflects the fact that households have, by definition, always been the main outlet for the goods and services produced within France, and there is no reason why the small share taken by other outlets should show any clear upward or downward trend over the long run. In addition to household income, the two main components of GDP are, on the one hand, the undistributed profits of firms, and on the other hand the goods and services absorbed by the state for its "own" consumption (public buildings, ministerial vehicles, office supplies, etc.). We have already mentioned the role of undistributed profits: namely, firms never distribute all their profits to the households who own them, the undistributed profits allow firms to replace used equipment, build up reserves, and finance new investment without having to turn to household savings, and they are generally more volatile than GDP, like the total profits of which they are a component. These short-term fluctuations in the undistributed-profit share of GDP explain, for example, why GDP growth rates and household-income growth rates frequently tend to diverge in the short run, with household incomes generally showing smoother and less volatile movements than GDP (the growth rate of household income tends to be lower than that of GDP during periods of strong growth, and, inversely, higher during slowdowns or recessions). But the important fact is that there is no reason why the share of undistributed profits in GDP—apart from such short-term fluctuations or medium-term phenomena like the bigger undistributed-profit share in middle part of the century—should show any clear upward or downward trend in the long run. And in any event, it ought to remain of modest size, because as we have seen, the profit share of firms' value-added was stable overall (around one-third) over the twentieth century, and shareholders would not accept an excessive share of profits accumulating indefinitely inside firms.<sup>62</sup>

As for the second component (goods and services "consumed" by the state), its relative stability over time is no more surprising. That the considerable growth of state intervention in economic and social life over the twentieth century did not lead to a substantial increase in the "state share" of GDP and a corresponding decline in the "household share" simply reflects the well-known fact that this "state growth" mainly reflects very strong growth in public-sector pay, and especially in public social benefits, rather than in the share of goods and services

directly consumed by the state, which to a first approximation remained stable overall over the century. In other words, the very real growth in the tax share of GDP—whether we look at the considerable growth in social-insurance contributions, which by definition are entirely redistributed back to households in the form of social benefits, or at the far more modest growth in ordinary taxes, which have mostly been redistributed to households in the form of pay for workers in the public sector, hospitals, local governments, and so forth—has not altered the household income share of GDP quite simply because this growth of the state was limited to implementing transfers within household income, taxing income from the household-income account with one hand, and paying it back with another hand.<sup>63</sup> Ultimately, it is not surprising that household income represented around 80–90 percent of GDP throughout the century, and that household purchasing power, as measured by the national accounts, grew over the century by the same proportion and at the same pace as GDP.

However, in this book, the income concept we will be using to measure movements in household income, and especially movements in top incomes, is a different concept from that used in the national accounts, and it is important at this point to specify what the differences are. In this book, we will be examining the “fiscal income” of households, and the term “income,” unless otherwise specified, will always refer to “fiscal income,” not to income in the national-accounting sense. Fiscal income refers to the sum of all incomes that taxpayers must declare under the progressive income tax (assuming that all households file a tax return, including households not owing tax), before any deductions or exemptions.<sup>64</sup> Fiscal income is thus a broader notion than “taxable income,” which refers to fiscal income after taking into account the various deductions permitted by the tax code in different periods (for example, the 10 percent deduction and the 20 percent exemption that wage earners currently enjoy, which was authorized before the Second World War), and which serves as the income on the basis of which income tax is calculated. The incomes shown in the statistical tables compiled by the tax administration based on tabulations of income tax returns have always been expressed in terms of taxable income, so we have had to revise upward the estimates of average income for the various top-income fractiles (expressed in terms of taxable income) to obtain the estimates presented in the following chapters, which are expressed in terms of fiscal income.<sup>65</sup>

Fiscal income, on the other hand, is a narrower concept than the household-income concept used in the national accounts. There are several reasons for

this. First of all, as we have already said, household income as measured in the national accounts is always "gross" income (just as GDP is always "gross"), in the sense that the costs of capital depreciation and replacement of equipment and materials are never deducted. In particular, the mixed incomes of self-employed workers estimated in the national accounts are gross incomes, whereas the mixed incomes that self-employed workers are required to declare for the income tax, and thus become part of our "fiscal income" concept, have always been "net" profits. In other words, self-employed workers have always been allowed to deduct from their gross profits the expenses arising from replacement of used-up materials, interest payments on loans taken out by their business, and so on. Likewise, the rental incomes estimated in the national accounts do not take into account the costs arising from property maintenance, whereas the tax administration has always allowed them to be deducted.

In addition, household income in the national-accounting sense includes certain elements that are not generally seen as being a part of "income" (in the commonsense meaning of the word), and which indeed do not appear in income tax returns and do not belong to our concept of "fiscal income." We have already mentioned the case of "imputed" rents that owner-occupiers of homes are held to be paying to themselves, but the case of health-insurance reimbursements should also be mentioned: when the national health-insurance system reimburses a household 100 francs for medications or a doctor's visit, household income in the national-accounting sense increases by 100 francs. As is the case with imputed rent, the inclusion of health-insurance reimbursements in household income makes sense when looked at from a national-accounting perspective, since the object of national accounting is to quantify all goods and services produced by the national economy; such reimbursements are part of the vast edifice of social benefits paid to households and as such deserve to be taken into account as part of their "income." But the value of these reimbursements, as with imputed rent,<sup>66</sup> obviously is not mentioned in tax returns, and we will not attempt to take them into account.

Finally, the concept of "fiscal income" that we will be using in this book by definition does not take into account several categories of income that are in fact part of "income" in its commonsense meaning and which are recorded as such in the national accounts, but which were not taxable under the legislation in effect in various periods and thus did not appear in tax returns. This is especially the case for an important component of social benefits: apart from

health-insurance benefits and social minima (the RMI [minimum-income benefit], *minimum vieillesse* [old-age minimum income]), family benefits, and especially family allocations and other “family top-ups,” have never been taxable, as is also the case for the bulk of unemployment benefits (of all social benefits, only retirement pensions have always been systematically taxable). There are also certain types of capital income, especially income subject to the *prélèvement libératoire* (optional tax-in-discharge, or optional levy) and income from various kinds of savings accounts, the list of which tends to lengthen as time goes by, as well as capital gains—which in France have never been taxable under the overall progressive income tax—which do not belong to the concept of fiscal income used here.<sup>67</sup> Initially we will not attempt to account for these capital incomes not appearing in income tax filings, but in Part Three (Chapter 6) we will revisit how including them would probably affect our conclusions.

In the end, these factors taken together mean that fiscal income is always significantly lower than household income in the national-accounting sense. From the perspective of average income, the two most important factors explaining the smaller value of fiscal income are, on the one hand, the use of net rather than gross profits of self-employed workers, the importance of which has been declining slowly but surely over the course of the century in step with the “wageification” process, and on the other hand the exclusion of a decisive share of social benefits, a factor whose importance, by contrast, follows a rising curve over the century, in step with the growth of social protection, and which has assumed considerable proportions at the end of the century, especially due to health-insurance benefits. According to our estimates, these factors seem to have roughly offset each other over the long run, so that throughout the twentieth century household fiscal income has represented 60–70 percent of household income in the national-accounting sense.<sup>68</sup> Apart from slight short-term divergences, household fiscal income has thus grown at the same pace and in the same proportions as household income in the national-accounting sense, which itself has grown at the same pace and proportion as GDP.

#### 4.1. The Stages of Growth of “Average” Income

Thus, insofar as it can be measured by average fiscal income (which we will refer to more simply as “average income”), purchasing power has been subject to the same vicissitudes as GDP over the twentieth century. That is above all the case



with respect to the orders of magnitude of their overall growth. GDP expressed in constant francs—that is, the volume of goods and services produced by the French economy—rose by a factor of around 10 between the beginning and the end of the century,<sup>69</sup> and total household income expressed in constant francs—that is, the purchasing power of households—thus also rose by a factor of around 10 between the century's two endpoints. With population having grown by about 50 percent and the number of households and tax units having slightly more than doubled over the course of the century, this means that average income per person rose by a factor of around 6.5, and average income per household or tax unit rose by a factor of around 4.5. More precisely, according to our estimates, average income per person expressed in 1998 francs multiplied by 6.72 between 1900 and 1998, and average income per tax unit expressed in 1998 francs multiplied by 4.49 between 1900 and 1998 (see Table 1-1). Average income per tax unit expressed in 1998 francs thus rose from 28,760 francs per year in 1900 (less than 2,400 francs per month) to 129,085 francs in 1998 (nearly 10,800 francs per month), which corresponds to an average annual growth rate of 1.54 percent. The "average" household at the beginning of the century had the equivalent of today's RMI to live on, whereas the "average" tax unit at the end of the century, despite being far smaller, had an income that was around 4.5 times greater.

But this dizzying growth in purchasing power over the twentieth century hardly proceeded at a constant pace of 1.54 percent per year; in fact, over the century, household purchasing power experienced the same overall growth as national output, but it experienced the same convulsions as well, with near-stagnation in the first half of the century, a prosperous period in the first three decades after the Second World War, and a very sharp slowdown in growth since the late 1970s. In particular, Figure 1-6 shows spectacularly how much the *Trente Glorieuses* (the three postwar decades of "glorious" growth) deserve their name: the near-quintupling in the purchasing power of average per-tax-unit income was mainly because of the very strong growth registered in the 1948–1978 period, whereas the 1900–1948 and 1978–1998 periods appear as periods of relative stagnation. According to our estimates, the stagnation in average income per tax unit in the 1900–1948 and 1978–1998 periods corresponded to totally insignificant average growth rates of 0.18 percent and –0.01 percent, respectively, per year, whereas the *Trente Glorieuses* of the 1948–1978 period corresponded to an average growth rate of 4.84 percent per year (see Table 1-1).



## THE EVOLUTION OF INCOME INEQUALITY IN FRANCE

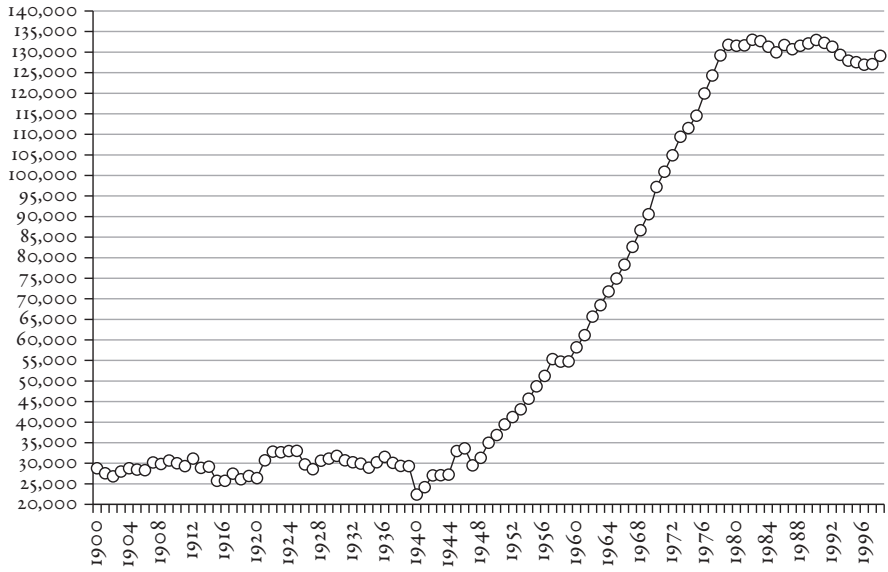


FIGURE 1-6. Average income per tax unit from 1900 to 1998 (in 1998 francs)

Source: Column (7) of Table G-2 (Appendix G)

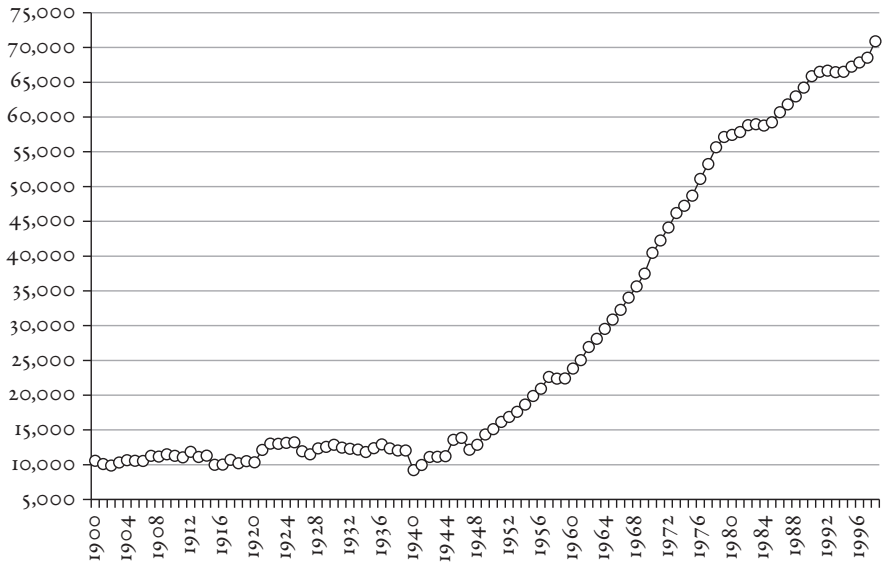


FIGURE 1-7. Average income per person from 1900 to 1998 (in 1998 francs)

Source: Column (9) of Table G-2 (Appendix G)

A FIVEFOLD INCREASE IN "AVERAGE" PURCHASING POWER

TABLE I-1  
*Growth rates of average income from 1900 to 1998*

Average income per tax unit (in 1998 francs)		Average income per person (in 1998 francs)	
1900	28,760	1900	10,551
1998	129,085	1998	70,894
Ratio 1998 / 1900	<b>4.49</b>	Ratio 1998 / 1900	<b>6.72</b>
Annual average growth rate	<b>1.54</b>	Annual average growth rate	<b>1.96</b>
1900	28,760	1900	10,551
1948	31,315	1948	12,873
Ratio 1948 / 1900	<b>1.09</b>	Ratio 1948 / 1900	<b>1.22</b>
Annual average growth rate	<b>0.18</b>	Annual average growth rate	<b>0.42</b>
1948	31,315	1948	12,873
1978	129,214	1978	55,641
Ratio 1978 / 1948	<b>4.13</b>	Ratio 1978 / 1948	<b>4.32</b>
Annual average growth rate	<b>4.84</b>	Annual average growth rate	<b>5.00</b>
1978	129,214	1978	55,641
1998	129,085	1998	70,894
Ratio 1998 / 1978	<b>1.00</b>	Ratio 1998 / 1978	<b>1.27</b>
Annual average growth rate	<b>-0.01</b>	Annual average growth rate	<b>1.22</b>

*Explanation:* Expressed in 1998 francs, average annual income per tax unit grew from 28,760 francs in 1900 to 129,085 francs in 1998, multiplying by 4.49 and growing at an annual average rate of 1.54 percent between 1900 and 1998.

*Sources:* Calculations based on columns (7) and (9) of Table G-2 (Appendix G).

Figure 1-6 also allows us to identify the various subepisodes in this three-period chronology (1900–1948, 1948–1978, and 1978–1998). Over the first half of the century, the chaotic path of purchasing power was marked by the multiple upheavals of two world wars and the 1930s economic crisis, as was the case for national output. Between 1900 and 1914, average income per tax unit expressed in 1998 francs fluctuated at around 28,000–29,000 francs per year, with a slight downward trend. The drop in production due to the First World War brought it down to 25,000–26,000 in 1915–1916, then reconstruction and the strong growth of the 1920s carried it up to 33,000 francs in 1925, an increase

in purchasing power of nearly 30 percent relative to the 1915–1916 trough and nearly 15 percent relative to the prewar period.<sup>70</sup> The return of inflation in 1926 and the Poincaré stabilization led to another drop in purchasing power in 1926–1927, returning it to its prewar level. Growth resumed in 1928–1930 (nearly 32,000 francs in 1930), but by 1931 the economic crisis led to fresh losses in purchasing power (punctuated by slight increases in 1935 and 1936), so that over the 1930s average income never surpassed the levels of around 33,000 francs that had been reached in the 1920s.

However, the 1930s were characterized more by stagnation in purchasing power than by real declines: between 1930 and 1939, average income oscillated between 29,000 and 32,000 francs per year, a margin of fluctuation of around 10 percent. By comparison, GDP fell by nearly 20 percent between its 1929 maximum and its 1935 minimum.<sup>71</sup> This is explained by the fact, already noted, that household incomes always tend to fall less than GDP in periods of recession (it is mostly profits and investment capacity that are “hit” by recessions), and more specifically by the fact that the 1930s deflation caused the real value of wages to be spared, with their level in current francs generally falling less rapidly than prices, thus resulting in slight increases in workers’ purchasing power (at least for those who had not lost their jobs). This phenomenon explains, for example, why average income (expressed in 1998 francs) grew by less than 5 percent between 1934 and 1935,<sup>72</sup> even as production in 1935 reached its lowest level of the decade. The year 1935 was also the trough of the deflation, and the fact is that although average income fell slightly between 1934 and 1935 in current francs, it fell by less than the price level.<sup>73</sup> We also find this phenomenon of rising purchasing power in the context of deflationary recession during the reconversion crisis of 1921. This relative rigidity of real incomes in the face of deflation also explains why household purchasing power fell more in 1926 during the very sharp reprise of inflation preceding the Poincaré stabilization than during the deflation years, and why the strong growth of 1928–1929 just barely allowed purchasing power to approach its maximum level of 1925, even though it was in 1929 (not 1925) that GDP reached its highest level of the interwar era.

The Second World War and the drop in production that accompanied it brought the purchasing power of average income to the lowest levels recorded in France over the twentieth century. According to our estimates, the absolute minimum level was reached in the year 1940, with an average income of 22,415

francs, less than 1,900 francs per month. Purchasing power recovered slightly in 1941–1942, but the prewar levels would not be reached until the Liberation and the 1945–1946 years, and they were not definitively surpassed until 1948–1949, following a slight fallback in 1947, a year characterized by major strike movements and a sharp slowdown in the pace of reconstruction. Here again we note a slight short-term divergence between changes in household income and changes in GDP, as average income reached its lowest level for the century in 1940, whereas the low for production was reached in 1944. This is explained once again by short-term movements in firms' undistributed profits, which reached their lowest level of the century in 1944, when the first major wage increases of the Liberation had just been instituted.

Ultimately, then, after the Second World War, average income per tax unit, expressed in 1998 francs, returned to levels practically identical to those seen before the First World War. The gains in purchasing power of the immediate postwar periods (the 1920s and late 1940s) only just compensated for the losses in purchasing power of the 1930s and, above all, of the two world wars. The 1914–1948 period also offers a particularly striking example of a period when very strong nominal income growth was entirely offset by the growth of prices: average incomes expressed in current francs multiplied by more than 100 between 1914 and 1948, rising from about 1,700 (old) francs per year in 1914 to more than 170,000 (old) francs in 1948,<sup>74</sup> but since prices also multiplied by a coefficient of about 100 over the same period, real incomes were practically unchanged.

By comparison, the 1948–1978 period truly appears as an exceptional era: average purchasing power more than quadrupled in thirty years. If we exclude the year 1958, which featured the return of double-digit inflation and a slight erosion of real income, purchasing power grew every year for thirty years, and at a practically constant pace from 1948 to 1978, with no apparent cycle. The late-1970s rupture thus appears all the more brutal (see Figure 1-6). Expressed in 1998 francs, average income per tax unit reached its "historic" maximum level of 130,000 francs by 1978–1979, and for twenty years it has stagnated around this threshold. In 1984–1985, and then again in the 1990s following the 1992–1993 recession, there were even sharp declines in purchasing power, interspersed with slight increases in the late 1980s and late 1990s, which were periods of economic recovery. We may also note that average income per tax unit reached its absolute twentieth-century maximum in 1982 (132,981 francs per year), and

that the decline observed in 1984–1985 was particularly marked in light of the strategy, instituted in 1982–1983, of engendering disinflation and a rebuilding of firms' reserves, which reinforced the effects of slow output growth. Inversely, the reason household purchasing power benefited from the *Trente Glorieuses* growth rate up to the late 1970s, despite the fact that output growth showed its first signs of weakness with the 1973 oil shock, is that it was firms' reserves that first "felt" the 1970s slowdown, before the socialist government elected in 1981 assumed the heavy task of adjusting the pace of purchasing-power growth to the new pace of output growth. Beyond these short-term vagaries, by 1998 average purchasing power ultimately returned to a level practically identical (within 1 percent) to its 1978 level, around 130,000 francs per year; the upward trend seems to have broken completely. Surely when he wrote his book *Les Trente Glorieuses*, Jean Fourastié could not have imagined the degree to which, twenty years later, his expression characterizes such a well-defined period of time.

However, reasoning in terms of average income per tax unit somewhat exaggerate the magnitude of the late 1970s rupture. In fact, given that the average tax-unit size has been declining steadily over time, and at an especially rapid pace in the 1980s–1990s, average income per tax unit (like average income per household) is artificially pulled downward. If we look at the evolution of average income per person, which is probably a better indicator of the "average standard of living" than average income per tax unit or per household, we see that purchasing power continued to grow in the 1980s–1990s (see Figure 1-7). If we exclude two years when even purchasing power per person fell (the year 1984, when the rebuilding of firm reserves was happening at a particularly rapid rate, and the year 1993, when the French economy experienced the deepest recession since the Second World War), we see that average income per person continued to grow every year between 1978 and 1998. Nevertheless, the deceleration in the growth rate of living standards relative to the prior period was quite real, which explains why it was felt so bitterly: average income per person had more than quadrupled between 1948 and 1978, but grew only 27 percent between 1978 and 1998; the growth rate of average income per person, which was 5.0 percent per year between 1948 and 1978, fell to 1.22 percent per year between 1978 and 1998, one-fourth its level of the prior period (see Table 1-1).

How can we explain the jerky pattern of French purchasing-power growth over the twentieth century, which is also the pattern of national output growth

(aside from the slight short-term divergences already noted)? Concerning the most recent phenomenon, namely, the growth slowdown since the late 1970s, the greatest caution is required. The most common explanations refer to the end of the "catchup" process that the French economy experienced in the *Trente Glorieuses* and the return to a more "normal" pace of growth, as well as the transition from traditional industrial sectors to a "services society," which would explain the very sharp slowdown in the rate of productivity growth, as seen in all developed countries. With growing frequency in the late 1990s, a newly emerging phase of fast growth linked to the new computing and computer-services technologies is being talked about, but obviously it is too soon to draw conclusions. As for the contrast between the first half of the century and the *Trente Glorieuses*, historical distance permits firmer conclusions, although controversies are not absent. The argument most frequently advanced is that the French economy in the three postwar decades did not experience an automatic process of catchup relative to other developed countries, but rather a process of catchup with its own prior growth rate, which the 1930s crisis and, most importantly, the two world wars had temporarily interrupted. Already in his *Histoire économique de la France entre les deux guerres* (Economic History of Interwar France), Sauvy stressed that by 1929, the very strong growth of the 1920s had brought about a level of output that, "without the war, would have resulted from a continuation of the earlier long-term trend."<sup>75</sup> Then, Carré, Dubois, and Malinvaud, in their famous 1972 work devoted to *La croissance française* (French Growth), added considerably to the generality and precision of this analysis by advancing the idea that the acceleration of French growth—especially because of the dynamism of industrial investment and higher skill levels—was already clearly visible in the 1896–1929 period, and that this strong growth had been "abnormally" interrupted by the crises of the 1930–1946 years, so that the first postwar decades merely allowed the French economy to make up for lost time and return to the potential growth path it was on before the war.<sup>76</sup> Inversely, the so-called Regulation school insists that the *Trente Glorieuses* would not have been possible without the adoption of a new "mode of regulation" after the Second World War, based in particular on public investment and the indexing of wages to inflation and productivity growth.<sup>77</sup> In the following chapters, we will see how far an examination of the evolution of income inequality might allow us to confirm, contradict, or, most importantly, flesh out these analyses.<sup>78</sup>

## 4.2. Average Income and Average Wages

To get a sense of the growth of “average” purchasing power over the course of the century, it is useful to compare the evolution of the average wage with that of the average income. In theory, based on what we said earlier, we should expect the purchasing power of the average wage to have multiplied by a factor of around 8.5–9.0 between the century’s two endpoints. Indeed, we have seen that GDP multiplied by a factor of around 10, and the number of employed workers grew by only 15 percent from the beginning to the end of the century (a bit more than 19 million employed workers at the beginning of the century, versus a bit more than 22 million at the end of the century, which implies that GDP per employed worker multiplied by a factor of around 8.5–9.)<sup>79</sup> We have also seen that an equivalence between the average earned incomes of wage-earning and self-employed workers over the century could be considered a valid hypothesis, to a first approximation, and that firms’ value-added was split between labor and capital on the same terms at the beginning and the end of the century (two-thirds of value-added for labor, one-third for capital), which means that average earned income per worker should have grown by the same proportion as GDP per employed worker. In reality, according to our estimates, the annual net wage per wage earner (all workers taken together), expressed in 1998 francs, rose from 23,383 francs in 1900 (less than 2,000 francs per month) to 122,930 francs in 1998 (more than 10,000 francs per month), thus multiplying by a factor of 5.26 in a century, not a factor of around 8.5–9.0 (see Figure 1-8).<sup>80</sup> Obviously, this only appears to be a paradox and is explained by the growth of social benefits: workers’ total compensation, including not only the net wage but also all social-insurance contributions (those of both the worker and employer), as well as benefits paid directly by the employer, did indeed multiply by a factor of around 8.5–9 between the century’s two endpoints. But given the very large growth in contribution rates over the course of the century, which made possible a dizzying rise in the financing of pensions and health-insurance benefits paid out to workers or ex-workers, the net wage, strictly speaking, multiplied by a factor of “only” 5.26.<sup>81</sup>

Ultimately, then, we see that the factor by which the average net wage per worker multiplied over the century was only just higher than that by which average income per tax unit multiplied (5.26 versus 4.49). The fact that the average wage grew (slightly) faster than average income obviously tells us nothing at all about the evolution of income inequality. Indeed, given the fact that the

## A FIVEFOLD INCREASE IN "AVERAGE" PURCHASING POWER

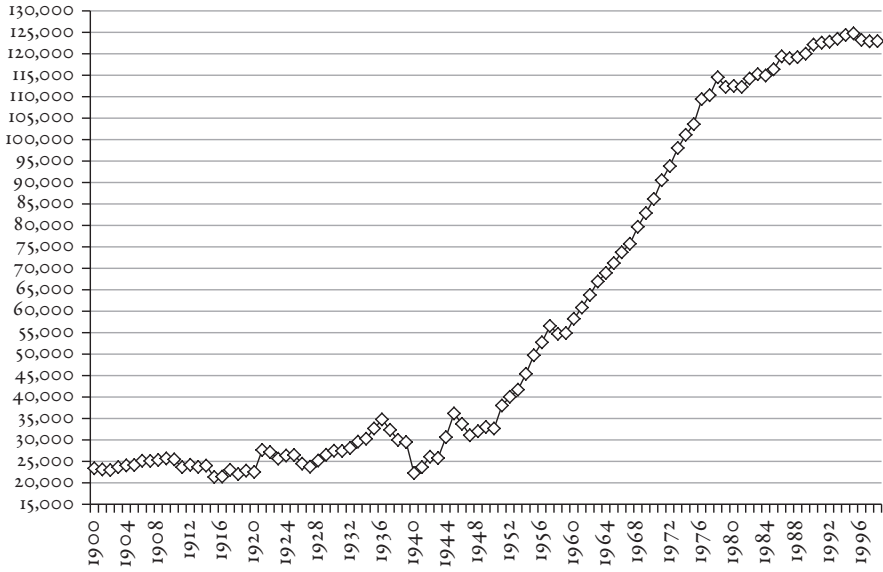


FIGURE 1-8. Average wage per worker from 1900 to 1998 (in 1998 francs)

*Source:* Column (12) of Table E-3 (Appendix E)

number of jobs grew far less rapidly than the number of tax units, we should have expected the average wage to have grown nearly twice as fast as average income (which, again, would tell us nothing about the evolution of inequality), and it is only by the hazards of the numbers that accounting for social-insurance contributions results in growth factors for the average net wage and average income that are relatively close to each other. We also note that average income per tax unit was, throughout the century, slightly higher than the average net wage per worker: around 30,000 francs for average income versus 25,000 francs for the average wage at the start of the century, and around 130,000 francs for average income versus 120,000 francs for the average wage at the end of the century (see Figures 1-6 and 1-8). Here again, this similarity offers an easy way to recall orders of magnitude, but tells us nothing about inequality, and we should not see it as anything but a coincidence (or rather as an automatic reflection of the population structure and the composition of incomes). At the beginning of the century, the gap between average income and the average wage was around 20 percent, which is consistent with the fact that the number of employed workers was then slightly greater than the number of tax units (19 million



versus 15 million) and the fact that household capital income and household earned income must be added together to obtain total income.<sup>82</sup> The gap then gradually shrank, falling from around 20 percent at the start of the century to around 10 percent in the middle of the century and around 5 percent in the 1990s,<sup>83</sup> which is simply the automatic result of the fact that the average wage grew about 10–15 percent faster over the century than did average income (5.26 versus 4.49).

The average wage thus experienced the same general evolution as average income, with a very large increase over the 1948–1978 period and near-stagnation over the 1900–1948 and 1978–1998 periods (see Figures 1-6 and 1-8). Of course, in addition to this overall similarity in long-term trends, we also see short-term divergences, whose main causes have already been noted: the other components of income (mixed income and capital income) tend to be more volatile than wages, so we often see an increase in the gap between average income and the average wage during periods of fast growth, and inversely a narrowing during periods of slowdown or recession. Thus, the gap between average income and the average wage widened over the 1920s, then shrank considerably in the 1930s, to the point that average income fell below the average wage over the period of deflation, until the return of inflation in 1936 reestablished the usual hierarchy.<sup>84</sup> In fact, before inflation-indexing of wages became practically systematic and immediate after the Second World War, the impact of inflation on the level of real wages could become so strong that in the short run the average wage often followed a path even more volatile than that of average income. The purchasing power of the average wage earner followed a particularly chaotic path during the 1936–1948 years, which featured very high inflation and great irregularity in the size of wage increases. Expressed in 1998 francs, the average wage reached a level of around 35,000 francs in 1936, an increase in purchasing power of nearly 50 percent relative to the beginning of the century, before falling in 1940 to its lowest level of the century (barely more than 22,000 francs). It then climbed in 1945 to more than 36,000 francs, after the very large wage increases of the Liberation, only to be eroded by inflation once again in 1946–1947 and to stagnate in 1948–1950, so that it was only in 1951 that the average wage definitively surpassed its 1936 level (see Figure 1-8). Throughout these years, the question of wage increases and price controls was a major issue of political conflict, and in the following chapters we will see how income and wage inequality evolved over the course of this chaotic period.

Let us also note that, like average income per person, but unlike average income per tax unit, the average wage continued to grow over the 1978–1998 period (see Figures 1-6, 1-7, and 1-8). Also, it should not be forgotten that while total real growth in the average net annual wage was only about 7 percent between 1978 and 1998,<sup>85</sup> by definition this growth does not take into account either the growth of social benefits or the reduction in working time. Generally speaking, the question of working time is totally absent from my estimates; for example, the "average wage" shown in Figure 1-8 is the average net annual wage, and not the average hourly wage. This choice is justified by the considerable difficulties involved in measuring working time across different eras, and by the fact that working time is of only limited importance when studying top incomes, though it is clearly one of the main determinants of "average" living conditions. According to the most recent estimates, in real terms the average net hourly wage per wage earner multiplied over the twentieth century by a factor nearly twice that of the average net annual wage.<sup>86</sup> Nevertheless, even taking into account the reduction in working time and the growth of social benefits, growth in the real average wage and real average income slowed considerably compared with the pace of growth seen during the *Trente Glorieuses*.

### 5. *What Does Purchasing Power Multiplied by 5 Mean?*

Of course, knowing the growth rate of "average" purchasing power over the twentieth century tells us nothing about the evolution of either income inequality or of the flesh-and-blood families standing at different points in the income scale in different eras. As with the "average" composition of income, knowing that "average" purchasing power multiplied by a factor of 5 between the century's two endpoints (4.49 for average income per tax unit, 6.72 for average income per person, 5.26 for the average net wage per wage earner), with all the ups and downs we have examined, gives us only some general background, which it will be useful to refer to in later chapters.

But merely trying to summarize the growth of living standards using a single factor poses an even more fundamental problem of interpretation. What does the phrase "purchasing power multiplied by 5 between the century's two endpoints" actually mean? Obviously, it does not mean that households in 1998 consume 5 times greater quantities of every good and service they consumed at

the start of the century. For example, average consumption of food products clearly did not multiply by 5; there would be no point, moreover, since the need for food would have been saturated long before that point was reached. In France, as in all countries, the twentieth-century growth of purchasing power and living standards has above all been a history of diversification in modes of consumption—consumption that was made up mostly of food products at the start of the century was gradually replaced by a much more diversified consumption, replete with industrial products and services. In addition, even if households wanted to consume 5 times more of all the goods and services they had consumed at the beginning of the century, they could not: some prices rose more rapidly than the “average” price, while others rose more slowly, so purchasing power did not increase fivefold for every type of good or service. Over short periods, this problem of “relative prices” can be ignored, and the “average” price indexes compiled throughout the century by the SGF and then by INSEE—which we have been using to convert current francs into 1998 francs—generally yield decent estimates of the true growth in purchasing power. But over long periods, when the structure of household consumption and relative prices change radically, especially due to the appearance of new goods and services, these indexes of “average” prices do not account well for the kinds of changes that take place, and this is true however sophisticated the techniques used by statisticians to estimate price indexes.<sup>87</sup>

In fact, the only way to truly gauge the spectacular transformations in living standards and modes of life that took place over the twentieth century is to take income levels expressed in current francs and compare them to the price levels for various goods and services prevailing in different eras. By definition, these problems concerning the measurement of living standards have no impact when we are trying to measure income inequality and its evolution over time. If the average income of the top 1 percent of tax units is 10 times greater than the average income per tax unit of the entire population, that factor of 10 obviously does not depend on which price index is used to convert incomes; in particular, it does not depend on whether we express different people’s incomes in current francs or in 1998 francs. But if we are examining the evolution of various people’s living standards in absolute terms, and not just in terms of inequality, then incomes must be expressed in current francs and compared to the prices prevailing in different eras. That is why in the appendixes we present all of our average income estimates for the total population and for various top-income

fractiles in current francs (and not just in 1998 francs), along with all of our estimates of the average wage for all workers and the average wage of the various top-wage fractiles expressed in current francs (not only in 1998 francs). Therefore any interested reader may use these figures and compare them to the prices prevailing in various periods to get a sense of the living standards that these incomes and wages made possible. In this section, we will simply present the main regularities worth highlighting, as well as a few examples of individual price trends that illustrate the great diversity of situations.

On "average," prices multiplied by a factor of around 20 and incomes by a factor of around 100 between the beginning and the end of the century (by 2,000 and 10,000 if we express the 1998 magnitudes in old francs); thus purchasing power multiplied by 5. Generally speaking, we can distinguish between three types of goods and services. First, there are industrial goods, whose productivity grew much faster than average, so that their sales prices rose much more slowly than the average price, and in terms of which purchasing power therefore multiplied by a factor well above 5. Second, there are food products, whose very long-term productivity growth was steady and decisive, but significantly less rapid than industrial goods over the twentieth century, so that their sales prices on average multiplied by roughly the same factor as the average price, and in terms of which purchasing power for food multiplied by a factor of about 5. Finally, there are services, whose productivity growth has always been relatively weak, even flat—which incidentally explains why this sector tends to absorb a continually greater share of manpower—so that purchasing power expressed in terms of services multiplied by a factor far below 5 (or did not increase at all).

This classic three-category typology can be found in all eras and in every country. For example, according to INSEE estimates, the "general" price index multiplied by 12.7 between 1949 and 1989 (that is, prices "on average" multiplied by 12.7), but the price index for manufactured products multiplied by 8.2, the services price index multiplied by 27.1, while the food price index multiplied by a factor of 11.7, that is, by a factor very close to that of the "average" price.<sup>88</sup> Unfortunately, it is only since the Second World War that INSEE has gathered "official" price samples for a very large number of individual goods and services. Before that, the "official" samples gathered by the SGF dealt with a very limited number of products (thirteen items, of which eleven were foodstuffs, then thirty-four items, of which twenty-nine were foodstuffs), which proved

adequate for decent measurement of the “average” change in the price level over the short run, but which did not make it possible to systematically analyze the long-term evolution in the structure of relative prices, especially if we are interested in purchasing power expressed in terms of industrial products and services.<sup>89</sup> For years prior to the Second World War, we must therefore make do with giving a few examples of industrial-price trends, obtained by supplementing “official” samples from the SGF and INSEE with information provided by the price sampling carried out on a “private” basis by a certain researchers, especially Jean Fourastié and his staff. Their patient work collecting and publishing thousands of individual price series since the mid-nineteenth century, gathered from hundreds of sales catalogs and commercial documents from different eras, has demonstrated the value of studying long-term changes in living standards by taking into account the great diversity of price trends, including those within each of the three broad goods and services categories that we have just identified.<sup>90</sup>

Let us begin by giving a few examples of foodstuffs, whose prices are by far the least well known. Taken as a whole, foodstuffs prices rose more or less like the average price, that is, they multiplied by around 20 between the beginning and the end of the century, which means that the average wage earner or household in the 1990s would be able to afford about 5 times more in the way of foodstuffs than the average wage earner or household at the beginning of the century, if they chose to devote the same fraction of their income to them. For example, the average price of a kilo of carrots was about 30 centimes at the beginning of the century, and it is about 6 francs in 1998.<sup>91</sup> With an annual wage of about 1,200 francs, or 3,30 francs per day, the average wage earner at the beginning of the century could buy a bit more than 10 kilos of carrots per day. With an annual wage of around 120,000 francs, or about 330 francs per day, the average wage earner in 1998 would be able to buy a bit more than 50 kilos of carrots per day. Thus purchasing power in terms of carrots multiplied by 5.

The prices of some basic foodstuffs, however, especially bread and apples, grew slightly faster than the average, and thus they were less expensive (in relative terms) at the beginning of the century. At the beginning of the century, the price of bread was about 40 centimes per kilo (this was “commonly consumed 2 kg bread”).<sup>92</sup> In 1998, the price of bread is about 12 francs per kilo for “Parisian bread” (with the per-kilo price of bread rising to 16 francs for “baguette bread,” and even more for “special breads”).<sup>93</sup> If we stay with “Parisian” bread, the price

of bread thus multiplied by 30, rather than 20. Purchasing power in terms of bread thus multiplied by about 3.5 rather than 5. But this gap may be explained, among other things, by the fact that the quality of bread sold in stores significantly improved over the course of the century, so it is difficult to say whether it is really meaningful.<sup>94</sup> We see the same sort of trend for apples. At the beginning of the century, the per-kilo price of ordinary apples varied from 15 to 20 centimes, sometimes slightly more, depending on the year and place they were sold.<sup>95</sup> In 1998, the price of a kilo of ordinary apples was about 4.60 francs, and it reached 7.70 francs for new apples.<sup>96</sup> If we stay with ordinary apples, the per-kilo price of apples thus multiplied by a factor of about 25–30, rather than 20. The same is true of meat, although it is again very difficult to properly account for changes in quality. The per-kilo price of steak was about 3 francs on the eve of the First World War and was about 90 francs in 1998:<sup>97</sup> the price multiplied by 30, as with bread, so that purchasing power in terms of steak multiplied by 3.5 rather than 5 (the average worker at the beginning of the century could afford 1 kilo of steak per day; the average worker in 1998 can afford 3.5 kilos).

Inversely, other foodstuffs have seen their prices multiply by less than 20, which corresponds to purchasing power rising by factors greater than 5. That is especially the case for milk, butter, eggs, yogurt, dairy products, and so forth. The price of a liter of milk rose from about 30 centimes at the beginning of the century to 4–5 francs in 1998, a factor of increase of about 15.<sup>98</sup> Purchasing power in terms of milk was thus multiplied by a factor of about 6–7, rather than 5. Butter sold for between 3 and 3.50 francs per kilo at the beginning of the century, whereas a 250-gram stick of "extra-fine butter" sold for only 8.80 francs in 1998 (about 34 francs per kilo): thus the price of butter multiplied by 10 rather than 20, which means that purchasing power in terms of butter multiplied by 10 rather than 5.<sup>99</sup> All of these products seem to have benefited from particularly significant technical advances in the areas of milking, manufacturing, storing, and so forth. The case of sugar is similar: the per-kilo price of sugar rose from about 75 centimes at the beginning of the century to about 8 francs in 1998, which again corresponds to purchasing power in terms of sugar rising by factor of 10.<sup>100</sup> As for fruits and vegetables, their price trends can vary widely.<sup>101</sup> The technical progress characterizing their production (especially harvesting technology) may be relatively slow, causing them to resemble tertiary goods, but declines in the cost of transport, as well as the development of the producing countries can sometimes make possible notable declines in certain

relative prices. For example, a kilo of oranges sold for 1 franc at the beginning of the century and just over 10 francs in 1998, and a kilo of bananas sold for 2 francs at the beginning of the century and just over 10 francs in 1998: purchasing power in terms of oranges thus rose by a factor of 10, and purchasing power in terms of bananas by 20.<sup>102</sup>

But however significant the technical progress experienced by some food-stuffs, it is clearly in the area of industrial products that purchasing-power growth has been most significant, given how many technical innovations and cost reductions there have been. A particularly striking example studied by Jean Fourastié is that of bicycles.<sup>103</sup> In 1892, the least expensive bicycle cost 500 francs. It was a bicycle “whose wheels were covered only by a strip of solid rubber, with only one brake that acted directly on the front tire covering.” The average wage was just over 1,000 francs per year in 1892, so this bicycle was equivalent to 6 months of the average wage. In 1976, a high-quality bicycle (with “a freewheel system, two brakes, chain-guard, mudguard, luggage carrier, lighting, reflectors”) cost 460 francs. The average wage in 1976 was around 34,000 francs per year, or more than 650 francs per week,<sup>104</sup> so that less than a week of work at the average wage was required to buy this bicycle. In other words, even without taking into account the vertiginous improvement in the quality and safety of the product, purchasing power in terms of bicycles rose by a factor of around 40 between 1892 and 1976.

With the appearance of electronics, we often find multiples of similar size within the space of only a few years. For example, the price of the least expensive pocket calculator in the catalogs examined by Fourastié fell from 1,000 francs in the early 1970s to less than 50 francs in the early 1980s,<sup>105</sup> an almost 20-fold decline in current francs, even as the average net wage rose from just over 16,000 francs per year at the start of the 1970s to more than 52,000 francs at the start of the 1980s,<sup>106</sup> an increase by a factor of more than 3 in the net average wage in current francs. Thus in ten years, purchasing power expressed in terms of pocket calculators rose by a factor of about 60. Using the series compiled by Fourastié and his team, we could multiply these examples and obtain factors of increase of the same approximate size (40, 50, 60, or even more) by measuring the growth of purchasing power in terms of automobiles, cameras or radios, refrigerators or light-bulbs, and, again, without even accounting for the spectacular improvements in the quality of the products.<sup>107</sup> But obviously it all depends on the specific pace of technological innovation and technical pro-



gress experienced by the various industrial goods. For example, traditional industrial sectors, like textiles, leather, shoes, and so on, have experienced far less rapid technical progress than the new industrial sectors, which makes them more similar to the case of foodstuffs. That is especially the case for shoes: at the beginning of the century, a pair of "average"-quality shoes cost between 20 and 30 francs, depending on the source;<sup>108</sup> in 1998 the price of a pair of "men's flat leather dress shoes, leather sole" or "classic women's leather pumps, leather sole" gathered by INSEE was around 500 francs.<sup>109</sup> The price of shoes thus rose by a factor of around 20 between the century's two endpoints, that is, by the same factor as the average price. Purchasing power expressed in terms of shoes thus rose by a factor of 5, just like "average" purchasing power or purchasing power expressed in terms of foodstuffs.

At the opposite end of the scale, if we look at all the products that did not exist at the start of the century (televisions, video cassette recorders, computers, etc.), purchasing power expressed in terms of these products rose by an infinite amount by definition, since even with an infinitely large income at the beginning of the century, it would not have been possible to buy them. Here we can see all the limits of trying to assign a single multiplication factor to "average" purchasing power, or even to purchasing power in terms of "industrial goods," because everything depends on the specific products in question, and the only useful way to proceed is to keep the principal orders of magnitude in mind and to refer to precise figures when necessary.

Let us conclude with a few examples of trends in services prices. The classic example of a "pure" service that experienced no obvious technical innovation over the course of the century is that of barbers: a haircut still requires roughly the same amount of labor time as it did at the beginning of the century, so that the price of a haircut rose by the same factor as the wage of a barber, which itself has grown at roughly the same pace as the average wage and average income (to a first approximation). In other words, by working for one hour, the average wage earner at the end of the century can afford exactly the same number of haircuts as the average wage earner at the beginning of the century: purchasing power in terms of haircuts did not increase.<sup>110</sup> Another typical example of a "pure" service is that of domestic employees. By definition, the price of domestic help grew at the same pace as domestic workers' wages, not at the same pace as the average price. This example of domestic employees is particularly important when we look at affluent households, and in the chapters that



follow we will return to the question of how high-income household purchasing power evolved in terms of domestic help over the twentieth century. The important fact to keep in mind is that changes in this kind of purchasing power are closely linked to changes in income inequality: for an affluent household to afford as many domestic employees at the end of the century as at the beginning, its income must have grown in the same proportions as domestic wages. Some services are less “pure” than those of barbers and domestic help in the sense that their price incorporates major elements other than the wage paid to those who provide the service. That is the case, for example, for hotel rooms, which benefited from the considerable technical progress seen in construction, and for restaurant meals, which benefited from technical progress in agriculture and kitchen appliances. At the same time, the prices of these services incorporate the wages of receptionists, concierges, and of waiters to a critical extent, and their productivity has been practically unchanged through time. According to Fourastié’s estimates, the latter factor predominated, since prices for hotels and restaurants, as with barbers, grew at roughly the same pace as wages, so that purchasing power in terms of these services remained generally stable over the course of the twentieth century.<sup>111</sup> Thus it would seem that the increases in productivity that these services enjoyed have been offset by improvements in their quality. We see the same type of phenomenon with newspapers. At the start of the century, the price of a daily newspaper was 5 centimes for the mass-circulation press, rising to 10 centimes for the “quality” press (*Le Journal des Débats*, *Le Temps*).<sup>112</sup> In 1998, the typical price of a daily newspaper is around 5 francs, and it can go as high as 7–8 francs for the “quality” press (7.50 francs for *Le Monde*). The price of newspapers has thus risen by a factor of 100, that is, by the same factor as the average wage and average income, so purchasing power expressed in terms of newspapers has remained broadly stable over the twentieth century. Here again, the technical progress enjoyed by newspaper production, especially with respect to printing techniques and transport costs, seems to have been offset by an improved quality of the product (more pages, more journalists per newspaper, etc.).

The case of rent, which represents the price of “housing services,” is especially important for several reasons. First, rent generally represents one of the largest items in household spending, and for many households of modest means it is one of the key determinants of living standards. In addition, as already mentioned in connection with the rental incomes of landlords, the mon-

etary level of rents has experienced very large fluctuations, especially because of rent-control measures instituted during each of the two wars and the years that followed them. These fluctuations can sometimes end up being exacerbated by the fact that housing is not solely a consumption good; it is also an investment vehicle, so that the price of housing, and to a lesser extent the level of rents, can vary significantly depending on the whims of savers. Independent of such political or speculative disturbances, it is not easy to predict theoretically how the level of rents should evolve over the long run relative to other prices. Certainly housing construction has benefited from significant technical progress over the century: due to construction machinery, cheaper materials, and so forth, it is now possible to build housing of a given quality using fewer hours of labor than at the beginning of the century. Over the long run we should thus expect the level of rents, unlike the prices of pure services, to rise significantly less rapidly than the general wage level. But at the same time, the construction sector has not enjoyed the kind of spectacular innovation experienced by some industrial sectors. In addition, the growing concentration of population in urban agglomerations tends to increase construction costs, all else being equal. In the end, if we assume that housing has experienced technical progress of the same order as the average technical progress for all goods and services (less rapid than industrial goods, but more rapid than services), as is the case for foodstuffs, we should expect rents in the long run to have grown at the same pace as the overall price index.

What actually happened? Figure 1-9 depicts the path of the ratio between the rent index and the general price index from 1900 to 1998 (with the value for the base year of 1914 set to 100).

From the beginning to the end of the century, rents indeed rose roughly by the same proportion as overall prices. With the year 1914 indexed to 100, the ratio between the rent index and the overall price index was slightly above 80 in the late 1990s. In other words, prices on average multiplied by roughly 20, and rents by 15–16.<sup>113</sup> But this quasi-catch-up became effective only at the very end of the century; for the bulk of the century, the rent index remained far below the overall price index. Rents were completely frozen during the First World War, so that by 1920 they had fallen to slightly less than 30 percent of their 1914 level (relative to other prices), which corresponds quite precisely to the drop we have already noted in the rent share of household income. Landlords were granted significant rent increases in 1921–1923, but the 1924–1926 inflation again caused the rent index to fall relative to the overall price index. Then the

## THE EVOLUTION OF INCOME INEQUALITY IN FRANCE

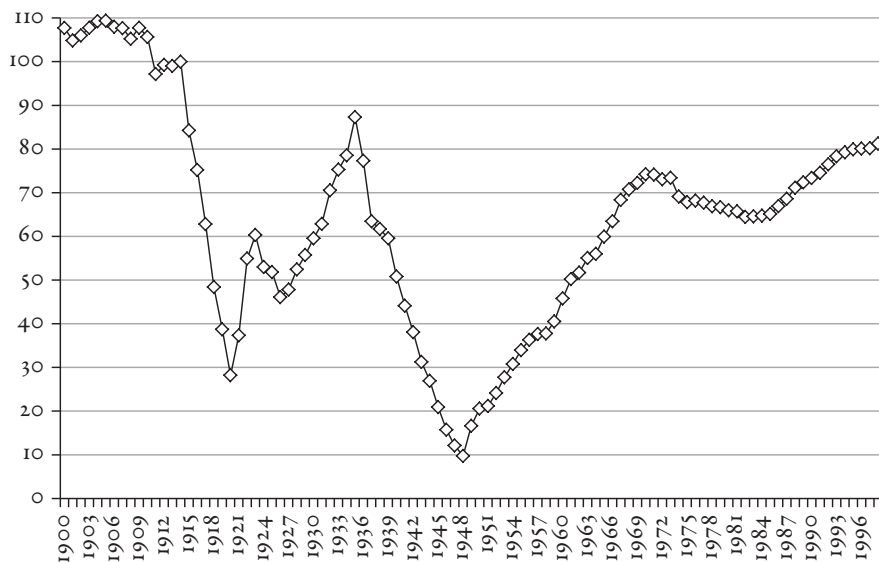


FIGURE 1-9. The ratio between the rent index and the general price index from 1900 to 1998 (1914 = 100)

Source: Column (10) of Table F-1 (see Appendix F)

monetary stabilization of 1927, and especially the deflation of 1930–1935, permitted rents almost to regain their prewar level relative to other prices (with an index level of 87 in 1935). The inflation unleashed in 1936, which continued during the war years, and then the hyperinflation of 1944–1948, caused the relative level of rents to plunge: in 1948, rents were worth only 10 percent of their 1914 level (relative to other prices) and reached their lowest point of the century. As noted by Fourastié (1977, 180): “In 1948, the legal rent, for the average Frenchman, had fallen below his expenditures on tobacco.” It should be noted that in nominal terms, rents were never completely frozen over the 1930s and 1940s;<sup>114</sup> the rent index doubled between 1936 and 1947, and almost tripled between 1936 and 1948.<sup>115</sup> It was just that the rent increases that were granted were much smaller than the overall increase in prices. Rents then rose 7.5 times faster than prices between 1948 and 1970. The inflation of the 1970s temporarily interrupted rents’ historic catch-up relative to prices, and then the catch-up resumed over the 1980s and 1990s.

## A FIVEFOLD INCREASE IN "AVERAGE" PURCHASING POWER

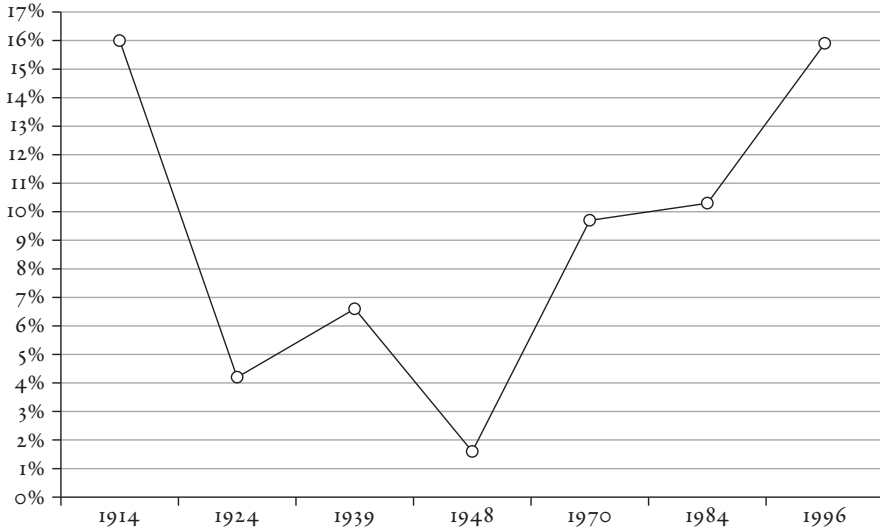


FIGURE 1-10. The weight of rent in the budgets of renting households from 1914 to 1996  
*Sources:* 1914 (16.0 percent), 1924 (4.2 percent), 1939 (6.6 percent), and 1948 (1.6 percent):  
 Taffin (1993, 407–408); 1970 (9.7 percent), 1984 (10.3 percent), and 1996 (15.9 percent):  
 Omalek et al. (1998, 20) (see also Laferrère 1999, 334)

What does it mean, from the point of view of purchasing power, for rents in the 1990s to have almost regained their levels from the beginning of the century (relative to the “average” price)? It clearly does not mean that purchasing power in terms of housing stagnated: on the contrary, since the average wage and the average income grew 5 times faster than prices, it means that to live in the same dwelling, households in 1998 could devote a share of their budget only one-fifth as large as at the beginning of the century. But this does not take into account the very great increase in the size and quality of dwellings between the beginning and the end of the century. Like all price indexes, the rent index we have used in Figure 1-9 in principle measures the evolution of prices “holding all else constant”; thus it measures changes in rents from year to year for a dwelling of the same size and quality.<sup>116</sup> In practice, the average rent paid by households rose much faster than the rent index, due to strong growth in the size and quality of the average dwelling. For example, the share of dwellings without toilets fell from nearly 40 percent in 1970 to less than 3 percent in 1996; the average size of

dwellings rose from 68 m<sup>2</sup> in 1970 to 88 m<sup>2</sup> in 1996 (an increase of nearly 30 percent in less than 30 years), and the average floor area per person rose from 22 m<sup>2</sup> in 1970 to 35 m<sup>2</sup> in 1996 (an increase of nearly 60 percent), and so forth.<sup>117</sup> This explains why the average share of renting households' budgets devoted to rent seems to have settled at roughly the same level (16 percent) at the beginning and at the end of the twentieth century (see Figure 1-10).

The available data also confirm the evolution observed in the rent index: the budget share devoted to housing fell fourfold between 1914 and 1924, rose during the deflation of the 1930s, reached its lowest historic level in 1948, and then fell continually from 1948, with a pause during the inflation of the 1970s.<sup>118</sup> In 1948, at its lowest point, rent represented less than 2 percent of household budgets, which seems to confirm Fourastié's observation quoted earlier. The case of rent illustrates how erroneous it would be to summarize the evolution of purchasing power during the first half of the twentieth century by the notion of a generally stable average income in constant francs. By all evidence, modes of living of 1950 were not much like those of 1900: purchasing power expressed in terms of foodstuffs certainly remained stable overall, but the share of household budgets devoted to housing collapsed, freeing purchasing power for other expenses (at least for renting households), and purchasing power expressed in terms of certain industrial goods—for example, the bicycles and radios so dear to Fourastié—clearly did not need to await the *Trente Glorieuses* to begin their growth.<sup>119</sup> Likewise, the idea of a relative stagnation in purchasing power between 1978 and 1998 should not obscure the fact that the technological innovations of the 1980s–1990s and the spectacular declines in some relative prices (air travel, music, computers, telecommunications, etc.) considerably transformed lifestyles over the course of those two decades.<sup>120</sup> The only way to get a precise picture of the evolution in living conditions is to refer to incomes expressed in current francs and compare them to the prices prevailing in different eras.

## The Evolution of the Level and Composition of Top Incomes in France in the Twentieth Century

In this chapter, we will present our estimates of the evolution of the level and composition of the various top-income fractiles, which we carried out using the statistical tables that the French tax administration has compiled each year, since the 1915 tax year, on the basis of tax-return tabulations. These estimates should obviously be interpreted with caution, because by definition they cover only incomes declared to the state. As we will see, however, especially when they are compared against France's general economic history—in particular the level and composition of “average” income as described in macroeconomic sources, whose broad outlines we reviewed in Chapter 1—the estimates do permit a preliminary periodization of the history of income inequality in twentieth-century France, as well as the formulation of a number of hypotheses, each of which we will revisit in detail in the following chapters.

As signaled in the introduction, we will focus on the minority of tax units that have (almost) always been subject to the progressive income tax, and for which we therefore possess statistics based on the tax returns they have been required to file since the 1915 tax year—that is, the top decile of the income distribution. In this chapter, as throughout the book, “top” incomes refer to the incomes of the 10 percent of tax units with the highest incomes. However, the tax units that make up this top decile are very far from being a homogenous class, especially regarding the types of incomes they receive, so we will begin by studying how the composition of the incomes declared by the various top-income fractiles has evolved in order to get a preliminary measure of the structure of the social groups in question and their development over the course of the century (section 1). Then we will examine the evolution of the income levels declared by these various fractiles, which will allow us to study the evolution of the top-income

share of total income in France over the twentieth century, and which will also lead us to note the great diversity of situations coexisting within the top decile itself, with respect to both long-term changes (section 2) and short- and medium-term fluctuations (section 3). Finally, we will assess what has been learned over the course of this chapter, and most importantly, draw up a list of open questions which later chapters will be tasked with answering (section 4).

### *1. The Evolution of Top-Income Composition in Twentieth-Century France*

Who are the recipients of top incomes? The best way to answer this question is to examine the nature of the incomes that make up top incomes: To what extent are they composed of large interest, rent, and dividend incomes received by wealth owners (“capital income”), large profits earned by self-employed workers (“mixed incomes”), or high wages obtained by wage earners (“labor incomes”)? In our brief examination of the structure of top incomes in 1998, we have already been able to observe the very great diversity of the social groups appearing in the top decile of the income distribution. To use a terminology that of course requires caution—because it seems so laden with value judgments as well as consequences for the issue of redistribution—but that does have the virtue of providing a picture of things, we can preliminarily distinguish the following groups among the 10 percent of tax units declaring the highest incomes (see Introduction, Table I-1, and Figure I-1):

- ☛ The “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99), whose 1998 incomes ranged between 22,000 francs and 28,000 francs per month (fractile P90–95) and between 28,000 francs and 49,000 francs per month (fractile P95–99). These “middle classes” had the characteristic in 1998 of receiving the vast majority of their income in the form of labor income, that is, wages and retirement pensions (nearly 90 percent for the P90–95 fractile, nearly 80 percent for the P95–99 fractile), just like the “average” for the population.
- ☛ The “upper classes” (fractiles P99–99.5, P99.5–99.9, and P99.9–99.99), whose incomes in 1998 ranged from 49,000 to 64,000 francs per month (fractile P99–99.5), from 64,000 to 120,000 francs per month (fractile P99.5–99.9)

and from 120,000 to 340,000 francs per month (more than 4 million francs per year) (fractile P99.9–P99.99). Capital income and especially mixed income (profits from self-employed occupations, especially doctors, lawyers, large shopkeepers, and so on) take on greater and greater importance as we rise within the hierarchy of these “upper classes.”

- The “200 families” (fractile P99.99–100), all of whom declared more than 4 million francs of annual income in 1998 and whose average annual income exceeded 7 million francs. Both labor income and mixed income play a minority role for this social group, which received more than 60 percent of its income in the form of capital income in 1998, of which more than 90 percent was in the form of investment income—and that includes only those incomes actually declared for income-tax purposes, which notably excludes income subject to the optional tax-in-discharge (*prélèvement libératoire*) as well as capital gains.

The key point, in other words, is that when it comes to the composition of income, top incomes in 1998 were characterized by a “labor-mixed-capital profile”—that is, by a profile in which labor income, then mixed income, then capital income each, in turn, experience their maximum extension. The lower strata of the top decile, and especially the much discussed “middle class” and “upper-middle class,” earning between 20,000 and 50,000 francs per month, are made up mainly of wage-earning tax units living off their labor income; then, the mixed incomes of self-employed workers begin to eclipse labor income as we move into the top 1 percent and the universe of the “upper classes,” until capital incomes finally become predominant, ultimately eclipsing all other forms of income for the upper strata of the top 1 percent, and in particular the “200 families.” The contrast between tax units in the first half of the top decile (that is, the P90–95 fractile), for whom capital incomes are of negligible importance and serve only as supplementary income, and the top 0.01 percent of tax units (that is, the P99.99–100 fractile), whose income is made up mainly of capital income and for whom it is earned income that plays a supplementary role, is especially striking, and it gives us a sense of the extreme heterogeneity characterizing the top decile of the income distribution, a heterogeneity that we said might justify (or at least explain) the use of the term “middle class” when talking about households that are part of the best-off 10 percent of the population.



How did this reality that we observe at the end of the twentieth century evolve over the century's course? The first important lesson that emerges from the use of statistics derived from income tax returns is that this "labor-mixed-capital income profile" is a permanent characteristic of the top-income structure in twentieth-century France: throughout the century, with very rare exceptions, mixed incomes have gradually eclipsed labor incomes as one rises through the top-income hierarchy, until they are themselves eclipsed by capital incomes as we enter the upper strata of the top centile. This is a key regularity, which also corresponds rather well to the common perception of what a "capitalist" society is: one in which owners of capital, whether in the form of "entrepreneurs" (self-employed workers who receive mixed incomes) or of "pure" capitalists (wealth-owners who receive capital incomes without working), gradually overtake those possessing only their labor as one rises up the income hierarchy. In particular, it is a society where the highest incomes are largely made up of income that does not correspond to any current labor and merely remunerates the ownership of capital accumulated in the past. Indeed, when we examine the few available studies on the composition of top incomes in other countries, we see that this characteristic corresponds not only to the common perception of what a capitalist society is, but that it is actually found in every capitalist economy and in every era for which data are available.<sup>1</sup>

The detailed estimates of top-income composition that we have carried out on the basis of French tax data, besides allowing us to confirm the validity of this common perception, are of interest in that they allow us to specify the scope and orders of magnitude of this key regularity, in particular the fact that it has always been necessary to go very high up the income hierarchy before capital incomes take on a certain importance (section 1.1). Next, and most importantly, we have seen in Chapter 1 that the "average" composition of household income experienced two major structural shifts over the course of the twentieth century: on the one hand, a "U-curve" traced out by the capital-income share, a result of the collapse in capital incomes brought about by the crises and destruction of the "first twentieth century," and from which those incomes only fully recovered by the very end of the century; and on the other hand, the continual decline in the mixed-income share of earned incomes, which is the automatic result of the "wageification"-of-work trend. We will see that by using tax statistics, we will be able to examine in detail the impact these major structural shifts have had on the composition of top incomes, and that

these shifts have resulted in a significant transformation in the identity of top-income recipients over the course of the century (section 1.2).

## 1.1. Regularities of a “Capitalist” Society

### 1.1.1. The Capital-Income Share of Total Income Is Always a Rising Function of Income

Let us begin with what is probably the most typical and emblematic regularity concerning what a “capitalist” society is, namely, that the capital-income share of total income always tends to increase as we rise through the income hierarchy.

Before describing the results we have obtained, let us first recall that the French tax administration has carried out a “complete” annual tabulation of income tax returns only since the 1948 tax year. The tabulation allows us to describe the composition of declared income as a function of total income, and thus we can obtain annual estimates of the composition of different top-income fractiles. For years prior to 1948, the tax administration carried out “complete” tabulations of tax returns only for the 1917, 1920, 1932, 1934, 1936, 1937, 1945, and 1946 tax years. By contrast, “simple” tabulations, which have been carried out every year the income tax has existed, rank tax returns according to their overall income level without taking into account the composition of income, and they have allowed us to obtain annual estimates of the level of the various top-income fractiles since 1915. Moreover, given the small number of households subject to income tax in the earliest years of the tax, the statistics for 1917 allow us to estimate the composition of income only for the top 1 percent (and higher fractiles), not for the entire top decile of the income distribution.

Obviously, having estimates of the composition of top incomes only for a few isolated years before 1948 constitutes a major handicap when it comes to studying short-term fluctuations in the composition of income between 1915 and 1947, particularly fluctuations in the capital-income share. But the few scattered years we do have are sufficient for identifying the main patterns and trends. First of all, in Figure 2-1, where we have presented our estimates of the capital-income share (that is, the sum of the rental and investment-income shares) of the total income declared by tax units of the P90–95, P95–99, and P99–100 fractiles, it is shown that this share systematically rises as a function of the income level. Thus in every year between 1920 and 1998 for which we have data, without exception, the capital-income share for tax units in the first half

of the top decile (fractile P90–95) is systematically lower than the capital-income share for the next 4 percent (fractile P95–99), which in turn is systematically lower than the capital-income share for tax units in the top 1 percent (fractile P99–100) (see Figure 2-1). What is more, even if we examine the evolution of the capital-income share within the top 1 percent, we observe a similar property: for every year from 1917 to 1998 for which we have data, with only two (very) slight exceptions, the capital-income share for tax units in the first half of the top 1 percent (fractile P99–99.5) is smaller than the capital-income share for the next 0.4 percent (fractile P99.5–99.9), which in turn is smaller than the capital-income share for the next 0.09 percent (fractile P99.9–99.99), which in turn is smaller than the capital-income share for the “200 families” (fractile P99.99–100) (see Figure 2-2). The only two exceptions to this general rule are the years 1917 and 1945: in 1917, the capital-income share for the P99.5–99.9 fractile was (very) slightly higher than it was for incomes in the P99.9–99.99 and P99.99–100 fractiles; in 1945, the capital-income share for fractile P99.9–99.99 was (very) slightly higher than it was for incomes in the P99.99–100 fractile (see Figure 2-2). Moreover, if we examine the detailed results for the rental and investment-income shares, we see that these two exceptions are due to a slight contraction in the rental-income share of the top 1 percent. This phenomenon has also been observed in other years, but it manages to dominate the growth of the investment-income share in the years 1917 and 1945, a fact explained by the relative weakness in top-level investment incomes over the course of the two war years (especially 1945).<sup>2</sup>

Indeed, the second important pattern in regard to the relative weight of capital income is the striking contrast between rental and investment incomes: namely, the fact that the capital-income share was a strongly rising function of the overall income level was entirely due to investment income, with the rental income share being practically constant within the top decile, and even tending to decline slightly within the top 1 percent. In particular, it was the very sharp growth in the weight of investment incomes within the top decile, and especially within the top 1 percent itself, that explains how the capital-income share could reach heights of around 50–60 percent for the very high incomes of the P99.99–100 fractile, even though the rental-income share has always been of very limited size for very high incomes—a phenomenon we observe in all years of all the available data, from 1917 to 1998. Over the twentieth century, the maximum level of the rental-income share declared by the various top-income

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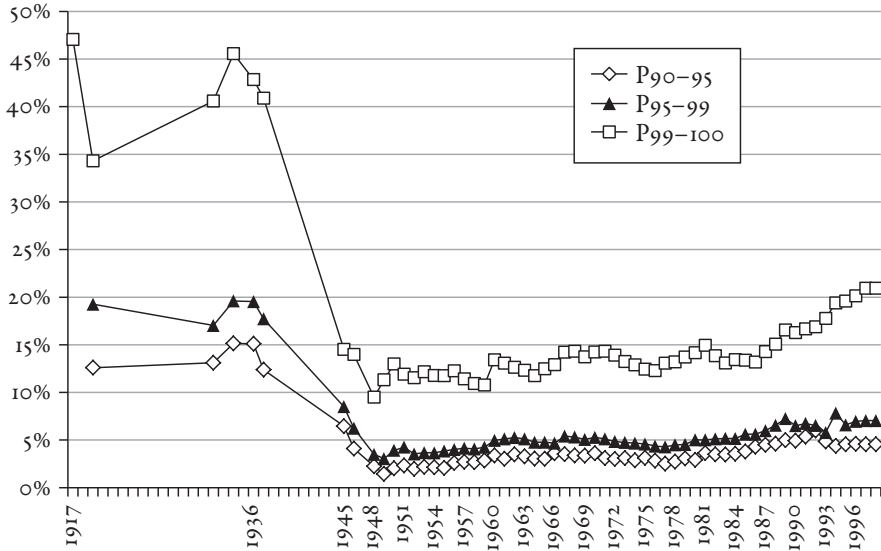


FIGURE 2-1. The capital-income share of income for fractiles P90-95, P95-99, and P99-100 in 1917, 1920, 1932, 1934, 1936, 1937, 1945, 1946, and from 1948 to 1998  
Sources: Columns P90-95, P95-99, and P99-100 from Table B-18 (Appendix B)

fractiles was around 10-15 percent and was usually much less than 10 percent for most of the top-income fractiles, especially for the topmost incomes. Typically, in the most favorable years for rental income, the latter representing around 5-10 percent of the incomes declared by tax units in the P90-95 and P95-99 fractiles, the share could rise to 10-15 percent (at most) for the lower strata of the top 1 percent (fractiles P99-99.5 and P99.5-99.9), before falling back to levels close to 5-10 percent in the upper strata of the top 1 percent (fractiles P99.9-99.99 and P99.99-100). Of course, the exact figures vary depending on the fractile or the year, and they could fall to significantly lower levels, especially at the end of the Second World War and the 1950s, given the wartime rent- and inflation-control policies.<sup>3</sup> But the key fact that interests us here is that these fluctuations in the overall weight of rental income, whose general causes we noted in Chapter 1, and whose precise consequences for top incomes will be seen later in this chapter, appear to have affected all top-income fractiles in roughly the same proportions, so that rental income has always been distributed in more or less the same way among the different top-income levels. This

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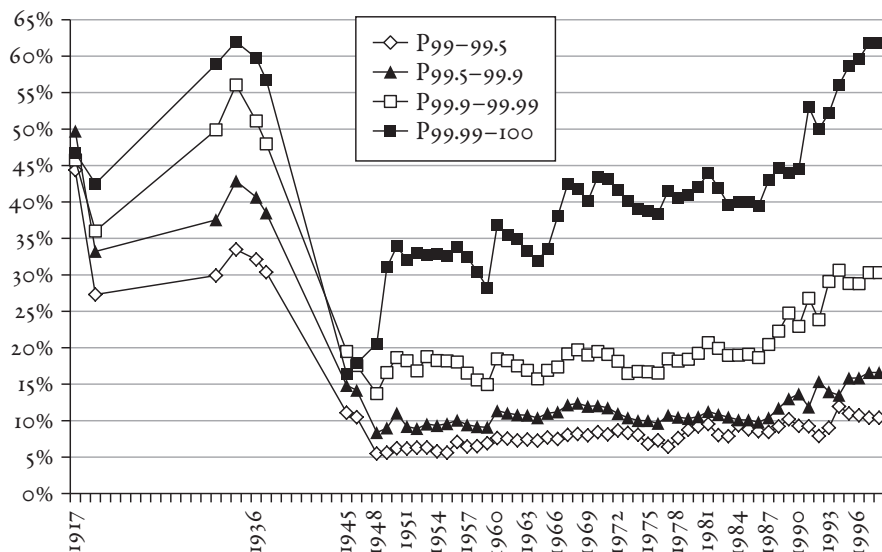


FIGURE 2-2. The capital-income share of income for fractiles P99-99.5, P99.5-99.9, P99.9-99.99, and P99.99-100 in 1917, 1920, 1932, 1934, 1936, 1937, 1945, 1946, and from 1948 to 1998

Sources: Columns P99-99.5, P99.5-99.9, P99.9-99.99, and P99.99-100 from Table B-18 (Appendix B)

distribution, in particular, is in a pattern that is radically different from that of investment income, whose relative weight has always been a sharply rising function of income, and whose share of declared income can reach levels of around 50-55 percent for tax units in the upper strata of the top 1 percent.<sup>4</sup>

In particular, if we consider the 0.01 percent of tax units with the largest declared incomes (fractile P99.99-100), we see that these “200 families” have always declared investment incomes at least six times larger than their rental incomes, and this was true for every year of the twentieth century for which we have data, from 1917 to 1998, without exception.<sup>5</sup> This property seems especially robust given that, by definition, all of these estimates concern incomes declared under the progressive income tax, and the possibilities for fraud and evasion (whether legal or not) have always been more substantial for investment income than for rental income (real-estate property has always been more “visible” than investment property). We therefore have every reason to believe that the true (investment income) / (rental income) ratio for recipi-

ents of the largest incomes would be even higher if fraud and evasion could be properly accounted for.<sup>6</sup>

There can be no doubt that this statistical regularity expresses a profound social reality: the “middle classes” and “upper-middle classes” invest in bricks and mortar, but the “real rich” are mainly owners of investment capital. Here again is an essential characteristic of a “capitalist” society: in modern capitalist societies, true wealth always resides in investment property, especially the shares of business enterprises, not in real estate. Although we obviously have no data on how the composition of the various top-income fractiles evolved over the course of the nineteenth century, we can be certain that the phenomenon was linked to the advent of industrial capitalism, and in particular that it had been different in the early nineteenth century and the Old Regime, in which the weight of investment income was far smaller than in the twentieth century, and where the topmost incomes were usually based on real-estate wealth, especially landed property and income. For example, statistics from inheritance-tax declarations confirm that it was over the course of the nineteenth century that investment wealth reached its full importance and surpassed real-estate wealth in volume.<sup>7</sup> But the key point that interests us here is that this new “capitalist” reality remained practically unchanged over the course of the twentieth century, and in particular that it appears to have been definitively in place by the beginning of the century, as suggested by the fact that the investment incomes declared by the “200 families” were already around 6 times greater than their real-estate incomes in 1917—that is, too early for the weakness in the “200 families’” real-estate incomes to be attributed to the rent freeze (which had gone into effect less than three years earlier), and in a wartime year that was presumably unfavorable for investment income. We may note, moreover, that the “complete” tabulations of income tax returns carried out by the tax administration in the interwar period distinguished, among real-estate incomes, between “incomes from built property” (that is, incomes from houses, apartment buildings, etc.) and “incomes from nonbuilt property” (that is, income from land), and that these decompositions make it clear that the old great landowners had already disappeared completely from the social landscape by the first years of the income tax. For the entire interwar period, the share of income from nonbuilt-up property never exceeded 2–3 percent of the total incomes declared by the various top-income fractiles, and it was even less than 1 percent for the uppermost incomes; the only trace of the old landowners that can be

detected (using some imagination) has to do with the fact that the share of income from nonbuilt-up property declines slightly less rapidly with total income than does the share of income from built-up property (at least for the very high income groups).<sup>8</sup> From 1945 onward, the tabulations carried out by the tax administration no longer take into account this distinction, and the very idea that landed property might once have been the central source of the greatest fortunes and topmost incomes was already no more than a distant memory.

### 1.1.2. The Mixed-Income Share of Earned Income Is Always a Rising Function of Income

Nevertheless, while this rise in the capital-income share—and investment income in particular—as a function of total income is undoubtedly the most emblematic characteristic of “capitalist” societies, it is only at a very high point in the income hierarchy that capital income eclipses earned incomes (labor and mixed income) and becomes predominant: for the vast majority of top incomes, capital income is really only supplementary income. As long as the income tax has existed, capital incomes have never represented more than 10–15 percent of the incomes declared by the lower half of the top decile (fractile P90–95), and they have never represented more than 15–20 percent of the incomes declared by the next 4 percent (fractile P95–99) (see Figure 2-1); in other words, for nine-tenths of the top decile, earned incomes have always been at least 80–95 percent of their total declared income. Thus, to answer the question “who are the recipients of top incomes?” it is essential to understand how these earned incomes are divided between mixed income and labor income.

The main finding from the analysis of tax statistics is as follows: in all eras, we observe that the mixed-income share of earned incomes declared by top income recipients is a sharply rising function of the income level. Like the rising capital-income share as a function of the income level, the regularity of this property over the course of the twentieth century is impressive, and our estimates make it possible to observe that in every year for which we have data on the composition of top incomes—that is, from 1920 to 1998—without exception, the mixed-income share of earned income for tax units in the lower half of the top decile (fractile P90–95) is far lower than the mixed-income share of earned income for the next 4 percent (fractile P95–99), which in turn is smaller than the mixed-income share of earned income for tax units in the

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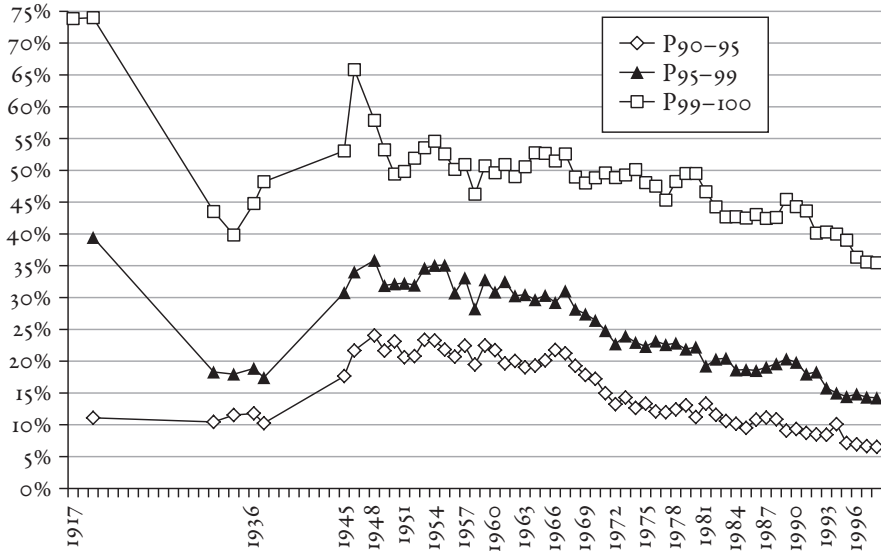


FIGURE 2-3. The mixed-income share of earned income for fractiles P90-95, P95-99, and P99-100 in 1917, 1920, 1932, 1934, 1936, 1937, 1945, 1946, and from 1948 to 1998  
 Sources: Columns P90-95, P95-99, and P99-100 of Table B-18 (Appendix B)

top 1 percent (fractile P99-100) (see Figure 2-3). In addition, as with the capital-income share, if we examine the evolution of the mixed-income share of earned income within the top 1 percent itself, we note a similar property: for every year from 1917-1998 for which we have data, with a few rare (and very slight) exceptions, the mixed-income share of earned income for households in the lower half of the top 1 percent (fractile P99-99.5) is smaller than the mixed-income share of earned income of the next 0.4 percent (fractile 99.5-99.9), which in turn is smaller than the mixed-income share of earned income of the next 0.09 percent (fractile P99.9-99.99), which in turn is smaller than the mixed-income share of earned income for the incomes of the “200 families” (fractile P99.99-100) (see Figure 2-4).<sup>9</sup>

These results thus indicate that the higher one goes in the income hierarchy, the smaller the wage share of earned income, and the larger the share of earned income made up of profits from self-employed occupations. The interpretation of these results is obvious: the self-employed category is in reality even more heterogeneous than the category of wage earners, which is something that



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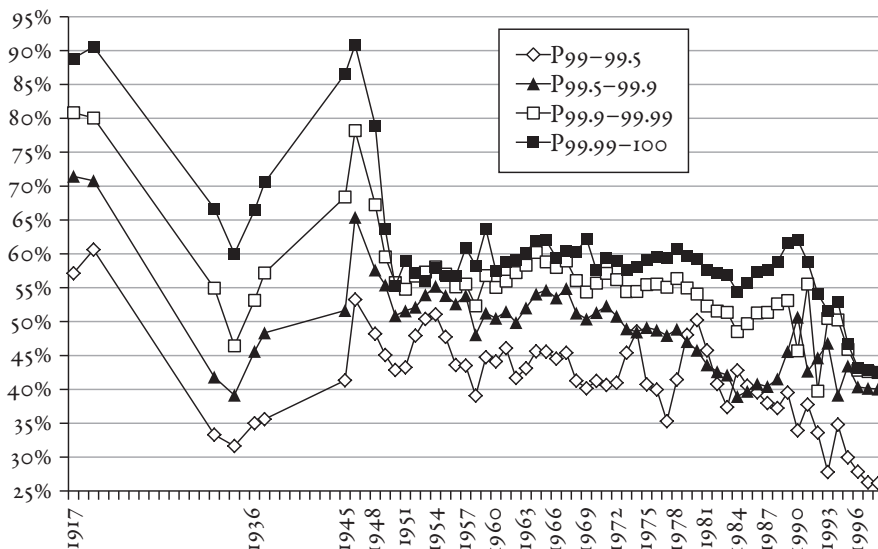


FIGURE 2-4. The mixed-income share of earned income for fractiles P99–99.5, P99.5–99.9, P99.9–99.99, and P99.99–100 in 1917, 1920, 1932, 1934, 1936, 1937, 1945, 1946, and from 1948 to 1998

Sources: Columns P99–99.5, 99.5–99.9, and P99.99–100 from Table B-18 (Appendix B)

cannot be seen by comparing “average” incomes. The self-employed category obviously includes a great number of small farmers, and to a lesser degree small artisans and shopkeepers, living from profits that are often lower than the lowest wages, which explains why the “average” earned income of self-employed workers is slightly lower than that of wage earners. But the category also includes some doctors, large shopkeepers, and other prosperous entrepreneurs, whose profits are often higher than the highest wages, which explains why we find more and more self-employed workers and fewer and fewer wage earners as we rise through the income hierarchy. If we consider the 0.01 percent of tax units with the highest incomes (fractile P99.99–100), we see that over the course of the twentieth century the “200 families” always declared more than 40 percent (and usually much more) of their earned incomes in the form of mixed income (see Figure 2-4), despite the fact that self-employed workers make up little more than 10 percent of total employment at the end of the century.<sup>10</sup> As with the comparison of real-estate and investment incomes, this result seems especially robust given that the potential for fraud and dissimula-

tion (legal or otherwise) has always been greater for self-employed than for wage-earning workers, so that the “true” mixed-income share of earned incomes for tax units of fractile P99.99–100 is probably even higher than our statistics make it appear.<sup>11</sup> And as with the results for capital income, there is no doubt about the fact that the statistical results for earned incomes express a profound social reality: in a capitalist society, though it is possible for a worker to attain an income higher than those received by a fair number of self-employed workers, without “setting up shop for themselves,” if the income one hopes to obtain lies in the highest strata of the income distribution such opportunities are rarer than if one is prepared to accept a “middle-class” income.

Indeed, one could even take the view that these two regularities (rising capital-income share of total income as a function of total income, and rising mixed-income share of earned income as a function of total income) simply express a single reality: in capitalist societies, ownership of the means of production, whether taking the form of the self-employed entrepreneur’s ownership of a firm that he runs and whose profits he receives, or whether it takes the form of the “pure” capitalist who owns securities and merely collects income from them, has always been the surest path to the possibility of attaining a very high income. In practice, this distinction between “entrepreneurs” supposedly living off of mixed incomes and “capitalists” supposedly living off of capital incomes conceals a set of economic and sociological boundaries that are far more porous than those suggested by formal legal criteria. A complete exposition of the various legal business forms, the legal statuses of the corresponding incomes, and all of the changes these have undergone over the course of the century would be particularly tedious and would far exceed the scope of this book. But we think it will be useful to elaborate somewhat on the most important categories and the phenomena they cover.

In the field of taxation, the key distinction has always been between two entities. On the one hand, there are unincorporated businesses (*sociétés de personnes*), a category defined by the fact that the firm does not aim to distinguish itself from the individual who owns and operates it from day to day, and which includes the large number of small individual businesses having no legal personality distinct from that of their operator (farmers, owners of craft businesses, shopkeepers, “small” independent producers, etc.). On the other hand, there are corporations (*sociétés de capitaux*), of which the most prominent are limited liability corporations (*sociétés anonymes*, or SA), and which are defined by a

very strict separation between the firm's assets and accounts and the personal wealth of the shareholders, whose personal contributions are limited to the shares they hold (which make up the firm's capital) and which generally delegate the firm's day-to-day management to directors with the status of wage earners. The general rule is that the profits of unincorporated businesses—whether they take the legal form of *bénéfices agricoles* (BA), profits received by farmers, *bénéfices industriels et commerciaux* (BIC), profits received by artisans, shopkeepers, and other “industrial or commercial” business owners lacking a wage-earning status, or *bénéfices non commerciaux* (BNC), profits received by doctors, lawyers, notaries, artists, and more generally by self-employed occupations that do not fall into either of the first two categories—are all mixed incomes, and they are subject to the progressive income tax, under the name of the individuals who own and manage them. The profits of incorporated businesses are, in contrast, subject to the tax on company profits, and only the portion of these profits distributed to the shareholders in the form of dividends (as well as interest paid to any bondholders) is subject to the progressive income tax, under the name of the shareholders in question (as well as any bondholders).<sup>12</sup>

Generally speaking, the distinction is relatively simple: owners of unincorporated businesses are indeed “entrepreneurs,” in the sense that they are truly self-employed “workers” who run their (usually small) business from day to day, and their incomes are mixed income. Owners of incorporated businesses are, in contrast, “capitalists,” in the sense that they merely collect the dividends and interest corresponding to capital that was accumulated in the past and invested in large firms, without this income being justified by any current labor. Their incomes are capital income (investment income, in this instance). Finally, the wage-earning directors to whom incorporated businesses entrust the day-to-day management of their firms are neither “entrepreneurs” nor “capitalists,” because they are not the owners of the capital of the business in question. In practice, things can get more complicated.

First of all, though it is true that unincorporated businesses are for the most part very small firms, often with no employees, and that the vast majority of large firms take the form of incorporated businesses, usually as listed companies, there are exceptions to this rule. There have always been certain large firms that choose to keep their unincorporated status—especially in the form of *sociétés en nom collectif* (SNC; partnerships)—usually in order to limit outside

shareholding and preserve their status as family businesses, or because they feel no need to become public companies and draw on saving from the public by issuing shares or bonds on public exchanges. The owners of these large firms sometimes generate considerable profits, which explain why the mixed-income share of earned income reaches such high levels among the top incomes. It is quite clear that the economic and sociological gap between, on the one hand, manufacturers who choose to turn their businesses into a listed company and become their principal shareholders, and who may well continue to be closely involved in the firms' management by participating actively in the boardroom, and, on the other hand, the manufacturers who choose to keep their firms' status as an SNC and remain their principal partners, which wouldn't prevent them from clearing a bit of free time for themselves, can in practice be very slight—even though the tax statistics cause us to see the former as “capitalists” living off of investment income and the latter as an “entrepreneurs” living off of mixed income. Still, there is some legitimacy to the distinction: the shareholders of a listed company take no personal financial risk (apart from the wealth they have invested in the form of shareholding), whereas the partners of an SNC, like all owners of unincorporated businesses, are wholly and limitlessly liable, in their own personal wealth, for any losses experienced by their business.

Another complication comes from the fact that there are some forms of incorporated businesses that are not managed from day to day by a person with a wage-earning status. This is the case, notably, for *sociétés anonymes à responsabilité limitée* (SARL; private limited liability firm), a new category of business created in 1925, which has subsequently become the dominant intermediate form between small individual firms without a separate legal personality and very large public companies. SARLs are run by a *gérant* (manager), and in our estimates we have included *rémunérations des gérants et associés*, a category in the tax statistics that combines the incomes received by SARL managers and SNC partners, in the mixed-income category, along with BA, BIC, and BNC income.<sup>13</sup> This choice seems justified to us, insofar as SARL managers are in principle genuine self-employed “workers.” But these complications do imply, for example, that when unincorporated firms become SAs (*sociétés anonymes*) or SARLs, as many SNCs and other large unincorporated businesses have done over the course of the twentieth century—both to take advantage of “limited liability” (shareholders in SARLs do not take on more risk than those of SAs) and for tax reasons<sup>14</sup>—the

change can trigger largely artificial changes in the composition of the incomes those companies generate, with no real connection to the “entrepreneurial,” “capitalistic,” or “wage-earning” social identities of the individuals involved.

Finally and most importantly, beyond these purely accounting maneuvers, it goes without saying that there is nothing preventing the same individuals from receiving all of these income categories at the same time. Shareowners or bondholders of large public companies can also be employed as individual entrepreneurs in unincorporated businesses, and thus can be both “capitalists” and “entrepreneurs”; wage-earning directors of large public companies can also be shareowners or bondholders of their own company (or in other companies), and thus can be both “wage earners” and “capitalists,” etc. In some cases, such blending of different roles can even be the general rule: in SARLs, it is often the case that the *gérant* is also one of the principal shareholders and sometimes couples that role with the status of wage-earning manager in the same firm. Furthermore, when these various income categories *are* received by distinct individuals, such contrasts can correspond to different stages in the life of the same individual or even the same family. For example, retired “entrepreneurs” can sell their stake and live off of their *rentier* income, thus becoming “capitalists,” a status perhaps retained by their children.

However, while it is important to be aware of this overlap among the various income categories that arise from business profit, the “simplistic” contrast between the mixed income of the “entrepreneur” and the capital income of the “capitalist” nevertheless has a kernel of truth to it: when the tax statistics show us that such-and-such top-income fractile, compared to some other fractile, lives to a greater extent on mixed income (and therefore earned income) and to a lesser extent from capital income, this clearly means that top-income fractile is more deeply involved in actual employment in the firms in question (on average). In particular, it is quite clear that the tendency of capital incomes always to eclipse mixed incomes (and thus income from work) as we move into the upper strata of the top 1 percent of the income hierarchy is not an accounting trick. This pattern expresses an undeniable economic and social reality: at a certain level of wealth, it is no longer necessary to work in order to top up one’s income (not to mention the fact that as the company in question grows and the generations pass, the firm’s owner may no longer be the most qualified person to run the company on a day-to-day basis). It is not by chance that the “200

families” live far more from investment income than from mixed income (and therefore more than working income).

## 1.2. Evolutions of a “Capitalist” Society

### 1.2.1. The “U-Curve” of the Capital-Income Share

As important as they are, these “capitalist” regularities should not make us forget that the composition of income has also experienced profound structural shifts over the course of the twentieth century. On the face of it, the most consequential of these shifts for top incomes concerns capital income. Using the macroeconomic data from the national accounts, we saw in Chapter 1 that the aggregate capital-income share experienced a “U-curve” over the course of the twentieth century, with a collapse in the middle of the century from which capital incomes seem only to have fully recovered at the very end of the century. What about top incomes as a whole?

#### 1.2.1.1. *The Case of the “200 Families” (Fractile P99.99–100)*

The case where we most clearly and strikingly find a U-curve profile is that of the highest incomes whose evolution we have followed, that is, the top 0.01 percent (fractile P99.99–100)—which are also those for which capital income has always played the greatest role. Indeed, we observe that the capital-income share declared by these “200 families” reached levels of around 55–60 percent in the interwar period, and that the share then collapsed to levels of around 15–20 percent at the end of the Second World War, before recovering slowly by surely during the following decades, reaching levels of around 30–35 percent in the 1950s, 35–40 percent in the 1960s, 40–45 percent in the 1970s–1980s, and finally regaining a level of around 55–60 percent in the 1990s (see Figure 2-2). It is striking to note that in both the interwar period and the late 1990s, the highest level reached by the capital-income share declared by the “200 families” was slightly above 60 percent, and that in both cases investment income alone reached roughly 50–55 percent of total declared income (around 90 percent of capital income).<sup>15</sup>

The collapse in the middle of the century thus appears all the more brutal: in 1945–1946, capital income represented barely more than 15 percent of the income declared by the P99.99–100 fractile (again with nearly 90 percent

taking the form of investment income), to the point where the “200 families” of 1945–1946 received nearly 85 percent of their income in the form of earned income, and thus found themselves dependent on their occupational activities, so that their situation differed little in qualitative terms from that which other top-income fractiles have always experienced. However, the “200 families” of 1945–1946 received 90 percent of their earned incomes in the form of mixed income rather than wages and retirement pensions, which continued to distinguish them from lower fractiles (see Figure 2-3 and 2-4). If we look at the detailed results of our estimates, we note that most of these mixed incomes are made up of industrial and commercial profits (BIC): in 1945–1946, BIC alone represented about 70 percent of the incomes declared by the P99.99–100 fractile, before falling to 60 percent in 1948, 40 percent in 1949, 35 percent in 1950–1951, and then gradually returned to the “normal” level of around 25 percent that it had held in the interwar period.<sup>16</sup> Thus, for a few years following the Second World War, the composition of the topmost incomes took an unprecedented form. The properties of rising capital-income shares of total income, and rising mixed-income shares of earned income, both as a function of the income level, remained valid; but for the first and last time in the century, the “labor-mixed-capital” profile was replaced by a “labor-mixed” profile—that is, by a profile in which mixed incomes were never eclipsed by capital income, even within the highest-income groups. Then capital income gradually reasserted itself and by the end of the century reclaimed the role it had occupied before this “crisis.”

How should we interpret this evolution? First of all, one obviously hesitates to call the households making up the P99.99–100 fractile of the immediate postwar income distribution “the 200 families.” In “normal” times, the only merit of this reductive terminology is to call attention to the fact that the households of this fractile depend crucially on the incomes drawn from their large portfolios of investment securities. But this in fact was not the case in the immediate postwar period: in particular, the years 1945–1946, when top incomes mainly took the form of BIC profits rather than dividends, may be described as a golden age of entrepreneurs. In addition, and most importantly, it is likely that the population of households making up the P99.99–100 fractile of the income distribution experienced a far more rapid turnover in this period than in “normal” times: the recipients of BIC profits who appeared in this fractile in 1945–1946 were probably made up in large part of new generations of entrepreneurs, or at the very least entrepreneurs who before the war



had been located in lower strata of the income distribution, and who after the war took the place of the interwar “200 families,” whose businesses and investment securities had been sharply devalued by the depression of the 1930s and most of all by the war and its destruction. Unfortunately, the tax data do not make it possible to measure individual mobility between fractiles or to study this phenomenon.

In any case, there is no doubt that the great shift from dividends to BIC profits in the tax returns of the P99.99–100 fractile of the immediate postwar period corresponded to a real economic phenomenon; it is simply too massive and too compressed in time for it to be a pure accounting phenomenon involving transfers from one category to the other for tax purposes, the point of which would be hard to discern. Most of all, this evolution is consistent with everything we learned from examining the macroeconomic data in the previous chapter, especially with respect to the collapse in shareholder profit distributions by large firms at the end of the Second World War. In particular, the fact that our estimates of the capital-income share of fractile P99.99–100 incomes reached their lowest level of the century in 1945 is perfectly consistent with the fact that 1944–1945 is also when the capital share of firms’ value-added experienced a deep secular trough (see Chapter 1, Figure 1-5). We have also indicated the reasons why the U-curve for the topmost incomes seems more marked than the U-curve for the population as a whole: dividends distributed to shareholders are, as a general rule, more pro-cyclical than the average of capital income, since firms must always retain some minimum share of their profits to replace equipment and finance fixed-interest payments on their debt.

Generally speaking, the very strong consistency between the macroeconomic data and the estimates from tax returns suggests that the collapse of capital incomes observed in the middle of the century was an extremely robust phenomenon, especially since these two sources are highly independent of each other. Recall in particular that the macroeconomic data in the national accounts are based on a systematic combination of a very large number of sources (production indexes, multiple industry surveys, etc.), which ensures their reliability, but tax returns are hardly used at all, for the good and simple reason that only a minority of the population files a tax return, whereas the national accounts seek to obtain estimates of macroeconomic aggregates defined at the level of the entire population.<sup>17</sup> Finally, let us note that data from tax returns indicate that the First World War also seems to have led to some subsiding in



the capital-income share of P99.99–100 income, in favor of mixed incomes: this subsiding was, of course, far less massive than the collapse that followed the Second World War, which, again, is consistent with the macroeconomic data. But the fact is that this share was “only” about 45–50 percent in 1917–1920, not 60 percent (see Figure 2-2); although unfortunately no complete sampling of tax returns was undertaken between 1920 and 1932, the macroeconomic data suggest that it was over the course of the 1920s that the share regained the 60 percent level at which it had probably stood on the eve of the First World War.<sup>18</sup>

As a first analysis, therefore, the most natural interpretation of our results on the evolution in the capital-income share of income for fractile P99.99–100 is the following. Initially, the investment wealth of the “200 families”—which had only just recovered from the effects of the First World War with the strong growth of the 1920s—collapsed following the bankruptcies of the 1930s and the destruction of the Second World War. That led to a significant turnover within this social group, and the incursion of new generations of entrepreneurs into the highly restricted circles of the top 0.01 percent. Then, afterward, a new phase of “primitive capital accumulation” opened in the postwar decades, a phase that by the end of the century allowed the investment wealth of the “200 families” to regain its size from before the crises (at least insofar as measured by the capital-income share of declared income). This interpretation coheres, but it goes without saying that a phenomenon of such importance for the study of top incomes and their evolution in twentieth-century France merits a thorough analysis—both from the point of view of its precise chronology (and in particular the respective roles played by the two world wars and the crisis of the 1930s) and from the point of view of its effects on income inequality. We will return to this phenomenon and its interpretation when we examine our annual estimates of the level of incomes declared by the “200 families.”

### 1.2.1.2. *The Case of the Lower Fractiles*

If we now examine the case of the lower fractiles, we observe that the key difference vis-à-vis the P99.99–100 fractile is that by the late 1990s the capital-income share of declared income still had not regained its interwar level. To be sure, for every top-income fractile, without exception, we do observe a temporal profile resembling a U-curve: the capital-income share fell to its lowest level in history at the end of the Second World War, before experiencing steady growth over

the following decades, and at a particularly rapid pace in the 1980s–1990s (see Figures 2-1 and 2-2). But the fact is that the recovery phase has not been sufficiently strong to make up for the mid-century collapse. For the P90–95 fractile, the capital-income share reached 10–15 percent of total income in the interwar period before collapsing to 2–3 percent in mid-century, and it stands at about 5 percent at the end of the century. For the P95–99 fractile, the capital-income share reached 15–20 percent of total income in the interwar period, before collapsing to 3–4 percent in mid-century, and it stands at about 7–8 percent at the end of the century. For the P99–100 fractile taken as a whole, capital income fluctuated between 35 percent and 45 percent of total income between the wars, before falling to less than 10 percent in mid-century, and then climbing slightly above 20 percent in the late 1990s (see Figure 2-1). Within the top 1 percent, the level reached by the capital-income share in the 1990s does of course rise as one rises through the income hierarchy, but only for the P99.99–100 fractile was the U-curve perfectly “symmetrical,” with a recovery phase that completely made up for the collapse of mid-century. Thus for the P99–99.5 fractile, the capital-income share was around 30 percent in the interwar period, fell to just over 5 percent in mid-century, and stood slightly above 10 percent at the end of the century; for the P95.5–99.9 fractile, the capital-income share was about 35–40 percent in the interwar period, fell to about 10 percent in mid-century, and stood at around 15–20 percent in the late 1990s; for the P99.9–99.99 fractile, the capital-income share fluctuated between 35 percent and 55 percent in the interwar period, fell below 15 percent in mid-century, and reached a level around 30 percent in the late 1990s (see Figure 2-2). How can we explain this phenomenon?

Let us first note that, insofar as one has always had to climb very far up the income hierarchy for the capital-income share to take on decisive importance, one could certainly view this phenomenon as being of secondary importance, both from the point of view of the social identities of the households in question and from the point of view of their income levels and the study of inequality. In particular, if we look at the “middle classes” (fractile P90–95) and the “upper-middle classes” (fractile P95–99), it is quite clear that it would not make much difference if, by the 1990s, the capital-income share had regained the 10–15 percent level it had held in the interwar period instead of plateauing at around 5 percent (for the P90–95 fractile), or if it had regained the 15–20 percent level it had held in the interwar period instead of plateauing at

around 7–8 percent (for the P95–99 fractile). In both cases, it would not change the fact that capital income has never been anything but a supplementary income for these social groups, and the additional incomes declared by these two groups in the 1990s would have been barely 10 percent. The corresponding percentage increases would be larger for the “upper classes” (around 20 percent for the P99–99.5 and P99.5–99.9 fractiles, and around 10–20 percent for the P99.9–99.99 fractile), but they would still be of limited size. The only consequence of this phenomenon is that one must climb even higher in the income hierarchy today than in the interwar period before capital incomes take on a certain importance in declared income: despite several decades of continual increases, capital incomes in the late 1990s represent barely more than 10 percent of the incomes declared by households in the first half of the top 1 percent (fractile P99–99.5), and barely more than 15 percent of the incomes declared by the next 0.4 percent (fractile P99.5–99.9) (see Figure 2-2). In other words, in the interwar period one “only” had to be in the top 1 percent of the income distribution for one’s capital income to take on a certain importance (at least 30 percent of declared income), whereas today one has to be part of the top 0.1 percent. Before, capital income played a distinctly minority role (less than 15–20 percent of declared income) for nine-tenths of the top decile; today, it plays a distinctly minority role (less than 15–20 percent of declared income) for ninety-nine hundredths of the top decile.

Nevertheless, this observed phenomenon merits an explanation. There is in fact every reason to think that it represents to a large extent a “tax illusion”—that is, the fact that over the course of the century a growing fraction of capital incomes have enjoyed total or partial exemption from the income tax (and especially since the Second World War), rather than to any “real” economic phenomenon.<sup>19</sup> Let us start with the case of rental income, which poses the fewest problems. The rental-income share of total income declared by tax units of the top decile was 6.8 percent in 1920, 9.8 percent in 1932, 11.9 percent in 1934, 10.6 percent in 1936, and 8.8 percent in 1937, before collapsing to 4.0 percent in 1945, 2.3 percent in 1946, 1.4 percent in 1948, and 0.5 percent in 1949, which represents the lowest level of the century. Then the share began steadily climbing over the following decades, standing at around 1–1.5 percent in the 1950s, passing the 2 percent threshold in the early 1960s and 3 percent in the early 1970s, before stagnating slightly at 3 percent in the 1970s, and then resuming its growth in the

1980s–1990s, finally reaching levels of around 4–5 percent in the 1990s.<sup>20</sup> Qualitatively, this general evolution is perfectly consistent with the macroeconomic data and the rent index examined Chapter 1: the strong recovery observed during the 1920s and over the course of the deflation of the first half of the 1930s corresponds to the catch-up phase that rents passed through over this period, which by the end of the deflation had allowed them almost to regain their pre–World War I level (relative to other prices). The return of inflation in 1936 and especially the hyperinflation of the Second World War and the 1944–1948 years led to a collapse in the relative value of rents and rental incomes, and the trough levels observed in 1948–1949 in the tax returns correspond perfectly to the trough in the rental index.<sup>21</sup> Then the rental-income share grew slowly but steadily over the following decades, with a small interruption due to the inflation of the 1970s, as was true of the overall rent level.

However, when it comes to quantitative trends we see an important inconsistency. According to the macroeconomic data, the U-curve traced out by the rental-income share of average household income (in the national-accounting sense) was relatively symmetrical; according to the tax returns, in the 1990s the level reached by the rental-income share declared by households in the top decile did not exceed 5 percent, and in particular it never regained the nearly 12 percent level it had reached at the end of the deflation, which was probably quite close to what we would see before 1914 if the income tax had been in place before the First World War. Although we do not have statistical sources that would allow us systematically to study how the distribution of “fictive” rents evolved as a function of the income level,<sup>22</sup> it is certain that a key part of the explanation resides in the fact that real-estate owners, who were strongly affected by the rent freeze, benefited after the Second World War from a sort of “indemnity” from the state in the form of increasingly generous tax rules for rental incomes—in particular the total, definitive exemption of fictive rent, starting from the 1964 tax year. (Before 1964, owners occupying their homes had to declare the value of the corresponding fictive rent on their tax returns.)<sup>23</sup> In the 1990s, fictive rents represented more than half of total rental income measured in the national accounts.<sup>24</sup> If we hypothesize that this proportion was approximately the same for the top decile of the income distribution as for the population as a whole, we can assume that in the 1990s the level reached by the rental-income share as declared by households in the top decile would be

around 10–12 percent if fictive rents were still taxable (rather than around 5 percent). Thus we see that if the tax rules had remained the same, the weight of rental income within top incomes probably would have traced a roughly symmetrical U-curve over the course of the twentieth century.

Given that rental incomes have always been of limited importance for recipients of high incomes, and especially for the topmost incomes, these “fiscal” complications are of little importance for the study of the long-term evolution of income inequality. The case of investment income is more complicated, especially because of the great diversity of legal forms that such incomes can take (dividends, interest on debts issued by private firms, interest on Treasury bonds and other securities issued by the state, interest earned on savings accounts, life-insurance contracts, etc.). This means we must meticulously account for changes in the list of exemptions and thus the types of income that do not have to be mentioned on tax returns. Most importantly, as we have seen, the share of investment income, in contrast to rental income, had always been a very sharply rising function of the income level and could reach extremely high levels for the topmost incomes. The problems involved in accounting for nontaxable investment incomes and their growth over time are therefore liable to have a major potential impact on the study of the evolution of income inequality, and it is too early for us to be able to deal with them in a satisfactory way. We first have to examine our annual estimates of the income levels declared by the various top-income fractiles, which will allow us better to tackle the issue (see sections 3 and 4). Next we have to study the precise evolution of income tax legislation, which we will do in the Part Two (Chapter 4). Only in Part Three (Chapter 6) will we evaluate the magnitude of the possible biases introduced by the problems of nontaxable income, as well as those of tax fraud strictly speaking, which are as likely to arise for investment income as for rental income. For the moment, let us simply note that only for the “200 families” (fractile 99.99–100) did the investment-income share of declared income regain its maximal interwar level by the 1990s. For the fractiles below, it caught up only partially, which at first sight seems entirely consistent with the fact that it was mainly “middle-class” investment incomes that became nontaxable after the Second World War (interest on public debt, savings accounts, etc.), whereas the incomes most widespread among the top income levels (especially dividends) always remained taxable.

### 1.2.2. The “Wageification” Trend in Earned Income

The second great structural shift in the twentieth-century composition of household income, (after the U-curve traced out by the capital-income share) concerns the “wageification” trend within earned incomes. Putting aside purely cyclical fluctuations (and taking account of the fact that mixed incomes were weighed down heavily by the 1930s crisis), we observe that for every top-income fractile, from the “middle classes” to the “200 families,” the share of mixed income in earned income followed a downward trajectory over the twentieth century (see Figures 2-3 and 2-4). As far as the study of income inequality is concerned, this second structural evolution seems far less significant at first sight than the U-curve in the capital-income share: whereas the latter constituted a true economic and social shock, intimately connected to the two world wars—and by every indication having a major impact on the level of top incomes—the “wageification” trend was a continuous and gradual evolution. Also, as we have already pointed out, this gradual process can in many cases be explained by a shift that was more formal than real, that is, the gradual replacement of older, self-employed employers with newer, wage-earning managers often corresponded to a change in the legal form of the businesses in question, without the realities of the work involved—or even the identity of the individuals in question—necessarily being affected. For example, in an analysis of a large number of individual biographies taken from *Who’s Who* directories from 1954, 1964, and 1974, Pierre Birnbaum found that salaried executives, who were becoming more and more numerous in the pages of the prestigious directory, were often former self-employed employers (or the sons of former self-employed employers) working in the same company where they had once been the employer (or where their father had once been the employer).<sup>25</sup> And in those cases where the promotion of the wage-earning managers did correspond to a “real” economic change (a shift from small family firms to large companies, or from “inheritance” to “competence,” etc.), it was not immediately clear that such shifts necessarily had significant consequences for income inequality.

Most importantly, statistics from tax returns show that the “wageification” trend that hit top incomes was far more massive than might be imagined; in fact, in the interwar period, and probably since the turn of the century, “bourgeois” wage earners formed the biggest battalions within the top-income caste. In the interwar period, the profits of self-employed occupations made up little

more than 10 percent of the earned incomes declared by households in the lower half of the top decile (fractile P<sub>90-95</sub>),<sup>26</sup> which means that wages represented almost 90 percent! If we add to that the fact that capital income represented supplementary income only for these households (at most 10–15 percent of total income), we see that the interwar “middle classes” lived for the most part off their wages. In every year for which we have data, from 1920 to 1937, wages represented between 75 percent and 80 percent of total income for the first half of the top decile (fractile P<sub>90-95</sub>).<sup>27</sup> In addition, if we look at the incomes declared by the next 4 percent (fractile P<sub>95-99</sub>), we see that the share of wages was not much smaller: except for the year 1920, when the mixed-income share of earned income reached 40 percent, the share in the interwar period was always between 15 percent and 20 percent.<sup>28</sup> Since the share of capital income for the P<sub>95-99</sub> fractile was also limited, this implies that wages represented a very large majority of total income for these households (between 65 percent and 70 percent).<sup>29</sup> In other words, by the interwar period, wages represented the main source of income for nine-tenths of the top decile, and one already had to rise into the top 1 percent for that no longer to be the case. In fact, if we forget about capital incomes for a moment and stick to the wage share of earned income, we observe that the best-off 0.1 percent of households was practically alone in having mixed incomes that systematically represented a majority of their earned income in the interwar period.<sup>30</sup>

To be sure, we need to take into account the fact the 1930s were far from favorable for mixed incomes, and that such incomes can be significantly affected by fraud (especially in a period of depression and anti-tax agitation), much more so than wages. But even if we adopt a particularly high estimate of fraud, it is hard to see how the potential “real” level of the mixed-income share could significantly exceed 20–25 percent for the P<sub>90-95</sub> fractile (rather than 10 percent) and 30–35 percent for the P<sub>95-99</sub> fractile (rather than 15–20 percent). In other words, taking into account poor economic conditions and fraud does not seem to change the fact that wages in the interwar period were the main source of income for the “middle classes” (upper or otherwise). As for the effects of the business cycle, let us add that the year 1920 was a particularly dark one for top incomes (they had been decimated by the inflation of the First World War). That did not prevent the mixed-income share of earned income for the P<sub>90-95</sub> fractile from being just slightly over 10 percent in 1920, which strongly suggests that even before the First World War wages represented a very



large majority of income for the “middle classes.” These observations obviously do not mean that the “wageification” trend did not happen. The mixed-income share of earned income of the “middle classes” (upper or otherwise)—like the mixed-income share of earned income for all the top-income fractiles—did indeed decline over the twentieth century, and it was even smaller in the 1990s than it had been in the interwar period. The important point is simply that for the “middle classes” (upper or otherwise)—that is, for nine-tenths of the top decile—the mixed-income share of earned income was already very small in the interwar period, and it probably had been so at the beginning of the century. In fact, when it comes to top incomes, it was really only for the top 1 percent—and most of all for the upper strata of the top 1 percent—that the “wageification” trend seems to have truly transformed the social landscape. In particular, if we look at the earned incomes of the “200 families” (fractile P99.99–100), we see that profits of self-employed occupations could represent up to 90 percent of such earned incomes over the first half of the century. That maximal level was only around 55–60 percent in the first post–World War II decades. Finally, it stood at around 40–45 percent in the late 1990s. Thus, there was a shift from a situation where mixed incomes were dominant to one in which wages represented the absolute majority of the earned incomes of the “200 families.” The drop in the mixed-income share of earned income for the P99.99–100 fractile seems particularly rapid in the 1990s, suggesting that recent years have witnessed the rise of “super-CEOs” and other top executives with very high salaries. But obviously these major transformations did not affect the “middle classes” (upper or otherwise), which appear to have always been salaried middle classes, throughout the twentieth century.

These results have several important implications. First of all, they seem to run counter to some of the most widespread perceptions concerning the “rise of the managers.” Although these perceptions are seldom spelled out very precisely, it seems to us that the most prevalent view is that the “rise of the managers”—or more generally the “rise of high-wage workers”—is a phenomenon dating from the 1960s–1970s, or perhaps from the 1950s. But in any event, such workers were largely absent from the social landscape of the turn of the century and the interwar period, or at the very least that they occupied a much more modest place in the income distribution. Yet it is precisely the P90–95 and P95–99 fractiles—comprising households with incomes between approximately 20,000 and 50,000 francs per month in the 1990s—that



represent the realm of the managers. The fact that by the interwar period—and probably the turn of the century—wages represented a share of total income for these same fractiles not much smaller than in the 1990s suggests that managers did not wait to be noticed before coming to occupy the place in the income hierarchy that they hold today. More specifically, these results strongly suggest that “very high-wage workers” (who were not necessarily “managers” in the late twentieth-century sense) already existed in the interwar period and at the turn of the century, and apparently on a scale, and in proportions (relative to the income and wage distributions of their era), very similar to those of the late twentieth century. But such a phenomenon needs to be confirmed by a careful analysis of wage inequality specifically. Thus, in Chapter 3 we will revisit these hypotheses, as well as the question of contemporary representations and perceptions of inequality.

The second important implication of these results concerns the analysis of how top-income levels and the top-income share of total income (see sections 2 and 3 in this chapter) evolved over the twentieth century. Insofar as the great bulk of incomes in the P90–95 and P95–99 fractiles has always been made up of wages, fluctuations in these fractiles’ declared income levels and in their share of total income must be explained largely by fluctuations in wages strictly speaking, in particular by narrowing or widening movements in the wage hierarchy. Inversely, fluctuations in the topmost incomes—especially those of the “200 families” (fractile P99.99–100), for whom investment income has always been preponderant—must be explained by expansions or contractions of business profits. As for the fractiles between these two polar groups, it is natural to expect that they gain and lose from shifts in both the wage distribution and in business profits. Thus, we see that distinguishing among the various social groups that correspond to the different fractiles of the top decile not only makes possible a better representation of social inequality and the sociological structure of top incomes; but it is also imperative if we seek to understand the strictly economic phenomena that govern the rhythms of the history of income inequality.

Finally, let us make clear that these results, while they may seem relatively surprising at first blush, actually appear entirely consistent with the information that can be derived from the censuses carried out by the SGF and later by INSEE since the beginning of the century. Indeed, the censuses provide us with precious information about the distribution of self-employed workers as a

function of the number of wage earners they employ, which allows us to observe that the overwhelming majority of self-employed workers recorded in these censuses have always been very small entrepreneurs. Obviously these data are not perfect for our purposes (sometimes an entrepreneur employing one or two workers makes a very comfortable profit). Nevertheless, they allow us to get a sense of the orders of magnitude. At the beginning of the century and in the interwar period, self-employed workers represented nearly half of the roughly 20 million working individuals, the total number generally falling somewhere between 9 and 10 million self-employed workers (a bit more than 10 million at the beginning of the century, a bit less than 9 million in the 1930s).<sup>31</sup> But if we look at the detailed census results, we see that these 9–10 million self-employed workers were mostly small peasants, small artisans, blue-collar workers, craftsmen, and so forth, who worked at home “independently,” along with other categories of low-income self-employed workers. We also see that a very large majority of self-employed workers worked alone or with their spouse and had no employees, and that only an infinitesimal fraction employed more than a few workers. Both at the beginning of the century and between the two wars, out of 9–10 million self-employed workers, the total number of heads-of-business (*chefs d'entreprise*) employing more than 5 workers was always less than 200,000 (about 2 percent of the total), the total number employing more than 10 workers was always less than 100,000 (about 1 percent of the total), and the total number employing more than 50 workers was always less than 20,000 (about 0.2 percent of the total). And this includes the very small number of farmers who employed more than 5, 10, or 50 workers (a number always less than 50,000, 10,000, or 300, respectively).<sup>32</sup> It must be emphasized that these numbers are actually overestimates, since the SGF counted as self-employed—and specifically as *chefs d'établissement* (heads of establishment)—all individuals who were actually in charge of a business, even if they actually had a wage-earning status, such as chief executive officers (CEOs) or directors-general of listed companies.<sup>33</sup> It is thus likely that a nonnegligible fraction—though impossible to calculate precisely—of the 15,000–20,000 or so heads-of-business with more than 50 workers who were counted in the interwar censuses were actually “bourgeois” wage earners living on wages rather than mixed incomes.

Let us also note that we find the same kinds of orders of magnitude in the censuses carried out by INSEE since the Second World War. Out of nearly 6.5 million self-employed workers counted in the 1954 census, only around 85,000

were counted as *industriels*—a category within the nomenclature introduced in 1954 that combined all industrial or artisanal *chefs d'entreprise* employing more than 5 workers, just over 1 percent of the total.<sup>34</sup> The number of *industriels* then fluctuated between 60,000 and 80,000 in the censuses carried out between 1954 and 1982. Within the 1954 nomenclature, mention should also be made of *gros commerçants*, a category combining all *commerçants* [Translator's note: mostly retailers or wholesalers] employing more than 2 workers, whose numbers stood around 200,000 in the censuses of the period 1954–1982.<sup>35</sup> The new nomenclature introduced in 1982 combined all “large” industrial, artisan, and commercial *chefs d'entreprise* into a single category, and in the 1980s–1990s between 130,000 and 170,000 *chefs d'entreprise* with more than 10 workers were counted, including 30–35,000 with more than 50 workers (depending on the year).<sup>36</sup> But here again, it should be made clear that the 1982 nomenclature continued the pre–Second World War practice of counting all CEOs and directors-general of listed companies as *chefs d'entreprise*, despite their wage-earning status,<sup>37</sup> so that the number of “large” self-employed entrepreneurs living on mixed incomes rather than wages was actually significantly smaller. (Unfortunately, neither the INSEE nor the SGF data make it possible to carry out this decomposition).

In any event, it is clear that these are extremely low numbers, even if we set the threshold for identifying “big” entrepreneurs at a very low level. By way of comparison, recall that the total number of tax units was about 15 million before the Second World War (14 million in the early part of the century, almost 17 million in the 1930s), and that the number exceeded 30 million in the 1990s.<sup>38</sup> The top decile of the income distribution thus included about 1.5 million tax units before the Second World War and 3 million in the 1990s; thus (by definition) 90 percent belonged to the first 9 centiles of the top decile, that is, to the “middle classes” and “upper-middle classes” (fractiles P90–95 and P95–99). One can see that with total numbers of around 50,000, 100,000, or even 200,000, it is unsurprising that self-employed “big” entrepreneurs have never made up more than a very small fraction of the tax units of the top decile, especially its first 9 centiles. It can also be pointed out that taking into account the liberal professions—which are probably the principal self-employed occupations for which a rising number of employees is not necessary for growing a business and reaching a certain level of profit—is in no way likely to bias these conclusions. Though rising strongly over the century (something that shows up very clearly in the tax statistics), the numbers in the liberal professions have al-

ways been much too low to be any but a residual social category within the top decile, or at least within the “middle classes” and “upper-middle classes.”<sup>39</sup>

## *2. The Evolution of Top-Income Levels in Twentieth-Century France: The Secular Decline in the Share of Total Income Going to the Topmost Incomes*

How has the level of top incomes declared by French taxpayers for income-tax purposes evolved over the twentieth century? Has “Kuznets’s law”—which says that income inequality tends to decline in the advanced phase of capitalist development, and in particular that top incomes structurally tend to grow more slowly than the average income—applied to France?

Two important findings emerge from our estimates. First, in the long run—that is, between the two endpoints of the twentieth century—we indeed observe a significant decline in the top-income share of total income. But the key fact is that this decline is explained solely by the very sharp drop in the share of income going to recipients of very high incomes, notably a spectacular collapse in the highest incomes, and the most likely explanations of these facts suggest that this decline in inequality was in no way a “natural” and “spontaneous” economic process (section 2). Second, if we examine in detail the short- and medium-term movements in the various top-income fractiles’ shares of total income, we can observe an alternation over the course of the century between phases of declining inequality and phases of rising inequality. This once again suggests that the dynamics of inequality can in no way be characterized by the notion of a steady and inexorable tendency toward narrowing income differentials. Caution is called for, as well as a meticulous analysis of the various causal factors that could explain the many upheavals that mark this complex history (section 3).

### 2.1. Initial Guideposts: The Evolution of the Average Income of the Top Decile

Let us begin by taking preliminary stock of the twentieth century evolution of top incomes as declared under the income tax, by examining the evolution of the average incomes declared by the highest-income 10 percent of tax units (fractile P90–100) (see Figure 2-5). Of course, this social group is very

heterogeneous, both in terms of the nature and the levels of income received, and taking an average of all these incomes by calculating the average income of the top decile is far from satisfactory. It amounts to masking the key economic and sociological inequalities that exist within the top decile. Examining the average income of the top decile can only help us fix the orders of magnitude for broad trends, and it absolutely must be supplemented with averages for the various fractiles that compose it.

Before examining the results, recall as well that the French income tax went into effect for the first time in the 1915 tax year, but only from the 1919 tax year did the number of taxable households reach a sufficient level to allow us to estimate the top decile's average income. For 1915–1918 incomes, the tabulation of tax returns carried out by the tax authorities allows only for the estimation of the average income of the top 1 percent (and higher fractiles). That is why the annual estimates reproduced in Figure 1-5 begin in 1919 (as is the case for all the figures dealing with the top decile), and why the annual estimates reproduced in the figures dealing with the top 1 percent (or higher fractiles) begin in 1915. Moreover, in order to study the evolution of top incomes over the entire length of the century, we have supplemented these annual estimates derived from tax returns with an average estimate for the 1900–1910 period. We have obtained these estimates on the basis of the income-distribution evaluations carried out by the ministry of finance before the First World War in the context of the bills aiming to create an income tax, then adjusting these using the results actually obtained in the first years of the income tax's implementation, as well as clues provided by macroeconomic data. By construction, therefore, our average estimate for the 1900–1910 period cannot be perfectly consistent with the annual estimates for the 1919–1998 period (or for the 1915–1998 period, for the top 1 percent), since the income tax and tax returns did not yet exist before the First World War. But it has been carried out so as to be as comparable to them as possible. Let us make clear, finally, that our estimates for the level of top incomes in 1900–1910 appear capable of sinning only by omission (that is, to the downside, and certainly not by excess): it is possible that during the First World War the level of top incomes declined a bit more than indicated by Figure 2-5 and subsequent figures, but it seems entirely improbable that the true decline was smaller than that indicated.<sup>40</sup>

The first conclusion that emerges from our estimates is that over the course of the century the average income of the top decile followed an overall path

THE EVOLUTION OF THE LEVEL AND COMPOSITION OF TOP INCOMES

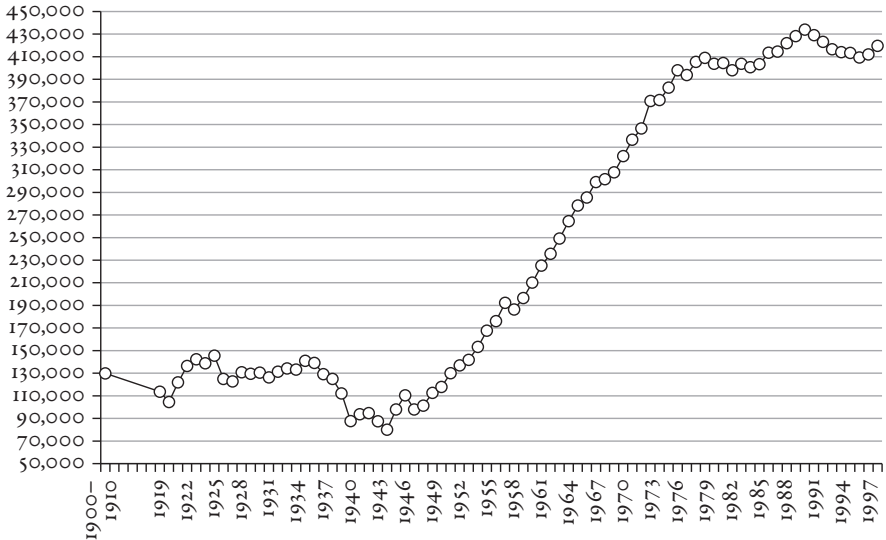


FIGURE 2-5. The average income of the top decile, in 1900–1910 and from 1919 to 1998 (in 1998 francs)

Source: Column P90–100 of Table B-11 (Appendix B)

very similar to that of the average income of the population as a whole (see Chapter 1, Figure 1-6). In particular, like the incomes of the overall population, top incomes (as declared to the authorities) experienced very strong growth in their purchasing power over the course of the century, but this very strong growth in the top decile's average income (expressed in 1998 francs) was mostly achieved over the course of the *Trente Glorieuses* (1948–1978), whereas the 1900–1948 and 1978–1998 periods were characterized by relative stagnation in purchasing power. However, Figure 2-5 already allows us to note several important differences. First of all, the average income of the top decile seems to have been more seriously affected by the Second World War years than that of the overall population: it was not until 1951 that the top decile regained its prewar purchasing power, whereas the average income of the population as a whole (as well as the average wage, moreover) regained its prewar level by 1945–1946 (see Chapter 1, Figures 1-6 and 1-8). Generally speaking, the evolution of the average income of the top decile appears more volatile than that of the overall population's average income. For example, the top decile experienced a very sharp increase in purchasing power during the economic boom of the late 1980s, then a very

## THE EVOLUTION OF INCOME INEQUALITY IN FRANCE

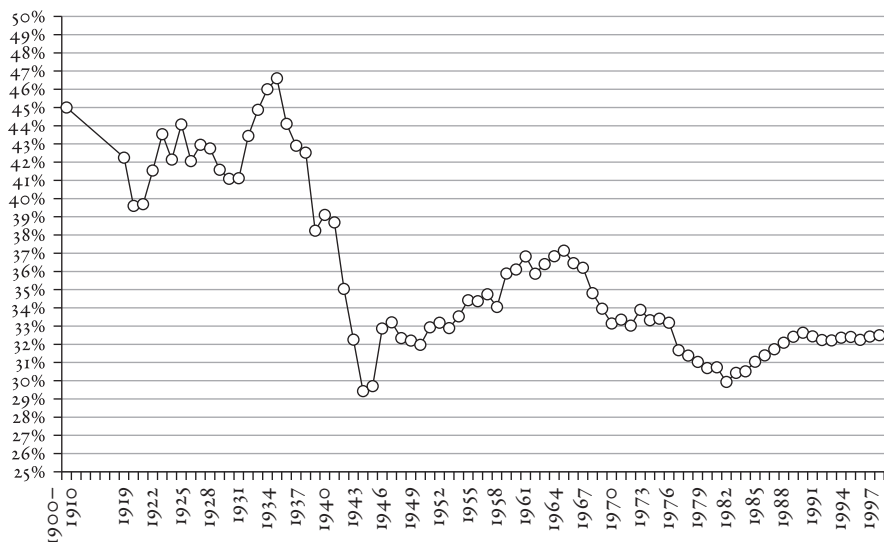


FIGURE 2-6. The top-decile share of total income, in 1900–1910 and from 1919 to 1998  
*Source:* Column P90–100 of Table B-14 (Appendix B)

sharp decline in the early-1990s recession, and again a sharp increase in the economic boom of the late 1990s (see Figure 2-5). We also observe such short-term fluctuations for the overall average income, but with a lower amplitude (see Chapter 1, Figure 1-6). This result makes sense insofar as capital incomes and mixed incomes—which affect top incomes more than average incomes—have always been more volatile than labor income, and also insofar as it seems legitimate to expect high wages—which often include bonuses and other supplements to pay (profit-sharing, etc.), in amounts that vary strongly with the economic cycle—also to also have a tendency toward more volatility than average wages.

Most importantly, the total increase in the purchasing power registered by the top decile over the course of the twentieth century appears significantly smaller than the total increase in purchasing power registered on average by the overall population. Expressed in 1998 francs, the average income per tax unit in the top decile rose from about 130,000 francs in 1900–1910 to around 420,000 francs in the 1990s, a purchasing power multiplied by a factor of around 3.2; whereas the average income per tax unit of the entire population rose from



about 29,000 francs in 1900–1910 to around 130,000 francs in the 1990s, a purchasing power multiplied by a factor of around 4.5.<sup>41</sup> In other words, the high incomes of the top decile in their totality experienced quite considerable growth over the course of the twentieth century, but that growth, while considerable, was significantly less significant than that registered on average by the population as a whole: the purchasing power of the top decile more than tripled over the course of the century, while “average” purchasing power more than quadrupled. Income inequality thus seems to have diminished in France in the twentieth century, in line with the predictions of “Kuznets’s law.”

We may also note that, according to the figures, the average income of the top decile at the beginning of the century was practically identical to the average income of the entire population at the end of the century (about 130,000 1998 francs per year in both cases). Thus, the purchasing-power gap between the top decile and the overall population was the same at the beginning of the century as the overall growth in average purchasing power over the course of the century. Although such comparisons are suggestive (by the century’s beginning, the best-off 10 percent had attained the level of purchasing power that the average French person would reach only by the century’s end), one should not put too much weight on this kind of coincidence, given how much the relative prices of different goods and services varied over the course of time (see Chapter 1, section 5). It is quite clear that the level and style of life of the best-off 10 percent at the beginning of the century did not actually have much in common with the “average” level and style of life at the end of the century (even though both manifested as a monetary income of 130,000 francs when converted into 1998 francs). The average income at the end of the century allowed one to consume far more in travel, automobiles, and VCRs than did the top decile’s average income at the beginning of the century; inversely, the latter allowed one to afford more domestic help or hairdressers than did the overall average income at the end of the century.

A more expressive way of measuring the evolution of income inequality is to use the average-income-per-tax-unit series for the top decile (see Figure 2-5) and the average-income-per-tax-unit series for the whole population (see Chapter 1, Figure 1-6) to calculate the evolution of the top-decile share of total household income (see Figure 2-6). Figure 2-6 shows that, according to tax returns, the top decile’s income share in France varied over the twentieth century



between a minimum of 29.4 percent of total income in 1944 and a maximum of 46.6 percent of total income in 1935. In other words, in the twentieth century the average income of the top decile varied between a minimum of 2.94 times the average income (in 1944) and a maximum of 4.66 times the average income (in 1935). Actually, as noted above, our estimate of the top-decile share in 1900–1910 (45 percent) is probably a slight underestimate, so that the historic maximum in 1935 had probably already been reached before the First World War. In any event, we do actually observe a significant decline in the top-decile share of total income between the century's two endpoints, from 45 percent (or slightly more) in 1900–1910 to around 32 percent (or slightly more) in the 1990s. In the early twentieth century, the best-off 10 percent of households had an annual income of about 130,000 1998 francs on average (nearly 11,000 francs per month), and this was in a society where the average income per tax unit was around 29,000 francs (about 2,400 francs per month, the equivalent in the late 1990s of the RMI minimum-income welfare benefit for a single person). Thus, the best-off 10 percent of households had an average income about 4.5 times greater than the average, and thus they absorbed about 45 percent of total income. At the end of the twentieth century, the best-off 10 percent of tax units had an annual income of around 420,000 francs on average (about 35,000 francs per month), in a society where the average income per tax unit is around 130,000 francs (nearly 11,000 francs per month). Thus, the best-off 10 percent of tax units had an average income about 3.2 times greater than the average, and they thus absorbed around 32 percent of total income.

This large decline in the slice of the pie going to the top decile (around 45 percent at the start of the century, about 32 percent at the end of the century) means in particular that the share going to the bottom 90 percent of tax units experienced strong growth over the century (around 55 percent at the beginning of the century, around 68 percent at the end of the century), so that the total increase in purchasing power over the course of the century for these tax units actually corresponds to a multiplicative factor significantly higher than the 4.5 registered for the average income of the overall population. Using our estimates of the top-decile share at the beginning and the end of the century, we can calculate that the average income (expressed in 1998 francs) of the bottom 90 percent of households multiplied by a factor of around 5.5 (rather than 4.5) between the century's two endpoints.<sup>42</sup> Thus, the narrowing of income disparities does seem to be real: the best-off 10 percent of households experienced a

multiplication of their purchasing power by a factor of 3.2, while the remaining 90 percent enjoyed a multiplication of 5.5 (hence an “average” multiplicative factor of 4.5). Recall, moreover, that all of the income studies here are pre-tax incomes. In Part Two of this book, we will see that, taking into account the income tax—whose weight for top incomes significantly increased over the course of the century—leads to the conclusion that the true narrowing in disposable-income and purchasing-power disparities was even more considerable (see Chapters 4 and 5).

However, these figures do not mean that all top incomes experienced this narrowing in the income disparity vis-à-vis the average in the same proportions—far from it. In fact, the most spectacular finding from our use of tax returns is that this secular decline in the top-decile income share is mainly explained by the very large decline in the top 1 percent share, and even, by and large, by the massive collapse in the shares of the upper strata of the top 1 percent of total income. Before looking fractile by fractile to see what the most plausible explanations are for such an evolution, it is useful to begin by presenting a synthesis of the facts that need to be explained (see Table 2-1 and Table 2-2). Table 2-1 compares the average income levels of the various top-income fractile in 1900–1910 and in 1990–1998, and calculates the corresponding multiplicative coefficients of their purchasing power. On the one hand, we observe that the average income of the top decile did in fact grow less than the average income of the overall population (3.23 versus 4.48), but that the average income of the first half of the top decile (fractile P90–95) actually multiplied by a coefficient astonishingly close to, and even slightly greater than (4.65 versus 4.48) the coefficient for the overall population. On the other hand, the higher one climbs in the top-income hierarchy, the smaller the growth coefficient of purchasing power between the century’s two endpoints appears: 3.95 for the P95–99 fractile, 2.94 for the P99–99.5 fractile, 2.02 for the P99.5–99.9 fractile, 1.30 for the P99.9–99.99 fractile, and 0.83 for the P99.99–100 fractile (see Table 2-1). In other words, while the lower layers of the top decile experienced a growth in their purchasing power close to that experienced by the entire population, the purchasing power of the top strata experienced practically no increase over the course of the twentieth century, and that of the “200 families” (fractile P99.99–100) even seems to have declined (by about 20 percent)! Table 2-2 expresses these results in terms of the top-income share of total income: between 1900–1910 and 1990–1998, the top-decile share fell from 45.0 percent to 32.4 percent,

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TABLE 2-1

*The evolution of the purchasing power of various top-income fractiles between 1900-1910 and 1990-1998*

Fractiles	Average income 1900-1910 (in 1998 francs)	Average income 1990-1998 (in 1998 francs)	Ratio (1990-1998) / (1900-1910)
P0-100	28,848	129,380	<b>4.48</b>
P90-100	129,815	419,015	<b>3.23</b>
P95-100	196,165	543,087	<b>2.77</b>
P99-100	548,107	1,006,845	<b>1.84</b>
P99.5-100	865,432	1,334,205	<b>1.54</b>
P99.9-100	2,307,820	2,587,710	<b>1.12</b>
P99.99-100	8,654,324	7,154,769	<b>0.83</b>

Fractiles	Average income 1900-1910 (in 1998 francs)	Average income 1990-1998 (in 1998 francs)	Ratio (1990-1998) / (1900-1910)
P0-90	17,629	97,198	<b>5.51</b>
P90-95	63,465	294,943	<b>4.65</b>
P95-99	108,179	427,148	<b>3.95</b>
P99-99.5	230,782	679,484	<b>2.94</b>
P99.5-99.9	504,836	1,020,828	<b>2.02</b>
P99.9-99.99	1,602,653	2,080,259	<b>1.30</b>
P99.99-100	8,654,324	7,154,769	<b>0.83</b>

*Explanation:* The average income per tax unit for the overall population (fractile 0-100), expressed in 1998 francs, rose from 28,848 francs on average in the 1900-1910 period to 129,380 francs on average in the 1990-1998 period, multiplying by a factor of 4.48; the average income of the 10 percent of tax units with the highest incomes (fractiles P90-100) rose from 129,815 francs in 1900-1910 to 419,015 francs in 1990-1998, multiplying by a factor of 3.23, etc.; the average income of the 0.01 percent of tax units with the highest incomes (fractile P99.99-100) rose from 8,654,324 francs in 1900-1910 to 7,154,769 francs in 1990-1998, multiplying by a factor of 0.83.

*Sources:* Calculations based on the average income series for the entire population (see Appendix G, Table G-2, column [7]) and for the various top-income fractiles (see Appendix B, Tables B-11 and B-12)

TABLE 2-2

*The evolution in various top-income fractiles' shares of total income between 1900–1910 and 1990–1998*

Share of total income (in percent)					
Fractiles	1900–1910	1990–1998	Difference (in percentage points)	Difference (in percent)	Share of the total decline corresponding to each fractile
P90–100	45.00	32.39	–12.61	–28.0	
P95–100	34.00	20.99	–13.01	–38.3	103.2
P99–100	19.00	7.78	–11.22	–59.1	88.9
P99.5–100	15.00	5.15	–9.85	–65.6	78.1
P99.9–100	8.00	2.00	–6.00	–75.0	47.6
P99.99–100	3.00	0.55	–2.45	–81.6	19.4

Share of total income (in percent)					
Fractiles	1900–1910	1990–1998	Difference (in percentage points)	Difference (in percent)	Share of the total decline corresponding to each fractile
P90–95	11.00	11.40	0.40	3.6	–3.2
P95–99	15.00	13.21	–1.79	–12.0	14.2
P99–99.5	4.00	2.63	–1.37	–34.4	10.9
P99.5–99.9	7.00	3.16	–3.84	–54.9	30.5
P99.9–99.99	5.00	1.45	–3.55	–71.1	28.2
P99.99–100	3.00	0.55	–2.45	–81.6	19.4

*Explanation:* The top–10 percent share of total income (fractile P90–100) fell from 45.00 percent in 1900–1910 to 32.39 percent in 1990–1998, a total decline of –12.61 percentage points, or –28.0 percent, etc.; the top 0.01 percent of total income (fractile P99.99–100) fell from 3.00 percent in 1900–1910 to 0.55 percent in 1990–1998, a decline of 2.45 percentage points (or 81.6 percent), corresponding to 19.4 percent of the total decline in the share of the top 10 percent.

*Sources:* Calculations based on the series for various top-income fractile shares of total income (see Appendix B, Tables B-14 and B-15).

a drop of 12.6 points, which represents a decline of 28.0 percent from the initial level; but the share of fractile P<sub>90–95</sub> slightly increased (from 11.0 percent to 11.4 percent), and the share of fractile P<sub>95–99</sub> declined only slightly, falling from 15.0 percent to 13.2 percent, a decline of just over 10 percent (12.0 percent). The result, obviously, is that these two fractiles, though they make up nine-tenths of the top-decile population (by definition), contributed practically nothing to the secular decline in the top-decile share of total income: nearly 90 percent (88.9 percent) of the drop in the top-decile share is due to the decline in the top 1 percent share, which was more than halved between the century's two endpoints, falling from 19.0 percent in 1900–1910 to 7.8 percent in 1990–1998. What is more, this dizzying decline in the top 1 percent share of total income was itself mainly due to the collapse in the shares of the upper strata of the top 1 percent: the decline in the share held by the best-off 0.5 percent alone (fractile P<sub>99.5–100</sub>) explains nearly 80 percent (78.1 percent) of the total decline in the top-decile share, and the drop in the share held by the best-off 0.1 percent alone (fractile P<sub>99.9–100</sub>) explains nearly 50 percent (47.6 percent) of the total drop in the top-decile share—of which nearly half (19.4 percent out of 47.7 percent) is attributable to the “200 families” (fractile P<sub>99.99–100</sub>) (see Table 2-2).

How can we explain such contrasting experiences for the various top-income fractiles? We will begin with the case of the highest incomes (fractiles P<sub>99.99–100</sub>) (sections 2.2 and 2.3), then we will examine that of the “middle classes” (upper or otherwise) (fractiles P<sub>90–95</sub> and P<sub>95–99</sub>) (section 2.4), and we will conclude by studying the intermediate situation of the “upper classes” (fractiles P<sub>99–99.5</sub>, P<sub>99.5–99.9</sub>, and P<sub>99.9–99.99</sub>) (section 2.5).

## 2.2. The Collapse of the “200 Families” (1914–1945)

Undoubtedly the most spectacular twentieth-century evolution to emerge from our analysis of tax-return statistics is that of the income levels declared by the best-off 0.01 percent of households—the P<sub>99.99–100</sub> fractile of the income distribution (the “200 families”). Indeed, Figure 2-7, where we have reproduced our averaged estimate for 1900–1910, and in particular our annual tax return-based estimates for 1915–1998, shows the average income of the P<sub>99.99–100</sub> fractile tracing out a U-curve whose proportions seem almost too massive to be real. Over the course of the 1930s and especially over the Second World War years, the average income of the P<sub>99.99–100</sub> fractile (expressed in 1998 francs),

which had stood at around 8–9 million francs per year at the beginning of the century and in the 1920s, literally collapsed, with a minimum level, reached in 1944–1945, of around 1.6–1.7 million francs. It then experienced a slow and steady recovery, punctuated by some short-term fluctuations, over the following decades, allowing it to regain a level of around 7–8 million francs by the 1990s—slightly below its level from the beginning of the century and the 1920s (about 10–20 percent lower). The “problem,” of course, is that the average income of the overall population had multiplied by a factor of around 4.5 in the meantime, so that between the century’s two endpoints the income gap between the “200 families” and the average fell by a factor of around 5 (without even accounting for the burden of the income tax, since in this chapter we are looking at pretax income, not disposable income).

Of course, this very sharp narrowing of the income gap does not mean that the incomes of the “200 families” are now close to the average: the distance between the average income and that of the tax units of the P99.99–100 fractile has always been a yawning gulf, even in those households’ “darkest” hours. It is simply that the gulf was about 5 times more yawning at the beginning of the century than it was at the end of the century, according to the tax returns. At the start of the century, the average income of the overall population (expressed in 1998 francs) was less than 30,000 francs per year, whereas that of the P99.99–100 fractile could exceed 9 million francs. On average, then, the households of the P99.99–100 fractile had an income around 300 times the average, which means that they collected about 3 percent of total income all by themselves ( $0.01 \text{ percent} \times 300 = 3 \text{ percent}$ ). At the end of the century, the average income of the overall population was around 130,000 francs per year, whereas that of the P99.99–100 fractile was around 7–8 million francs; households of the P99.99–100 fractile thus had an income around 50–60 times the average income, which means that they collected about 0.5–0.6 percent of total income ( $0.01 \text{ percent} \times 50 - 60 = 0.5 - 0.6 \text{ percent}$ ). The gap between the “200 families” and the average was about 300 at the beginning of the century, but “only” about 50–60 at the end of the century. It is particularly striking to note that after 1945, this gap, which had collapsed between the 1920s and 1944–1945, underwent practically no further change: from 1945 to 1998, the income share of fractile P99.99–100 remained relatively stable at around 0.5–0.7 percent, with no apparent long-term trend (see Figure 2-8), which means that the gap between the P99.99–100 fractile and the average remained stable at around

## THE EVOLUTION OF INCOME INEQUALITY IN FRANCE

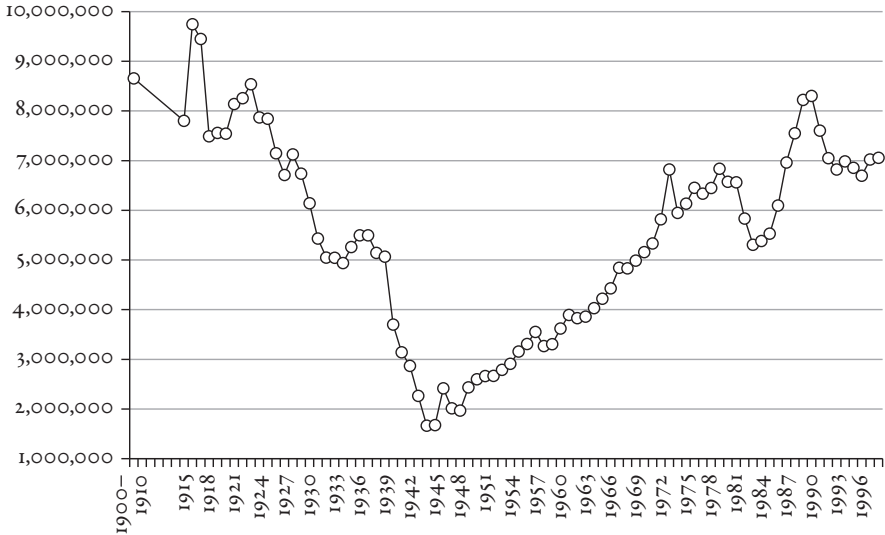


FIGURE 2-7. The average income of the “200 families” (fractile P99.99–100), in 1900–1910 and from 1915 to 1998 (in 1998 francs)

*Source:* Column P99.99–100 from Table B-11 (Appendix B)

50–70 after 1945. There was certainly very sizeable growth in the average income declared by households of the P99.99–100 fractile after the Second World War, as shown by the rising portion of the U-curve traced out in Figure 2-7, but this very sizeable growth was roughly equivalent to that enjoyed by the average income over the same period, so that the P99.99–100 fractile’s share of total income experienced practically no change after 1945. For the households of the P99.99–100 fractile to regain their relative position from the beginning of the century, their average income would have had to reach a level of around 35–40 million francs in the 1990s (rather than roughly 7–8 million francs). We may also note that since the “200 families” have always been major consumers of domestic help, a “commodity” whose relative price rose continually over the course of the century (see Chapter 1, section 5), these figures mean that their purchasing power actually declined considerably between the 1900–1910 and 1980–1990. If we assume, as a first approximation, that the wage of domestic help (and thus its price) grew by roughly the same proportion as average income between the century’s two endpoints, that means the purchasing power of the P99.99–100 fractile ex-

## THE EVOLUTION OF THE LEVEL AND COMPOSITION OF TOP INCOMES

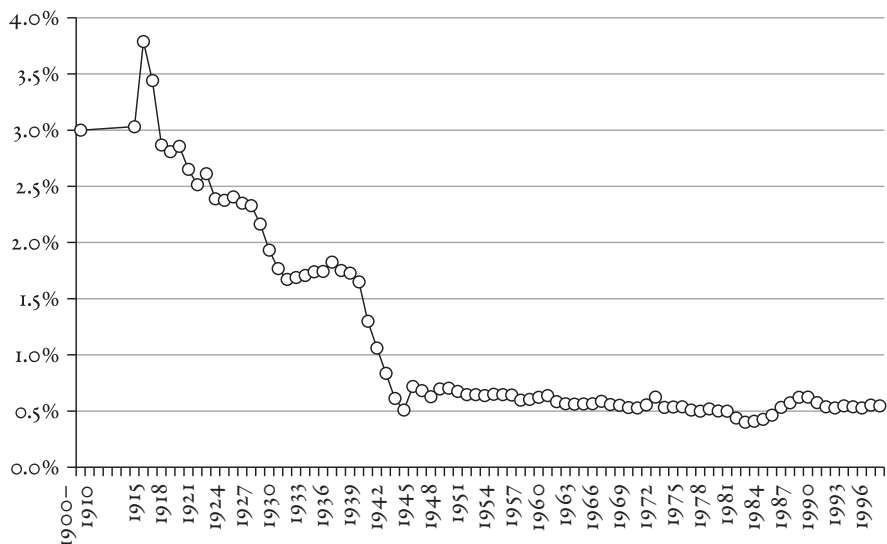


FIGURE 2-8. The share of total income of the “200 families” (fractile P99.99–100), in 1900–1910 and from 1915 to 1998

*Source:* Column P99.99–100 from Table B-14 (Appendix B)

pressed in terms of domestic labor fell by a factor of around 5 over the course of the twentieth century—a factor, we might add, that corresponds very precisely to the long-term decline in the number of domestic workers, according to the censuses.<sup>43</sup> How can we explain this collapse in the income of the “200 families” (relative to the rest of the population)?

First, we should be clear that our claim does not at all depend on our estimate for 1900–1910; that, obviously, would introduce some initial doubt, since that estimate is not based on tax returns, and so is not perfectly homogenous with our estimates for subsequent years. But the incomes declared by the best-off 0.01 percent of households were even higher in the very first years of the income tax than the estimate we arrived at for 1900–1910. According to our estimates, average income declared by households of the P99.99–100 fractile (expressed in 1998 francs) reached its highest level for the century in 1916, more than 9.7 million francs—versus around 8.6 million francs for our 1900–1910 estimate (see Figure 2-7); 1916 also saw the P99.99–100 share of total income reach its maximal level, nearly 3.8 percent, versus 3.0 percent for our 1900–1910 estimate



(see Figure 2-8). And there is nothing far-fetched about the First World War being, on the whole, favorable for very high incomes—particularly the year 1916, when the conflict bogged down and French economic activity strongly recovered (after years of falling production in 1914 and 1915).<sup>44</sup> It is true that wartime years (like recessions in general), and especially the Second World War years, tend to be bad years for capital income and the recipients of the topmost incomes. But as we have seen, due to the inadequacy of the available macroeconomic data for the First World War years, we cannot say whether that war shared this basic feature.<sup>45</sup> In fact, it is entirely conceivable that the First World War, at least in its initial years, was actually rather favorable for businesses, and thus for the topmost incomes, especially given the very meager inflation-indexing of wages that prevailed at the time, after a century of total price stability.<sup>46</sup> However, we should take into account the fact that our estimate of about 8.6 million for 1900–1910 is a “minimum” estimate: thus it is quite possible that if tax returns had been filed in those years, the average incomes declared by the P99.99–100 fractile (expressed in 1998 francs) would have been slightly higher, likely around 10 million francs. In that case, which is undoubtedly the most likely, the collapse in the P99.99–100 share between the century’s two endpoints would be even larger than we estimate, and logically, the years of falling production that marked the First World War would also have been years of declining levels and shares of total income for recipients of very high incomes (except for the short-term rebound of 1916). Because the first tax returns ever filed in France reported 1915 incomes—an irremediable lacuna that cannot be overcome given the era’s inadequate statistical apparatus—it is probably impossible to choose confidently between these two interpretations.

In any event, the major fact that interests us here is that the level of average income declared by the P99.99–100 fractile (expressed in 1998 francs) stood at around 8 million francs (and even above 9 million francs in 1916–1917) in the first years of the income tax and throughout the 1920s—a level higher than or equivalent to the highest levels reached in the 1990s—despite the fact that over the same period the average income of the overall population multiplied by a factor of 4.5. In other words, these slight uncertainties about the distributive effects of the First World War in no way cast doubt on the massive phenomenon we are seeking to explain here: namely, the fact that the share of total income going to the “200 families” fell by a factor of around 5 between the century’s two endpoints. Indeed, the way we have dealt with

these uncertainties—that is, by adopting a “minimal” estimate for 1900–1910—means that our quantification of this massive phenomenon can err only on the downside.

More generally, the overall evolution observed over the 1914–1945 period seems fairly plausible at first sight, given what we know about France’s general economic history over the period. Indeed, recall that the incomes of the P99.99–100 fractile are mainly composed of investment income, which includes the dividends received by (very) large shareholders of large firms, and, as a supplementary source, mixed incomes, which correspond to the profits received by (very) large self-employed entrepreneurs. The fact that the First World War (notwithstanding the uncertainties already emphasized) did not, at any rate, lead to a significant decline in very high incomes, and in particular the fact that the average P99.99–100 income probably stood very close (or perhaps slightly below) its prewar level throughout the 1920s (see Figure 2-7) is entirely consistent with the macroeconomic data available to us. We know that rental incomes experienced a genuine collapse over the course of the First World War in the wake of the rent freeze, while the investment-income share of household income in the 1920s was comparable to its prewar level. So it is unsurprising to find that the First World War had little effect on top incomes, which do not depend heavily on rental income but do depend heavily on investment income. We should note, however, that during the 1920s, the average P99.99–100 income did not enjoy the sizeable growth experienced by the average income overall, resulting in a downward trend in the P99.99–100 fractile’s share during the first post–World War I decade. The P99.99–100 fractile’s share of total income was nearly 3 percent at the end of the war, and was less than 2.5 percent at the end of the 1920s, even before the onset of the global economic crisis. This phenomenon is probably explained by the fact that households of the P99.99–100 fractile, although receiving investment incomes mainly in the form of dividends rather than interest, still held a certain fraction of their portfolio in the form of bonds (public and private). They must certainly have invested nonnegligible sums in “National Defense Bonds” and other Treasury bonds during the war and in the early 1920s, and these “fixed incomes” were decimated by inflation in the wartime years, and then in the 1920s.<sup>47</sup> In any event, the downward trend in the 1920s was moderate, and taken as a whole the 1914–1929 period (whatever the uncertainties regarding the war’s distributive effects) appears to have been relatively benign for top incomes, especially

compared to the collapse of the 1929–1945 period—a collapse that is, again, perfectly consistent with the available macroeconomic data.

It is entirely natural that the 1930s crisis, which entailed a fall in company profits—especially for the large firms linked to the international economy and hit with full force by the collapse of global trade—led to a sharp decline in the largest incomes (the opposite would have been surprising). Moreover, quantitatively, the decline in the average income declared by the P99.99–100 fractile (expressed in 1998 francs), from around 7.5–8 million francs in the 1920s to around 5 million francs in the depths of the 1930s (see Figure 2-7)—that is, just over 30 percent—seems at first sight relatively reasonable, even small.<sup>48</sup>

The second phase in the collapse of the “200 families,” which was far more massive than the first and unfolded between 1939 and 1945, is no more surprising. We know that the Second World War years not only brought GDP to its lowest level of the century (it was practically cut in half between 1939 and 1944), but also that this vertiginous collapse of production, significantly larger than that witnessed during the First World War, was accompanied by an unprecedented drop in the profit share of firms’ value-added. It is particularly striking to note that, according to the tax returns, 1944–1945 saw the average income of the P99.99–100 fractile reach its lowest absolute historical level, at less than 2 million francs (see Figure 2-7). And according to the macroeconomic data, it was also in 1944–1945 that firms’ profits reached their historically lowest absolute level, with the capital share—which generally deviates very little from its “normal” level of 30–35 percent—standing at just over 10 percent of firms’ value-added (see Chapter 1, Figure 1-5).<sup>49</sup> If we add to this the sharp increase at the end of the Second World War in the share of profits retained by firms to replace equipment and self-finance new investment—that is, funds not distributed to shareholders (“undistributed profits”)—which was done to finance reconstruction, we can see that there is nothing surprising about the fact that the Second World War years brought the average income of the P99.99–100 fractile down to one-fifth its previous level (from about 5 million francs in the midst of the 1930s crisis to around 1.6–1.7 million in 1944–1945; see Figure 2-7).<sup>50</sup> These findings are also consistent with the fact that the investment-income share declared by the P99.99–100 fractile, which in “normal” times is greater than 50 percent, collapsed to less than 15 percent in 1945. In the end, then, the fact that the incomes of the “200 families” fell by three-quarters over the 15 years between 1929 and 1944–1945 seems relatively plausible. It is certainly a consid-

erable collapse, totally unimaginable for the average income, and thus for modest incomes, but the fact is that capital income (and thus very high incomes) has always been “pro-cyclical” (that is, it falls faster during recessions, and rises more rapidly during expansions), and the “recession” of the 1929–1945 years was undoubtedly one of the most massive history has ever seen. In a certain sense, the collapse in very high incomes seen over the 1914–1945 period, and especially over the 1929–1945 period, may be described as the normal result of an exceptional “recession.”

### 2.3. Why Did the “200 Families” Never Recover from the Shocks of the 1914–1945 Period?

In fact, the phenomenon that requires explanation—far more than the phase of collapsing high incomes seen over the 1914–1945 period (and particularly over the 1929–1945 years)—is the absence of any genuine catch-up over the decades after the Second World War. In “normal” times, very high incomes fall over recessions (relative to the average income), but they then recover over the following economic recovery, so there is no reason why the economic cycle as such should have lasting effects on the income distribution. That does not seem to have been the case with the “recession” of the 1929–1945 years: in that period, the income gap between the P99.99–100 fractile and the average remained “frozen” at a multiple of around 50–70 after 1944–1945, and never regained its previous level (see Figure 2-8). Certainly the average income of the P99.99–100 fractile (expressed in 1998 francs) had begun its “historic” growth by 1945–1946, and by the 1990s this growth had allowed it to regain a level of around 7–8 million francs (see Figure 2-7). But in order to close the gap that had recently opened up, that growth would have had to increase to around 35–40 million francs (rather than 7–8 million) in the 1990s. Why is it that very high incomes appear never to have regained their level (relative to average income) from before the 1929–1945 crises?

An initial explanation could be that too few years have passed since the Second World War, and that we just have to wait a few extra decades for the households of the P99.99–100 fractile to regain their relative level from the beginning of the century and early 1920s—that is, 300 times the overall average (rather than roughly 50–60). In fact, the idea that time is needed to recover from the “recession” of 1929–1945 seems relatively plausible at first

sight. In “normal” times, recessions are not accompanied by a significant loss of capital; rather, it is the incomes from capital that experience a short-term decline, and usually wealth-holders own the same amount of capital after the recession as they did before (the same shares, the same factories, the same apartment buildings, etc.). Thus, capital incomes simply need to regain their previous level for the effects of the recession to be forgotten (notwithstanding a few bankruptcies, which are quickly offset by the creation of new firms), all in the space of a few years. By contrast, for wealth-holders, the 1914–1945 period, and especially the “recession” of the 1929–1945 years, was accompanied by very significant capital losses, so it is entirely logical to expect that many years of capital accumulation would be needed before the recession’s effects could be erased. First and foremost, it must be recalled that the economic crisis of the 1930s was one of exceptional magnitude, and that it led to a great many bankruptcies, especially since many firms had only just recovered from the destruction of the First World War. Although it is impossible to put precise numbers on the losses experienced as a function of initial wealth and income levels, there is no doubt that these bankruptcies represented considerable capital losses for the large owners of investment and professional capital who make up the households of the P99.99–100 fractile—whether those losses were suffered by shareholders of the firms in question (whose shares by definition lost all value) or by the self-employed entrepreneurs whose firms have disappeared.

Most importantly, we must take account of the magnitude of physical destruction brought about by the hostilities (ground combat, bombing, etc.) in the Second World War. Of course, it is extremely difficult to quantify in precise terms the proportion of private capital destroyed in this way. According to some estimates, at the end of the Second World War total private wealth—that is, the total value of assets of all kinds owned by households (businesses, real estate, etc.), expressed in constant francs—was only a third of what it had been in the 1930s.<sup>51</sup> Despite the great uncertainties inherent in such estimates, we can be certain that a substantial proportion of private wealth was destroyed by the war in this way, and, in particular, that the destruction arising from the Second World War was significantly greater than that arising from the First World War. This general feature, which has been found by authors using quite different methods of estimating total wealth-holding,<sup>52</sup> is explained by the fact that the destruction of the Second World War affected the national territory, especially in 1944, whereas only a very small part of the territory was subject to

hostilities in 1914–1918. But it is also explained by the far more destructive character of the “technologies” used in the Second World War (especially those relating to aviation and bombing campaigns, of which large business firms were a favorite target).

Moreover, in the Second World War, the troubles experienced by large wealth-holders did not end with the close of hostilities: they were considerably amplified by the ambitious policy of nationalization carried out in 1945, especially in the banking sector. In cases where the state decided to buy up firms’ shares at the “market price,” nationalizations in principle should not have led to large losses for shareholders. But in fact these “market prices” were often very low in the chaotic economic context of the postwar period, so the nationalizations deprived shareholders of the opportunity to rebuild investment portfolios of decent value once the firms in question and the national economy as a whole returned to a “normal” situation. It must also be remembered that many nationalizations of large companies, as with the Renault factories and the coal mines, were explicitly conceived as “penalty nationalizations”: thus the purchase prices were set at levels far below the “market price,” even at frankly derisory levels (or even with no indemnity at all), so as to punish the “capitalists” in question, who were suspected of collaboration, or at a minimum cowardice, vis-à-vis the Vichy regime. While here again it is difficult to estimate the precise impact of this policy in relation to initial levels of income or wealth,<sup>53</sup> the 1945 nationalizations, coming after the destruction of the First World War, the bankruptcies of the 1930s, and the destruction of the Second World War, truly appear as the coup de grâce for large wealth-owners. Let us also mention the case of the *impôt de solidarité nationale* (national solidarity tax) established by the order of August 15, 1945: this exceptional tax on capital and on nominal wealth accumulations that had taken place over the course of the Occupation (but which in real terms were often de-accumulations) was levied only once, but the tax’s extremely high rates represented a very heavy additional shock for wealth-owners.<sup>54</sup> We should add that, in certain cases, French owners of investment securities in the 1914–1945 period also paid the price of nationalizations and debt-repudiation policies carried out by foreign governments: one thinks of Russian securities, which, according to available estimates, represented more than a quarter of the foreign securities owned in France on the eve of the First World War.<sup>55</sup>

Finally, let us mention the case of inflation. From the beginning of the century to the 1950s, the price level multiplied by a factor of about 200.<sup>56</sup> Also

recall that here, too, the Second World War played the central role, since it was nearly four times more inflationary than the First.<sup>57</sup> Individuals whose wealth was mainly composed of bonds, loans, state annuities, and other investments not indexed to inflation thus found themselves totally ruined at the end of the Second World War, just as surely as if their wealth had been subject to physical destruction. Insofar as all high-income social groups, including the “200 families,” have always invested a certain fraction of their wealth in the form of fixed-income securities (un-indexed to inflation), we can say that none of these groups managed entirely to escape this powerful force for the destruction of savings accumulated in the past. Nevertheless, households with the largest incomes and wealth-holdings, and especially those of the P99.99–100 fractile, have always held most of their assets in the form of stock, so the role of inflation in the process of wealth-destruction for these households was probably significantly smaller than the role played by the bankruptcies of the 1930s, the physical destruction caused by hostilities, and nationalizations. Thus, notwithstanding the uncertainties, we can see that the crises of the 1914–1945 period, and especially those of the 1929–1945 years, led not only to a collapse in capital incomes, but also, and most importantly, to the capital-accumulation “counter” being set back to zero (or nearly so). At the end of the Second World War, large wealth-holdings found themselves far below their levels from the eve of the First World War (which were then largely preserved in the 1920s), so it makes sense that it would take several decades, perhaps several generations, for these fortunes and their corresponding income levels to be reconstituted—and especially for the average income of the P99.99–100 fractile to regain its level from before the crises (relative to average income). This interpretation is confirmed by examining how the composition of the P99.99–100 fractile’s declared income evolved. We indeed see that in the very first postwar years, the large shareholders who had made up this fractile before the war had been dethroned by entrepreneurs—likely new generations of entrepreneurs—living on the mixed incomes generated by the companies they managed. Only very gradually, after continual growth over the 1950s, 1960s, 1970s, and 1980s, did the newly constituted (or reconstituted) fortunes reach a level high enough to allow the households in question to enter the P99.99–100 fractile on the strength of investment incomes derived from these wealth-holdings, and thus for capital income to resume its “natural” preeminence over mixed income. The first decades after the Second World War may thus be described as a phase of “primitive



capital accumulation,” as old fortunes had been to a large extent destroyed, and new fortunes were constituted. This interpretation is also consistent with what we have said about undistributed profits: that is, the immediate postwar years, and to a great extent the 1950s as well, were years when companies chose to reinvest a particularly large share of their profits, and only very gradually did dividends paid out to shareholders regain their full strength.<sup>58</sup> All these facts are consistent with the idea that it would have to take many decades for the topmost incomes to regain their relative levels from the early twentieth century and the 1920s, so it is “normal” to find that this level had not yet been reached in the 1990s.

This initial explanation is insufficient, however. More than half a century passed between 1945 and 1998, and while it might possibly be admitted that this is too short a time for large wealth-holdings to fully regain their previous levels, it seems long enough for the reconstitution of large wealth-holdings to be well on its way already. If this initial explanation were right, at a minimum we would expect that over the half-century since the Second World War the P99.99–100 fractile’s share of total income would have been able to make up a good part of the gap between the level it reached in the early twentieth century and 1920s (around 3 percent of total income, or perhaps a bit more) and the minimum level it hit in 1944–1945 (around 0.5 percent of total income)—for example, by standing at around 1.5–2 percent in the 1990s. But in fact, no long-term recovery is perceptible: the P99.99–100 fractile’s share seems to have been frozen at around 0.5 percent since 1944–1945 (see Figure 2-8). After an initial and very significant recovery in 1946 (from 0.5 percent to 0.7 percent), the P99.99–100 fractile’s share of total income actually tended to decline over the 1950s–1960s, falling from around 0.7 percent at the start of the 1950s to around 0.5–0.6 percent in the late 1960s, and stabilizing since then at around 0.5–0.6 percent (give or take a few short-term fluctuations). Nothing in the series depicted in Figure 2-8 would lead one to predict that the P99.99–100 fractile’s share could suddenly return to levels of around 3 percent by the first decades of the twenty-first century.

A second explanation, by far the most convincing in our eyes, is to supplement the first explanation with the idea that over the twentieth century, the accumulation conditions for very large wealth-holdings became structurally different from what they had been in the nineteenth century and up to 1914, mainly due to the income tax and inheritance tax. In other words, the reason



large wealth-holdings never recovered from the crises and the 1914–1945 “resetting” of the wealth-accumulation “counter” is that during their reconstitution phase they had to face a large tax burden, levied each year on their incomes, due to the income tax, and once per generation due to the inheritance tax. Thus, after an initial “short-term” shock (the 1930s crisis, world wars, inflation), it was a structural factor (the progressive tax) that prevented owners of large wealth-holdings and their very high incomes from regaining their levels from before the shock. This explanation seems relatively convincing at first sight. In particular, we must remember that the very large fortunes whose incomes we observe at the beginning of the century were the product of a century of capital accumulation that took place with no major interruption. Over the 1815–1914 period, fortunes could accumulate not only without fear of inflation, but also, and most importantly, without fear of either income or inheritance tax (the highest tax rates were set at negligible levels before 1914). After the First World War, the situation changed radically: the highest income-tax and inheritance-tax rates reached levels of around 30 percent, 40 percent, 50 percent, or more, levels that have been maintained down to our era, and the best-off households thus found themselves paying 30 percent, 40 percent, or 50 percent of their income each year for the income tax, and an equivalent proportion of their wealth once per generation for the inheritance tax. Fraud and evasion (legal or otherwise) could certainly lighten the weight of this tax burden, but even with great skill it is difficult to avoid annual levies of at least 20–30 percent on one’s income, and equivalent levies once a generation on one’s wealth. In these conditions it thus becomes practically impossible to accumulate fortunes of the same size (relative to the average income) as those that can be accumulated in a world without taxes (or nearly so), especially if one hopes, at least initially, to maintain a certain standard of living and not become completely “proletarianized” by the crises of the 1914–1945 years. But given the importance of this phenomenon, the only way to confidently judge the plausibility of this explanation is through a detailed study of the evolution of tax legislation over the twentieth century, and in particular the evolution of the income-tax rates on the top-most income fractiles, which we will do in Part Two of this book (see Chapters 4 and 5).

Moreover, one cannot ignore the importance of a third explanation, according to which the collapse of the “200 families” was merely a “tax illusion.” According to this explanation, the fact that the P99.99–100 fractile’s share of

total income stabilized after 1945, rather than regaining its early twentieth-century or 1920s levels, was due entirely to the fact that we have been measuring the P99.99–100 fractile’s average income level on the basis of incomes declared to the tax authorities. This argument holds that for the P99.99–100 fractile, the ratio between “real income” and declared income rose considerably after 1945, so that taking only declared income into account conceals the fact that by the 1990s, the P99.99–100 fractile’s “real income” really did reach its level from before the crises (relative to average income). Let us first note that, given the magnitude of the collapse in top-income shares between the century’s two endpoints (average income declared by the P99.99–100 fractile in the 1990s was around one-fifth of what it “should” have been), this explanation seems implausible at first sight. For such factors to be able to explain the phenomena observed, one would have to suppose, for example, that one franc of income declared by the P99.99–100 fractile in the 1990s corresponded to five francs of “real income,” while one franc of declared income in the early years of the income tax or the 1920s corresponded to only one franc of “real income.” Moreover, examining the evolution of the capital-income share of declared incomes suggests that it was mainly the top-decile fractiles below the P99.99–100 fractile that enjoyed the legal exemptions granted to many kinds of capital incomes since 1945.

However, given the central role this phenomenon plays in our analysis of the history of top incomes in the twentieth century, a detailed examination of this explanation seems necessary before it can be dismissed. Here again, it is necessary to begin by describing the evolution of income tax legislation, in order to understand how incentives and opportunities for fraud and evasion (legal or otherwise) evolved over the century, which we will do in Part Two (Chapters 4 and 5). Then we will devote an entire chapter in Part Three of this book to examining the “tax illusion theory” as well as this issue of the failure of large fortunes to be reconstituted, making use in particular of the findings that can be extracted from careful analysis of inheritance-tax returns (Chapter 6).

#### 2.4. The Stability of the “Middle Classes,” from the Early Twentieth Century to the 1990s

Let us now move on to an examination of the social groups located at the other end of the top decile of the income distribution: the “middle classes” (fractile

P90–95) and the “upper-middle classes” (fractile P95–99). These social groups represent the “poorest” of the “top” income levels, and the gaps between their incomes and the overall average income of the population have never reached the sort of heights that have always characterized the “200 families” (fractile P99.99–100). But they are obviously far more numerous. By definition, the P90–95 and P95–99 fractiles make up 9 percent of the total population (versus 0.01 percent for the P99.99–100 fractile), and 90 percent of the population of the top decile (versus 0.1 percent for the P99.99–100 fractile).

As signaled earlier, the main finding of our estimates is that the “middle classes,” and to a slightly lesser degree the “upper-middle classes,” seem to have experienced a rate of real income growth over the twentieth century that was very close to the average growth rate for the entire population. The average income of households in the P90–95 fractile, expressed in 1998 francs, rose from less than 65,000 francs per year in the early part of the century (less than 5,500 francs per month) to nearly 300,000 francs per year in the 1990s (around 25,000 francs per month), multiplying by a factor of around 4.7, practically identical to the 4.5 factor observed for the average income of the overall population. According to our estimates, the P90–95 fractile’s share was around 11 percent of total household income in 1900–1910, and it was again around 11–11.5 percent in the 1990s. Since the P90–95 fractile by definition makes up 5 percent of the total number of households, its 11–11.5 percent share of total income means it has an average income around 2.2–2.3 times the average for the whole population, and this was true both in the early twentieth century (an average income of nearly 65,000 francs for the P90–95 fractile, versus around 29,000 francs for the entire population) and at the end of the century (nearly 300,000 francs for the P90–95 fractile, versus about 130,000 for the whole population). In other words, the early twentieth-century “middle classes” (fractile P90–95) had incomes approximately equal to the late twentieth-century minimum wage (about 5,500 francs per month)—and this was in a society where the average income was about the same as the late twentieth-century minimum-income welfare benefit (the RMI, about 2,400 francs per month). Meanwhile, the “middle classes” (fractile P90–95) in the late 1990s have an income of about 25,000 francs per month, in a society where the average income per tax unit is around 11,000 francs per month.

The fact that the income gap between the P90–95 fractile and the population average was extremely stable over the century—which also means that the

THE EVOLUTION OF THE LEVEL AND COMPOSITION OF TOP INCOMES

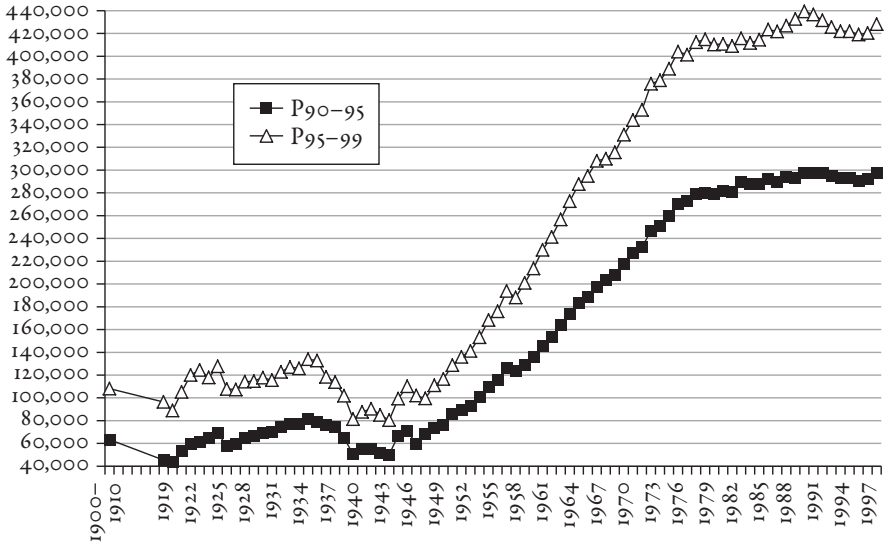


FIGURE 2-9. The average income of the “middle classes” (fractile P90-95) and the “upper-middle classes” (fractile P95-99), in 1900-1910 and from 1919 to 1998 (in 1998 francs)

Source: Columns P90-95 and P95-99 of Table B-12 (Appendix B)

gap between the “middle classes” and the “200 families” was divided by approximately 5 between the century’s two endpoints, along with that between the “200 families” and the overall population average—seems particularly striking to us. The price level multiplied by about 2,000 over the twentieth century (actually by 20, after accounting for the shift from old francs to new francs), and nominal incomes multiplied by about 9,000 (actually by 90, after accounting for the shift from old francs to new francs), but the “middle classes” of the P90-95 fractile still have an average income about 2.2-2.3 times higher than that of the overall population. In 1900-1910, in 1930, in 1950, in 1970, and in 1990, the P90-95 fractile’s share of total income was always around 11-11.5 percent (see Figure 2-10). Of course, the “middle class” share of total income experienced significant short-term fluctuations, especially over the first half of the century, and we will revisit the causes of these fluctuations later. But the fact that interests us here is that in all eras, whatever the magnitude of inflation or the nominal increase of incomes, irrepressible forces seem to ensure that the income of the P90-95 “middle classes” always returns to a level

## THE EVOLUTION OF INCOME INEQUALITY IN FRANCE

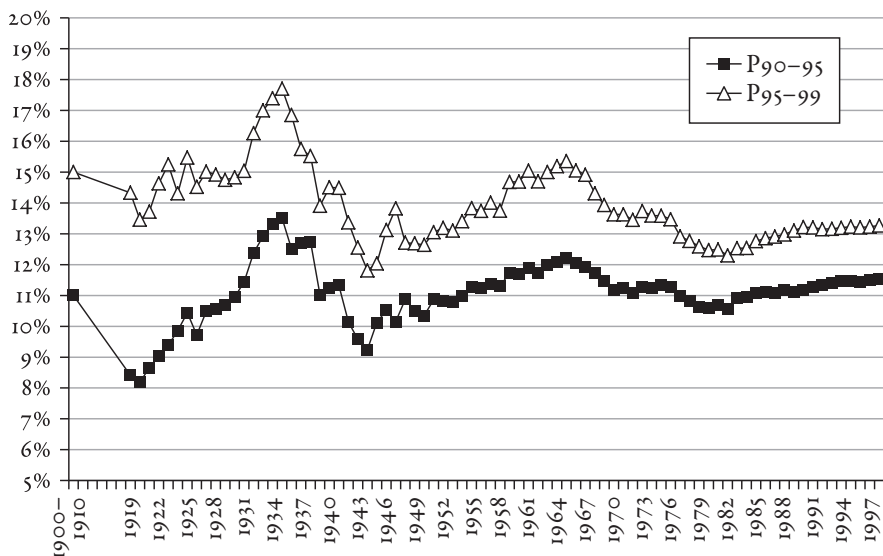


FIGURE 2-10. The share of total income of the “middle classes” (fractile P90–95) and the “upper-middle classes” (fractile P95–99), in 1900–1910 and from 1919 to 1998

Source: Columns P90–95 and P95–99 of Table B-15 (Appendix B)

around 2.2–2.3 times the average income of the overall population. How can this stability be explained?

First, it must be pointed out that the income gap between the P95–99 “upper-middle classes” and the overall population appears to have been almost as stable. The average annual income of fractile P95–99, expressed in 1998 francs, rose from a bit less than 110,000 francs at the beginning of the century to around 440,000 francs in the 1990s, a purchasing power multiplied in one century by a factor of around 4, just over 10 percent smaller than the factor of around 4.5 observed for the overall population, which over a century is practically an insignificant difference. Just as with the P90–95 fractile’s share, fractile P95–99’s share of total income underwent significant fluctuations over time, but without any really clear trend in the long run (see Figure 2-10). Fractile P95–99’s share fell from about 15 percent of total income in 1900–1910 to around 13–13.5 percent in the 1990s, a decline of just over 10 percent from the early twentieth-century level. Since the P95–99 fractile comprises 4 percent of all households, this means that the average income of fractile P95–99 fell from

about 3.7–3.8 times the average income of the overall population to about 3.3–3.4 times in the 1990s.<sup>59</sup> Thus, in total, the P90–95 and P95–99 fractiles, despite comprising 90 percent of the population of the top decile, saw an increase in their purchasing power that was practically equivalent to the average growth registered by the overall population, and they therefore explain only a trivial part (just over 10 percent) of the observed decline in the top decile’s share between the century’s two endpoints (see Table 2-2).

We may also note that the curve traced out by the average income of the top decile (see Figure 2-5), unlike the U-curve followed by the average income of the “200 families” (fractile P99.99–100) (see Figure 2-7), has the same overall look as the curve followed by the average incomes of the P90–95 and P95–99 fractiles (see Figure 2-9), which themselves have a profile similar to that characterizing the evolution of the overall population’s average income (see Chapter 1, Figure 1-6)—namely, very strong purchasing-power growth over the *Trente Glorieuses* (1948–1978), flanked by two periods of relative stagnation (1900–1948 and 1978–1998). This is an automatic consequence of what may be called the “tyranny of numbers”: the “200 families” do of course have much higher incomes than the “middle classes” (upper or otherwise), but they are so much smaller in number that they can have only limited weight when the average of all top incomes is calculated, which explains why the average income of the top decile evolves in a way very similar to the evolution followed by the “middle classes.” This “tyranny of numbers” also explains why the “middle class” (fractile P90–95) share is typically around 11 percent of total income, and why the share of the “upper-middle classes” (fractile P95–99) can reach 15 percent of total income, whereas the share of the “200 families” (fractile P99.99–100), even in their greatest moments, does not (much) exceed 3 percent of total income. We will return to the implications of this principle in Part Two when we examine the question of redistribution, and the distribution of income-tax burden.

Let us return to explaining the stability in the shares of total income going to the P90–95 and P95–99 fractiles. Recall first that for these groups, capital incomes have never represented anything more than supplementary income, as earned incomes have always made up at least 80–85 percent (and generally more than 90 percent) of the total income of these fractiles, and wages have always represented the bulk of these earned incomes; this has been the case since the beginning of the century. The fact that the incomes of the “middle classes”

(upper or otherwise) did not experience the same collapse as did those of the “200 families” is thus unsurprising. Certainly the inflation caused by the two world wars, and to a lesser degree the bankruptcies, wartime destruction, and nationalizations brought about a considerable truncation in the value of the state annuities and real estate wealth traditionally owned by the “middle classes” (in absolute volume). But since capital incomes have never been of more than very minor significance for these social groups (in proportion to their total income), it is perfectly normal to find that the great resetting of the capital-accumulation “counter” that took place between 1914 and 1945 had only a very limited impact on their incomes or on the gap between them and the average income. Thus, the stability in the share of total income going to the “middle classes” (upper or otherwise) merely testifies to the stability of the gap between the earned incomes received by these social groups (that is, mostly wages) and the average income of the overall population. For example, the stability of the P90–95 fractile’s share, at around 11–11.5 percent of total income, simply testifies to the fact that the wages received by these “middle classes” have always been around 2.2–2.3 times the average income per tax unit of the entire population, which as we have seen, has, in turn, always been of the same order of magnitude as the average wage per wage earner. Thus, these results strongly suggest that wage inequality, and more generally inequality of earned income, was extremely stable in France over the twentieth century.

Before further exploring the reasons for this apparent long-term stability of wage disparities, we need to confirm this impression by examining the evolution of wage inequality as such, which we will do in Chapter 3. In the meantime, the conclusion that emerges from comparing the evolution of incomes declared by the “200 families” (fractile P99.99–100) and that of income declared by the “middle classes” (fractiles P90–95 and P95–99) is that these two evolutions bring into play totally different economic forces. While the collapse of the “200 families” is explained by the collapse of wealth-holdings and the incomes they generate (the question thus being why the great fortunes never regained their level relative to the early twentieth century), the stability in the relative position of the “middle classes” obliges us to turn to the study of wage inequality (the question thus being why the labor market seems to have churned out such extraordinarily stable wage disparities over the long run). In particular,



the main finding that can be drawn from the tax returns is that the long-term decline in the top-income share of total income seems to be due exclusively to the collapse of wealth-holdings and the incomes they generate: the decline took place solely during periods in which capital and its resulting income were subject to destruction and thus did not affect high incomes that don't (much) depend on capital income.

This finding is key for the more general issue of the dynamics of inequality in a capitalist system. Indeed, the process of secular decline in the top-income share of total income that we see in France seems to differ strongly from the economic mechanism described by Kuznets to justify his idea of an "inverse U-curve," a mechanism that subsequently inspired most of the thinking on the subject of the Kuznets curve: according to Kuznets (1955), economic development is characterized by a transfer of manpower from "Sector A," which is rural, agricultural, and poor, to a "Sector B," which is urban, industrial, and rich. The initial stages of industrial development thus inevitably result in rising income inequality, due to the creation of inequality between those individuals remaining in "Sector A" and those already in "Sector B." This corresponds to the rising portion of the inverse U-curve. The advanced stages of development would then lead just as inevitably to a decline in inequality, as everyone joins "Sector B" (once "Sector A" becomes the minority, any additional shift toward "Sector B" tends to reduce overall inequality), which corresponds to the falling region of the inverse U-curve. More generally, Kuznets's idea is simply that the wealth created by industrial development initially benefits a few, and then ends up being distributed more equitably within the overall population (this is the idea of "trickle-down"). Although this theory, at least in its most stylized form, obviously does not lead to very precise predictions concerning which income fractiles should see their distance from the average decline the most in the second stage (where twentieth-century France would presumably be located), it seems clear that the narrowing of income disparities should affect relatively vast segments of the population, not solely the topmost incomes. In particular, if Kuznets's theory were valid, it would be natural to expect that inequality of wages and earned incomes, and not just income inequality, should have declined over the course of the twentieth century, which does not seem to be the case in France.<sup>60</sup> Most importantly, the decline in the topmost incomes' share of total income that we see in France takes a very specific form; it is one that



took place in a very limited space of time, and it looks nothing like the “natural” and “spontaneous” economic process described by Kuznets. The collapse of very high incomes was initially connected to the two world wars, and the fact that they never totally recovered seems to require an explanation involving a highly political factor (a progressive tax on income and inheritance), and certainly not one centered on the vagaries of comparative development between agricultural and industrial sectors. We thus see that Kuznets’s theory, and more generally any theory based on the idea of an inexorable decline in income inequality in the advanced stages of capitalist development, seems entirely incapable of accounting for the facts that characterize the history of income inequality in the twentieth century, at the very least as regards France. After exploring in more detail the lessons that may be drawn from the French experience, we will return in Part Three to the problems posed by the idea of a “Kuznets curve,” and especially to the findings that can be drawn from a comparison between the French experience and foreign experiences (see Chapter 7).

### 2.5. The Intermediate Situation of the “Upper Classes”

The case of the “upper classes” (fractiles P99–99.5, P99.5–99.9, and P99.9–99.99) is relatively “easy” to explain, insofar as these “upper classes” are, in every respect, located in an intermediate position between the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99), on the one hand, and the “200 families” (fractile P99.99–100) on the other hand. By examining changes in the composition of top incomes, we have seen that shareholders and self-employed entrepreneurs have in all eras tended to replace wage-workers as one climbs up the hierarchy of the upper classes: the capital-income share of total income rises along with total income, as does the mixed-income share of earned income, especially as one penetrates into the top 1 percent of the income distribution. If the theory we have sketched is valid, it would thus be logical to expect that the higher one climbs in the hierarchy of the “upper classes,” the more important the effects of the capital losses of 1914–1945 become for the incomes in question, and the more noticeable the secular decline in the top-income share of total income will be.

In fact, examining the evolution of the various declared-income levels shows that the greater their distance from the “upper-middle classes,” the more the

THE EVOLUTION OF THE LEVEL AND COMPOSITION OF TOP INCOMES

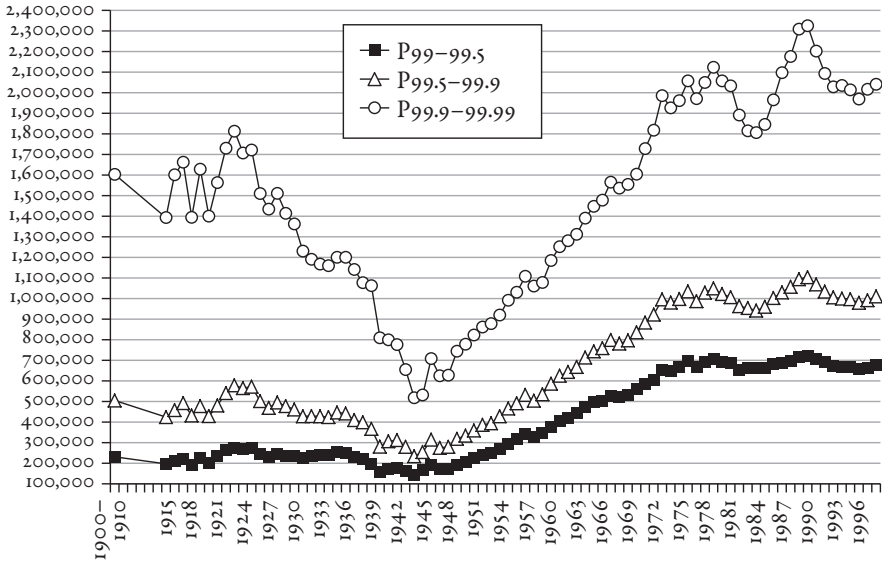


FIGURE 2-11. The average income of the “upper classes” (fractiles P99–99.5, P99.5–99.9, and P99.9–99.99), in 1900–1910 and from 1915 to 1998 (in 1998 francs)

Source: Columns P99–99.5, P99.5–99.9, and P99.9–99.99 of Table B-12 (Appendix B)

“upper classes” resemble the “200 families”: between the century’s two end-points, the purchasing power of fractile P99–99.5 multiplied by nearly 3, that of fractile P99.5–99.9 by more than 2, and that of fractile P99.9–99.99 by only 1.3 (see Table 2-1). More generally, if we examine the paths traced out by the average incomes of the various “upper-class” fractiles over the course of the century (see Figure 2-11), we note that households in the lower half of the top 1 percent (fractile P99–99.5) followed a path whose general profile was very close to that of the “middle classes” (upper or otherwise) and to the average income of the overall population, with near-stagnation of purchasing power over the course of the 1900–1948 and 1978–1988 years and strong growth over the *Trente Glorieuses*. For the next 0.4 percent (fractile P99.5–99.9), the general profile is not much different, though the “stagnation” of the first half of the century begins increasingly to resemble an outright and massive decline; finally, with fractile P99.9–99.99, the profile becomes much closer to that followed by the “200 families” (fractile P99.99–100). The “stagnation” of the

## THE EVOLUTION OF INCOME INEQUALITY IN FRANCE

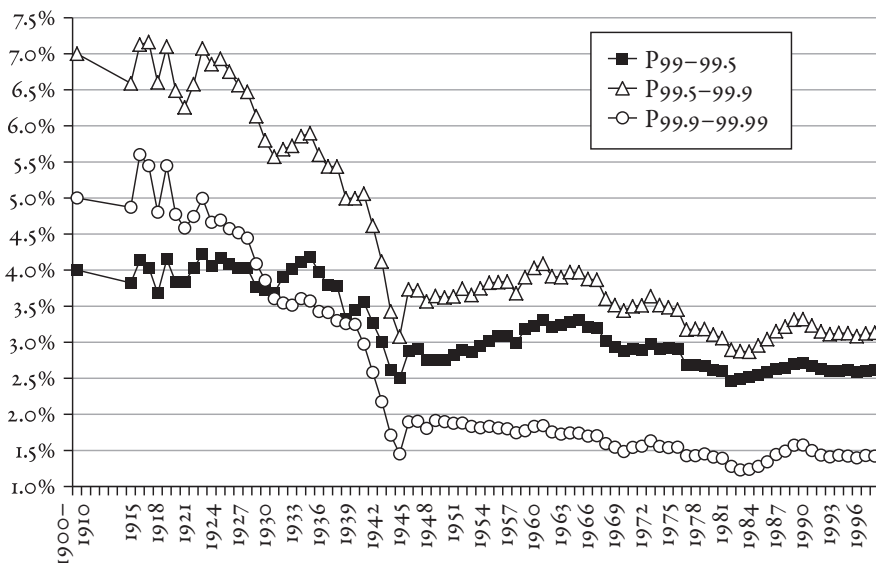


FIGURE 2-12. The share of total income going to the “upper classes” (fractiles P99–99.5, P99.5–99.9, and P99.9–99.99), in 1900–1910 and from 1915 to 1998

Source: Columns P99–99.5, P99.5–99.9, and P99.9–99.99 of Table B-15 (Appendix B)

1900–1948 years becomes a genuine collapse, and the growth of the *Trente Glorieuses* only just makes it possible to surpass the purchasing-power level of the early twentieth century. Unsurprisingly, the same is true if we examine the evolution in the share of total income going to the various “upper-class” fractiles (see Figure 2-12); we also see that the case of fractile P99–99.5 is very similar to that of the “upper-middle classes,” with a relatively moderate decline in this fractile’s share of total income, whereas the case of fractile P99.9–99.99 appears more like that of the “200 families,” with a decline that looks a great deal like collapse.

These results make sense: given that in practice there is no clear and distinct break between the various top-income strata, it is not surprising that the shift from the case of the P90–95 “middle classes” (complete long-term stability of the share of total income) to the case of the P99.99–100 “200 families” (secular collapse in the share of total income) happens in a gradual and continuous fashion. From this point of view, the “upper classes” naturally appear as transi-

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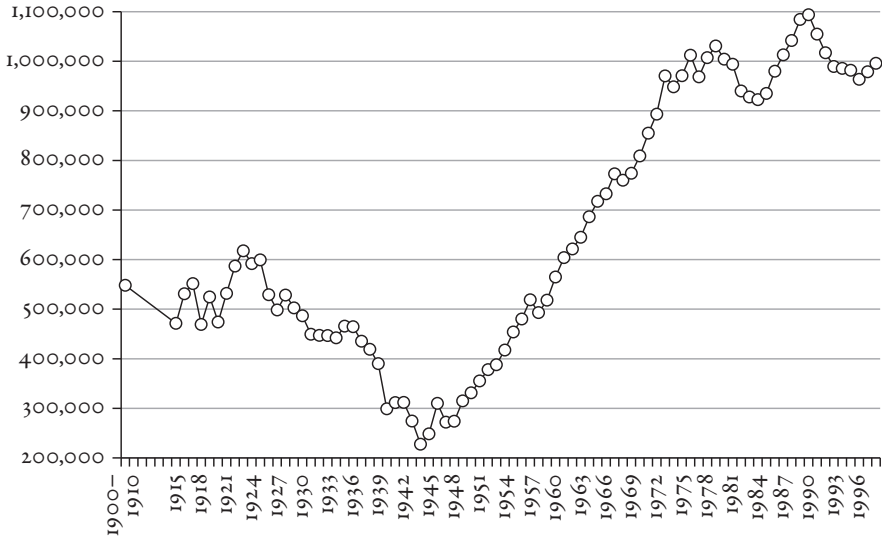


FIGURE 2-13. The average income of the top 1 percent, in 1900–1910 and from 1915 to 1998 (in 1998 francs)

Source: Column P99–100 of Table B-11 (Appendix B)

tional classes. That the results for all the intermediate fractiles between the “middle classes” and the “200 families” so clearly lie in between the results obtained for the two extreme categories is perfectly consistent with the interpretation we have proposed: the more that the incomes we examine are based on ownership of professional or investment capital, the larger the secular decline in the share of total income. Here we see the value of having separately estimated how the composition of declared income and the level of declared income evolved for the various top-income fractiles, and more generally of having envisioned the shift from the “middle classes” to the “200 families” as a fundamentally gradual and continuous one.

We may also note that we do not see a clear loss of purchasing power between the century’s two endpoints until we rise to the level of the “200 families” (fractile P99.99–100). This is consistent with the fact, already noted, that we have to go quite high into the top 1 percent before capital incomes take on truly decisive importance. We will also note that if one takes the average of all

## THE EVOLUTION OF INCOME INEQUALITY IN FRANCE

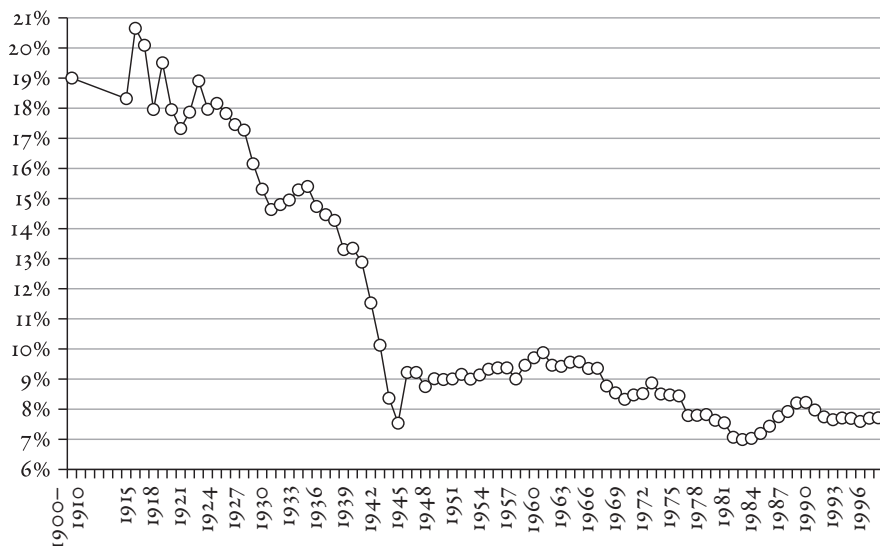


FIGURE 2-14. The share of total income going to the top 1 percent, in 1900–1910 and from 1915 to 1998

*Source:* Column P99–100 of Table B-14 (Appendix B)

the top 1 percent fractiles, the evolution of the average income thus obtained looks much more like the average income of the “middle classes” (upper or otherwise) or like the average for the general population, than like the average income of the “200 families” (see Figure 2-13). This is another manifestation of the “tyranny of numbers.” It is true that the top 1 percent’s share of total income declined considerably between the century’s two endpoints, falling from 20 percent in the early twentieth century to around 8 percent in the 1990s (see Figure 2-14), which means that in the early part of the century the income of tax units in the top 1 percent was on average nearly 20 times the overall average income, and at the end of the century its income was now “only” 8 times the average income. Nevertheless, the “200 families” are far too few in number to prevent the average income of the top 1 percent from having experienced a substantial increase in purchasing power over the course of the century, rising from around 500,000 francs in the early twentieth century to around 1 million francs in the 1990s (see Figure 2-13).

### 3. *The Evolution in the Level of Top Incomes in France in the Twentieth Century: The Complexity of Medium-Term Inequality Dynamics*

Examining the secular decline in the top-income share of total income shows us how little this long-term phenomenon resembles any kind of “natural” or “spontaneous” economic process. Analysis of short- and medium-term movements confirms this general impression: throughout the century, we observe alternating periods of rising and falling inequality, an alternating pattern that is consistent with what we know about the general economic evolution of France over these various periods, but that shows that the history of inequality in twentieth-century France is far more complex than that suggested by the idea of a constant and inexorable tendency toward declining income disparities. We will begin by analyzing the fluctuations characterizing the 1914–1945 period (section 3.1), and then we will move on to the 1945–1998 years (section 3.2).

#### 3.1. The Complexity of the Interwar Period

The interwar period is one of extreme complexity from a political and economic point of view, and thus it is not surprising that the history of inequality over this period is also reasonably complicated. In particular, the traditional contrast between the 1920s—years of reconstruction and strong growth, which is normally favorable for top incomes—and the 1930s, which were marked by the global economic crisis—something that is normally unfavorable for top incomes—in no way exhausts this complexity. This can be attributed in particular to the fact that the various top-income fractiles, whose incomes often moved in opposite directions during this period, were affected by the economic events of the interwar period in quite different ways.

In examining the various phases of the long-term income decline of the “200 families,” we have already noted that it is not clear that the First World War was actually damaging for the topmost income levels. We also noted that the decline in very high income levels over 1914–1918 must have been of relatively limited magnitude, in any event. Beyond these uncertainties, we can be certain that the First World War hit the “middle classes” (fractile P90–95), and to a lesser extent the “upper-middle classes” (fractile P95–99), much harder than

it did the “upper classes” (fractiles P99–99.5, P99.5–99.9, and P99.9–99.99) and “200 families” (fractile P99.99–100). While the shares of total income going to the “200 families” and the “upper classes” appear to have experienced almost no decline at all in the period (see Figures 2-8 and 2-12), the share going to the “middle classes” fell from 11 percent in 1900–1910 to around 8 percent in 1919–1920 (see Figure 2-10), a decline of more than 25 percent relative to the average income of the overall population; this is considerable, given the high degree of stability that usually characterizes the relative position of the “middle classes.” These results can be explained in the following way: the households of the P90–95 fractile mainly live on wages—and relatively high wages, as it happens—and yet pay increases for high wage levels were very limited over the course of the First World War. As a result, inflation caused them to lose a great deal of ground vis-à-vis other incomes, both the mixed incomes of self-employed workers and the low wages of other wage-workers. Inversely, the households of higher fractiles suffered far less, since they were more dependent on business profits (mixed incomes and dividends), which adjusted immediately to the higher prices.

This contrast between the “middle classes” and the topmost income levels over the First World War years also explains the contrasting trends seen in the 1920s. The former benefited from a catch-up phenomenon, while the latter had no catching up to do. In Chapter 3 we will revisit this phenomenon in which past wage hierarchies were maintained during the 1920s, in particular the central role played by large wage hikes in the public sector, where wages had been completely frozen during the First World War. For the moment, we will simply note that in the 1920s, the income share going to the “middle classes” (fractile P90–95) recovered steadily, which allowed it to rise from just over 8 percent of total income in 1920 to around 11 percent of total income in 1930, and thus to regain the level it had achieved before the inflation of the First World War had flattened wage scales (see Figure 2-10). For the “upper-middle classes” (fractile P95–99), the decline had been slightly less, and thus the recovery was more moderate; but here again, the group was able to regain its prewar level by the late 1920s (see Figure 2-10). For the “upper classes” and the “200 families,” there was no catching up to do, and these fractiles’ income shares were relatively stable over the 1920s (see Figures 2-8 and 2-12). As noted earlier, for the highest incomes (fractile P99.99–100, and to a lesser de-

gree fractile P99.9–99.99) we even see a slight downward trend over the 1920s, especially in the decade's second half, which we said was explained by the fact that these households may have ended up experiencing losses in those portions of their investment portfolios held in the form of fixed incomes.<sup>61</sup> It also perhaps shows the early effects of the income tax on capital accumulation and top-income formation.<sup>62</sup>

Ultimately, if we examine the evolution of the top-decile share of total income (taken as a whole, see Figure 2-6), we can also say that the 1920s—years of reconstruction and strong growth—were also years in which past inequalities were maintained. However, we must add several complications to this relatively simple picture. First of all, as we have already seen, this maintenance of inequality was solely due to the “middle classes” (and to a lesser degree to the “upper-middle classes”) and seems to be explained mainly by a process in which past wage hierarchies, which had been significantly upset by the First World War, were reestablished. Moreover, several major short-term factors ended up disturbing this reestablishment of inequality: compared to the average income, top incomes fell during the reconversion crisis of 1920–1921, and they fell again in 1926–1927 during the recession that followed the Poincaré stabilization. Finally, though it is true that the top-decile share of total income rose from about 39.5 percent in 1920–1921 to more than 44 percent in 1925—a level practically the same as that which we established for the prewar period (see Figure 2-6)—the reestablishment of past inequality seems far less clear for the second half of the 1920s. The top-decile share rather tends to stagnate, even to decline slightly, which is explained by the fact that the slight downward trend for the topmost income levels ultimately outweighed the recovery experienced by the “middle classes”—which, incidentally, was almost over. Note in particular that starting in 1929, every “upper class” fractile, as well as that of the “200 families,” experienced a noticeable decline in their incomes (relative to the average income), even though it is generally understood that the “Black Thursday” of October 24, 1929, and the economic crisis that grew out of it took several months before their first effects were felt in France.<sup>63</sup> It is possible, however, that this is a “tax illusion,” insofar as the 1929 tax returns from which our estimates are derived were filled out in the spring of 1930, at a moment when worries began to spread through the business world. This perhaps led those at the topmost income levels to slightly manipulate their returns in order to artificially reduce their declared incomes.<sup>64</sup>



But the major complications did not begin until the 1930s. When it comes to top incomes that were composed mainly of mixed and investment income—in particular the P99.9–P99.99 and P99.99–100 fractiles—the situation is simple: the descent into economic crisis was accompanied by a collapse of business profits, which logically led to a sharp decline in those fractiles' shares of total income.<sup>65</sup> By contrast, when it comes to top incomes composed mainly of wages—that is, those of the “middle classes” (upper or otherwise)—we see that the crisis appears to have been accompanied by an increase in income inequality: between 1930 and 1935, the shares of total income going to the P90–95 and P95–99 fractiles rose every year and reached their highest level in history in 1935 (see Figure 2-10). The case of the lower half of the top decile is particularly spectacular: the share of total income going to fractile P90–95 seems to keep up its momentum from the 1920s as if nothing had happened—indeed, its share rose from just over 8 percent in 1919–1920 to around 13.5 percent in 1935, an increase of nearly 70 percent,<sup>66</sup> which means that “middle class” income grew nearly 70 percent relative to the average income of the general population between 1920 and 1935! This doubly exceptional phenomenon (usually the gap between the “middle classes” and the overall average is very stable, and inequality generally tends to diminish during recessions) is explained by the very large deflation that marked the 1930–1935 recession, in which the cumulative decline in consumption prices amounted to 25 percent. High wage earnings, which make up the large majority of “middle-class” incomes (upper or otherwise), generally do all right in periods of deflation; indeed, wages in general benefit from the fact that they experience almost no change in nominal terms, which automatically leads to a significant increase in their purchasing power, even as production is collapsing. Top wage earners, in particular, benefit doubly, since they do not (much) suffer from the risk of unemployment and the corresponding pressure on their pay—factors that, by contrast, violently affect modest and “average” wages, especially among industrial workers. Here again, analyzing this process, which is as much about inequality between wages and other forms of income as it is about inequality within the wage distribution, requires a study of the evolution of wage inequality specifically, which we will do in Chapter 3. Let us simply note that the deflation of 1930–1935 truly appears to be “the revenge of top wage earners”: that is, after having been the first to suffer from the inflation brought on by the First World War, they were the first beneficiaries of deflation.

These positive effects of deflation for high wage earners were so massive that they seem to have affected not only the “middle classes” (upper or otherwise), but also the lower strata of the “upper classes.” Relative to the average income, the incomes of fractiles P99–99.5 and P99.5–99.9 fell in 1930–1931, but they enjoyed a measure of respite in 1932–1935, in the thick of the deflation (see Figure 2-12). This double-edged situation is explained by the intermediate position these social groups occupy: unlike the “middle classes” (upper or otherwise), they received a significant share of their incomes in the form of mixed income and dividends, which explains why the recession was initially unfavorable to them. But they also received a large minority of their income in the form of high wages,<sup>67</sup> and by virtue of that, they benefited from deflation. Moreover, these were also the social groups for whom rental incomes loomed largest, and we have already noted how salutary the deflationary period was for rents, which thereby managed to make up the ground that had been lost after the inflation of the First World War and the rent-freeze policies. Although tax returns were unfortunately not sampled in a “complete” way for every year, they are particularly clear on this point: between 1932 and 1934—that is, over only two years—these social groups enjoyed a significant increase in their rental incomes.<sup>68</sup>

Thus we see that over the course of the deflationary recession of 1930–1935, the ideal social position to occupy was that of a senior civil servant or high-level manager, possibly with a supplementary income in the form of rent (or a few state annuities or other fixed-income investment securities). Such a position provided an escape from both the bankruptcies and collapses in business profits that hit the highest income earners, and from the unemployment that struck more modest groups. And yet this social position was, on the whole, more representative of the average top income earner than was the large self-employed entrepreneur or the shareholder: the decline in the share of total income going to the topmost income earners between 1930 and 1935 (fractiles P99.9–99.99 and P99.99–100) did not manage to make up for the very sharp increase in the share going to the “middle classes” and “upper-middle classes” (fractiles P90–95 and P95–99). Starting in 1932, moreover, the latter were boosted by a more moderate increase in the share going to the lower strata of the “upper classes” (fractiles P99–99.5 and P99.9–99.99).<sup>69</sup> This explains why, when we take the average of all these trends, we find that the top-decile share (taken as a whole) continually increased between 1930 and 1935, rising from just over 41 percent of total income in 1930–1931 to more than 46.5 percent in 1935, the highest level

ever reached in the twentieth century (see Figure 2-6). Paradoxically, income inequality has never been as high (and so rapidly growing) as it was in the deflationary recession of 1930–1935, even though the global economic crisis actually resulted in a sharp decline in business profits and topmost incomes.

The second complication concerning the 1930s has to do with the fact that the 1930–1935 period must be sharply distinguished from the period that started in 1936 with the arrival of the Popular Front government, a fundamental rupture that shows up quite clearly in the tax returns. The Popular Front decided to end the deflationary strategy and spur inflation, first via large wage increases, as established in the June 1936 Matignon agreements, and then with the September 1936 decision to devalue the franc, in order to limit the loss competitiveness that the wage increases had brought about for French firms. The wage hikes mainly affected the lowest wage earners. For high wage earners, the return of inflation was clearly bad news, as their pay remained practically unchanged in nominal terms, so price increases had the effect of curtailing their purchasing power and leveling wage hierarchies, which had been the case during the First World War. The consequences were immediate: the share of total income going to the “middle classes” and “upper-middle classes” (fractiles P90–95 and P95–99), which had risen continually during the deflation, suddenly began to fall in 1936 (see Figure 2-10). Inflation hit both the very high wages earned by the “upper classes” and their rent and fixed investment incomes, so we see a reversal in the share of total income going to the lower strata of the top 1 percent.<sup>70</sup> But the interesting fact is that for the highest income earners, for whom wages, rental income, and fixed-income securities were relatively unimportant, the Popular Front’s inflationary policy was, by contrast, good news. In particular, the share of total income going to the “200 families” (fractile P99.99–100) began to stabilize in 1936, then experienced an outright increase in 1937, which allowed it to regain a level comparable to where it had stood in 1930–1931, before the deflation.<sup>71</sup>

This apparently paradoxical result, in which the “200 families” benefited from the arrival of the Popular Front government, is actually perfectly consistent with what we have already said about the effects of inflation. In particular, recall that the real cost to employers of the nominal wage increases decided in June 1936 was actually extremely small: given the devaluation of the franc decided on in September 1936 and the return of inflation, the average wage per wage earner as well as the average wage per industrial worker experienced only

a very limited and transitory rise in purchasing power in 1936, and by 1937 had declined to a level below that reached in 1935 (in real terms).<sup>72</sup> In fact, for firms, the virtues of inflation were far greater than the inconveniences caused by this very slight and momentary increase in their wage costs. Coming after five years of deflation, during which firms tried desperately to cope with falling sales, the return of inflation finally made it possible for them to sell their products at decent prices, especially since the wage increases and devaluation could be used in the most pressing cases as an excuse to push through significant price hikes. In addition, inflation had the virtue of finally reducing their debts.

In fact, all the available statistics indicate that the inflationary policy decided on by the Popular Front led to a significant recovery in business profits in 1936–1937. In particular, the macroeconomic data indicate that the capital share of firms' value-added, which had declined sharply between 1929 and 1935, began rising from 1936, and the favorable profit performance seems to be explained by the profits of large firms in particular, for which devaluation was synonymous with export recovery.<sup>73</sup> The macroeconomic data on the composition of household income also show a strong rise in the mixed-income share in 1936–1937. In less than two years, it regained its level from the early 1930s, before the large decline that deflation had brought about.<sup>74</sup> Given that households (tax units) in the P99.99–100 fractile live mainly from business profits, especially the profits of large businesses (whether received by big, self-employed entrepreneurs or by large shareholders in the form of dividends), it is not surprising that the incomes of this social group grew more rapidly than the average income in 1936–1937. Again, tax returns are especially clear on this point, especially with respect to the positive effects that inflation had on the profits of big entrepreneurs: between 1934 and 1936–1937, the highest income earners enjoyed a very noticeable increase in their industrial and commercial profits (*bénéfices industriels et commerciaux*).<sup>75</sup> To be sure, very large entrepreneurs were not the one ones who benefited from inflation: it was highly beneficial for self-employed workers as a whole, especially for peasants, who had suffered particularly from the decline in prices. Nonetheless, this general movement also affected big entrepreneurs, and therefore topmost incomes.

The distributive effects of the inflation policy decided in 1936 were thus exactly the opposite of the deflation of 1930–1935: whereas deflation had benefited most top-income fractiles while disadvantaging the very highest incomes, inflation hurt most top-income fractiles while benefiting the very highest incomes.

And just as the former effect had been dominant during the deflation, so that the top-decile share of total income (taken as a whole) experienced an unprecedented increase in 1930–1935, the same effect was also dominant during the inflation, so much so that we see a sharp decline in the top-decile share of total income starting in 1936. The share fell from 46.5 percent in 1935 to just over 44 percent in 1936 and less than 43 percent in 1937–1938.<sup>76</sup>

This rupture of 1936 seems especially interesting to us, since it illustrates the great complexity of the economic choices—especially monetary choices—that interwar governments had to confront. That complexity was already present in the 1920s. The problem then was how to get rid of the debts that the state had incurred to finance the war and reconstruction, and if politicians of all stripes were highly reluctant to officially admit that the purpose of inflation was to liquidate the value of those debts, then obviously that is because they were perfectly aware that the policy also had harmful effects for certain social groups deemed to be sensitive, not least from an electoral point of view. In particular, it was obvious to all political actors that liquidating the value of the debt would not just hit “big capital,” something everyone would have been willing to accept;<sup>77</sup> indeed, the biggest fortunes, which were made up mainly of corporate shares and private businesses, were likely to avoid the effects of inflation, or even to benefit from them. What was feared above all was the anti-inflationary reaction of millions of small owners who, in massive numbers, had purchased “National Defense Bonds” and other debts issued by the state—not to mention the fact that inflation also threatened the wages of the “middle classes” (and all wage earners in general, if nothing was done to protect low wages). Ultimately, given the absence of any realistic way to handle the burden of reconstruction without “firing up the printing presses,” an inflationary solution was settled on, while doing what was needed to face the most undesirable consequences of such a policy, for example, carrying out significant wage hikes for public-sector workers.

In 1936, the Popular Front confronted a problem of a similar nature. Socialist leaders were convinced that the deflationary strategy pursued since the early 1930s, whose goal was to bring down French prices to the level of world prices, was destined for failure. Yet at the same time they were wary of the unfavorable distributive consequences of an inflationary policy. The solution they adopted, an inflationary spurt pushed through by hikes for low wage earners and devaluation, may be seen as a compromise aiming to reconcile several con-

tradictory objectives. A very wide consensus exists among historians and economists who have tried to assess the policy of the Popular Front; all authors credit the Popular Front for having put an end to the disastrous deflationary episode and finally devaluing the franc, a policy that only Paul Reynaud (among politicians from across the spectrum) had been advocating since the start of the crisis. But all authors are equally in agreement that the Popular Front could have achieved a strong economic recovery in 1936–1937, rather than an aborted recovery, if it had opted from the start of its term for a clear and massive devaluation, instead of carrying out the devaluation under pressure, and after pointlessly inflating wage costs and reducing working time, which had negative effects on employment and growth.<sup>78</sup> This very broad consensus is probably justified, but we believe it is important to add that it was no accident that the Popular Front was wary of such a policy. Everything has a cost, and the cost of a clear and massive devaluation, in the absence of other safeguards, was obvious: the burst of inflation would have led to a large decline in real wages, including for the most modest wage earners, at least in the short run. And while there is no doubt that such a policy would have had highly favorable effects for firms and entrepreneurs (both small and large) and thus for growth and employment—probably more than any other policy that could have been carried out—the immediate social and political cost appeared exorbitant. It is no accident that the Communists were unshakably opposed to devaluation, which they had long and explicitly denounced as a weapon that “big capital” (actually, entrepreneurs, both small and large) used to reduce the purchasing power of “workers” (actually, wage-workers).<sup>79</sup>

Before the 1936 elections, one also finds the same kind of attitude among socialists, as shown quite clearly by this quotation from Léon Blum, taken from a speech delivered in the Chamber of Deputies on May 28, 1935: “We will not submit to the rule of big industrial capital which wants, either by devaluation or by super-deflation—the choice makes little difference to it—to reduce the purchasing power of the workers.”<sup>80</sup> This policy of “neither” (neither devaluation nor deflation), so strongly condemned by historians, was obviously untenable, and indeed, it did not long survive the test of governing. But it seems important for us to add that it stemmed not from incomprehension of the economic mechanisms involved, but rather from a very good understanding of the risks. Indeed, as shown very clearly by the tax returns we have analyzed, the policy compromise ultimately adopted had very unfavorable effects on the “middle

classes" (upper or otherwise), and especially on that favored electoral group, public-sector workers (teachers in particular), to whom Léon Blum had to deny the wage increase he had promised. Inversely, it had very favorable effects on entrepreneurs, especially that social group whose incomes depend mainly on business profits, namely, top income earners. We will also see in Part Two how the income tax reform carried out by the Popular Front was aimed precisely at taking back from the highest incomes what inflation had given them.

In comparison with the 1920s and 1930s, the inequality dynamics of the Second World War years seem relatively simple. Unlike previous years, when the various strata of top incomes had often gone in opposite directions, we find that, relative to the average income, all top-income fractiles were headed downward between 1938–1939 and 1944–1945. Those top income earners living mainly from high wages—starting with the “middle classes” (upper or otherwise)—bore the cost of inflation and the flattening of wage scales, so that their share of total income, which had started to decline in 1936, continued its downward trend, ultimately reaching a trough in 1944 comparable to the level reached at the end of the First World War. The effects of fifteen years of reemerging wage hierarchies (1920–1935) were obliterated by the very high inflation of the 1936–1944 period.<sup>81</sup> Top income earners who lived mainly from business profits—that is, the topmost incomes, starting with the “200 families”—bore the brunt of the collapse of production and profit shares in firms’ value-added. The recovery of 1936–1937 was brief, and after an initial drop in the 1938 recession, the share of total income going to the “200 families” experienced a decline between 1939 and 1945 that was extremely steady and, above all, exceptionally massive.<sup>82</sup> As for the intermediate fractiles occupied by the “upper classes,” who lived on both high wages and business profits, they naturally had every reason to share the fate of adjacent social groups, and thus quite logically we see a large decline in their share of total income between 1939 and 1945.<sup>83</sup> Ultimately, the mutually reinforcing effects of the collapse of wage hierarchies and of business profits brought about an exceptionally sharp decline in the top-decile share of total income (taken as a whole). The best-off 10 percent had taken more than 46.5 percent of total income in 1935; then the share, which had begun rapidly falling starting in 1936 and stood at around 42.5 percent in 1938, literally collapsed during the Second World War, reaching a level of around 29.5 percent in 1944.<sup>84</sup> Between 1935 and 1944, that is, in less than 10 years, the top-decile



share thus fell from its highest point of the century to its lowest point of the century.

Taking stock of the fluctuations observed between the outbreak of the First World War and the armistice of 1945, we thus see that it would be quite an exaggeration to speak of the 1914–1945 period as a “phase of collapsing inequality.” In fact, it was really only during the years of the Second World War that top incomes experienced a generalized collapse. To be sure, the topmost incomes experienced an almost continual erosion of their relative position, at least after the late 1920s. But taking into account the contradictory trends affecting other social groups with “high” incomes, especially the “middle classes,” the interwar era appears more than anything as a quite chaotic period from the point of view of income inequality, without any clear trend. In this period, the top-decile share of total income (taken as a whole) was constantly shifting between extreme values, generally within the range of 40–45 percent, with an average value of nearly 43 percent for the 1919–1938 years, very slightly less than the average value of 45 percent that we report for 1900–1910.<sup>85</sup>

### 3.2. The Chaotic Reconstitution of Inequality since the Second World War

At first sight, the period of reemerging inequality that began in 1944–1945 appears less complex than the period before it. The phenomena that one would have expected to follow the collapse of the Second World War, namely, the reconstitution of wage hierarchies and capital incomes, did in fact characterize the immediate postwar period and the bulk of the 1950s and 1960s and still seemed to be at work in the 1980s and 1990s. The complication comes from the fact that a third period slipped in between these two periods: the decade of the 1970s, or rather the 1968–1983 years, which represented a phase of very sharp inequality compression in France. To understand the 1945–1998 period, then, it is essential to distinguish among three subperiods: 1945–1968, which was indeed a phase of very rapidly reemerging income inequality; the 1968–1983 years, when income disparities experienced a sharp compression; and finally the 1983–1998 years, during which inequality seems to have increased again.

These three subperiods are distinctly visible when one examines the evolution of the top-decile share (taken as a whole) (see Figure 2-6). Purely short-term



noise aside, the top-decile share grew steadily over the first two postwar decades, rising from about 29.5 percent of total income in 1944–1945 to around 36–37 percent of total income in 1966–1967. The top-decile share then began falling sharply from 1968 and through the 1970s, finally reaching a minimum level slightly below 30 percent in 1982 (29.9 percent), just above its 1944–1945 historical trough. Finally, the top-decile share began rising again in 1983, ultimately sitting at around 32–33 percent of total income in the late 1990s.

We also note that this periodization, which flows from our analysis of tax-return data, is entirely consistent with the evolution of labor and capital shares of value-added, as reported in the macroeconomic data derived from the national accounts (see Chapter 1, Figure 1-5). The capital share of firms' value-added, which had collapsed during the Second World War, especially in 1944, experienced a very strong recovery in the immediate postwar years. And while it seemed to stabilize in the 1950s and 1960s, we must recall that the distributed-profit share regained a "normal" level only very gradually. The capital share then went through a declining phase over the course of the 1970s, which corresponds very precisely to the period of narrowing income inequality. Finally, after reaching a low in 1982, the capital share began to rise in 1983—that is, at exactly the moment when the top-decile share of total income began its upward trend—and within a few years regained the level it had reached before the decline of the 1970s. Thus, as was the case with the interwar period, we see a very good overall fit after 1945 between the information derived from tax returns and the macroeconomic data.

Recall as well that this periodization of the postwar era—its division into three subperiods—also applies to the evolution of rental incomes. The historical catch-up process for rents vis-à-vis the average price level was underway in the 1950s–1960s but was interrupted by the sharp inflationary burst of the 1970s. Then the rising trend resumed in 1983–1984 and has strongly continued since then (see Chapter 1, Figure 1-9). Given that rental incomes, like investment incomes drawn from business profits, play a more important role for top income earners than for the rest of the population, we can see how all factors seemed to conspire to make the dynamics of post–Second World War inequality a story characterized by three phases.

However, understanding this dynamic requires going beyond considerations of capital income and examining fluctuations in wage inequality, the role of which in the 1945–1998 period was just as important as it had been during

the two world wars and the interwar period. As in prior periods, the role was so important that the evolution of wage inequality deserves to be studied in its own right, which we will do in Chapter 3. Here, we will simply point out how fluctuations in wage inequality interacted with fluctuations in capital incomes.

One particularity of the 1945–1998 period, unlike the interwar era, is that the social groups making up the top decile of the income distribution were always moving in the same direction: after 1945 (actually, after 1938), one no longer finds any trace of periods when wage hierarchies were widening while capital incomes were collapsing (or vice versa). Such periods, as we have seen, naturally cause the incomes of the “middle class,” “upper class,” and “200 families” to move in opposite directions (relative to the average income). In fact, if we look at the trends in the various top-income fractiles’ shares of total income, we see that since 1945 every social group experienced the same three-phase periodization: every top-income fractile exhibits a clear upward trend in its share of total income over the 1945–1968 period, then a clear downward trend over the 1968–1983 period, and finally a renewed upward trend over the 1983–1998 period.<sup>86</sup> This similarity in the different fractiles’ medium-term trends considerably simplifies the analysis of inequality dynamics, since there is no further reason to describe the observed trends fractile by fractile.

This simplification can be explained by the fact that the same shifts that caused capital-income trends to change also affected the history of wage inequality. Consider first the transition to the 1968–1983 phase of inequality compression. The turning point is clearly identifiable, since it relates to the “events” of May 1968 and the social measures that came out of them: namely, the very large wage increases adopted in the Grenelle accords, which affected low wage earners and the minimum wage in particular. Our task here is not to evaluate the direct causal role of the May 1968 “events,” but it is entirely possible to imagine that even if they had not happened, the public’s weariness of the productivist and inegalitarian pattern of growth in the 1950s–1960s, which to a large extent lay behind the events, would have ultimately found expression in any case, one way or another, and would have led to similar policies, probably at a slightly different moment.<sup>87</sup>

Still, the Grenelle accords undeniably opened a new phase in the history of wages and wage inequality. The minimum wage had hardly risen since its creation in 1950, but after the Grenelle accords every successive government felt obligated to give it a significant “bump” each year. In the following chapter, we

will revisit the consequences of this policy for wage inequality as such. But the key fact that interests us here is that these “bumps” in the minimum wage were used throughout the 1970s not only as tool for narrowing wage gaps, but also as a way of ensuring that wages in general would continue to grow at an extremely rapid pace, despite the growth slowdown and the oil shocks. The consequences were immediate: the profit share of firms’ value-added fell significantly over the 1970s. If we add to that the fact that inflation, propelled by the oil shocks but even more by the wage hikes, led to a halt in rents’ catch-up process vis-à-vis the average price level, we can see why it is not surprising that 1968–1983 was both a period of narrowing wage inequality and an unfavorable period for capital incomes; the two phenomena derived from the same cause, and they joined forces to bring about a generalized decline in the top-income share of total income.

The transition to the 1983–1998 phase of rising inequality can be analyzed in the same way, but with all of these processes moving in the opposite direction. Here, too, the break is clearly identifiable, because it is linked to the 1983 “turn to austerity.” After a final “bump” to the minimum wage granted after the May 1981 elections, which allowed the phase of inequality compression that began in 1968 to continue somewhat, the socialist government decided in 1982–1983 that it was impossible to continue letting wages, especially low wages, grow structurally faster than production, a trend that had notably led to a collapse in business investment over the 1970s. Starting in 1983, no further significant “bump” was given to the minimum wage, a policy continued since then by every successive government. This highly symbolic decision was accompanied by other measures aiming to limit the rise in wages and allow a recovery of profits and investment, starting with the de-indexation of wages vis-à-vis the price level. Quite logically, the profit share of firms value-added quickly started to rise in 1983; wage inequality stopped declining from the same date, and even experienced a slight upward trend, as we will see in Chapter 3. And just as the wage inflation of the 1968–1983 period had interrupted rents’ historical catch-up process vis-à-vis the price level, the wage-disinflation strategy instituted in 1983 reignited that process, making the 1980s–1990s boom years for rental incomes as well. Here again, we can see why it was perfectly natural for the growth in the capital-income share and the widening of wage inequality to have taken place at the same time, combining their forces to make the 1983–1998 period a phase of rising income inequality.

Nevertheless, we lack the necessary historical perspective to characterize the 1983–1998 period with any certainty: Are we witnessing a purely temporary “catch-up” phenomenon following the compression phase of the 1970s, or have we entered a long era of growing income inequality? If we look at the evolution in the top-decile share of total income (see Figure 2-6), we observe a very large increase over the 1980s (from just over 30 percent in 1982 to nearly 33 percent in 1990), then a stabilization at around 32–33 percent in the 1990s, with slight declines during years of recession or economic slowdown (1991–1993 and 1996), punctuated by slight increases in recovery years (1994–1995 and 1997–1998), which would tend to support the first option. But from another angle, we have seen that the very large increases in household capital incomes observed in macroeconomic data for the 1980s–1990s seem to show up only very partially in the tax-return data. In the late 1990s, the capital-income share in incomes declared by top-decile households, especially among the “middle classes” and “upper-middle classes,” remained far below what they had been in the interwar period, and it seems likely that this suspicious fact may be explained (at least in part) by the numerous exemptions for the types of capital income these social groups currently receive. As we will see, an approximate accounting for these exempt incomes leads to the conclusion that over the 1990s, top incomes actually continued to grow faster than the average income.<sup>88</sup>

We will conclude by observing that the 1945–1998 period confirms one of the main lessons of the 1914–1945 period: the history of inequality is not like a long, tranquil river, and above all, its key turning points are often the same as those of France’s general twentieth-century history (the two world wars, the Popular Front, May 1968, the 1983 “turn to austerity,” etc.). That obviously does not mean that strictly economic forces played no role, but it does confirm that a theory based solely on the notion of “natural” and “irrepressible” economic trends bringing about a narrowing of income inequality in a capitalist system is quite simply incapable of accounting for the facts observed.

#### 4. *A Century of Income Inequality: Open Questions*

The results presented in this chapter offer a wealth of insights, but above all they leave a number of open questions, which we can only hope to answer satisfactorily by turning to other types of sources and information.

First, on numerous occasions we have encountered the issue of the wage hierarchy, in connection with both the apparent long-term stability of the income gap between the “middle classes” and the overall average, and with the many medium-term fluctuations—the phases of widening wage inequality, which seems to describe the 1920–1935, 1945–1968, and 1983–1998 periods, and those of narrowing wage inequality, which seems to describe both world wars, as well as the 1968–1983 period. Studying these episodes through the prism of income inequality has the obvious advantage of allowing these movements to be placed in a broader context, but it also has the equally obvious difficulty that it is not easy to isolate precisely how much is due to wage inequality and how much is due to other factors—including, especially, the fluctuations that punctuated the evolution of capital incomes and mixed incomes. It is thus indispensable to supplement these analyses with an examination of the evolution of wage inequality in its own right, especially to confirm the idea that the secular decline in the top-income share of total income was due solely to the collapse of very large capital incomes. This examination will also lead us to inquire into the notion of “top” wages and the role they played within the “top” incomes received in France over the twentieth century (see Chapter 3).

Also, the fact that since the Second World War the highest incomes appear never to have regained their level from before the 1914–1945 collapse (relative to the average income)—a striking phenomenon, both in its magnitude and in the fact that it seems to be the only notable structural transformation in twentieth-century French income inequality—has not been explained in an entirely satisfactory way. To us, the most plausible explanation is that the reconstitution of large fortunes was hindered by the weight of the progressive income tax, as well as the progressive inheritance tax, but this hypothesis needs to be confirmed. To do this, in Part Two of this book we will first have to examine the evolution of income tax legislation—especially tax rates on the highest incomes—which will also help us understand how incentives for fraud and evasion (legal or otherwise) evolved over the course of the century (see Chapters 4 and 5). Then in Part Three we will revisit the notion that the “nonreconstruction of large fortunes” we have observed is caused by a “tax illusion” and a very large increase in the scale of fraud and evasion, rather than by the quite real impact of the progressive income tax on the conditions for reconstituting large fortunes (see Chapter 6).

The facts examined and the explanations proposed in this chapter uncovered another important uncertainty: since the first tax returns ever filed in France were for 1915 incomes, it is very difficult to determine the precise distributive impact of the First World War, and more generally to situate the First World War and the 1920s in relation to the 1900–1914 period. Given the high degree of macroeconomic stability that prevailed prior to the First World War, it seems logical to suppose that it had been a period without any great upheavals from the point of view of income inequality, and that the big changes did not really start until the First World War, and especially the crisis of the 1930s and the Second World War. Yet clearly this question is key to a full understanding of the “natural” character of declining income disparities in a capitalist system and the validity of “Kuznets’s law,” and we will return to this question in a more precise way when we compare the French experience to experiences abroad (see Chapter 7).

Finally, the facts and trends presented in this chapter naturally lead us to wonder to what extent those who experienced them “live” were aware of them. Chapter 3 will help lay the groundwork for certain aspects of this complicated question, and as we will see in Chapters 4 and 5, examining income tax legislation can also help us uncover a number of interesting aspects of the evolution of perceptions of income inequality.

## Wage Inequality in France in the Twentieth Century

In this chapter, we will present our estimates of the evolution of wage inequality in twentieth-century France, which are based primarily on analysis of statistical tables derived from the wage declarations that employers have been required to submit to the tax authorities annually since 1917. The study of wage inequality is of obvious interest in itself: throughout the century, wages represented the main source of household income, and it is crucial to know how this overall wage bill was distributed among workers. Moreover, in Chapter 2 we were repeatedly led to note the importance of narrowing or widening movements in the wage hierarchy for the study of fluctuations in income inequality, and a number of the hypotheses we formulated must be confirmed and fleshed out through analysis of wage inequality as such. In particular, the great long-term stability of the “middle class” share of total income suggests that wage inequality in twentieth-century France was characterized by a very high degree of long-term inertia, but such a hypothesis obviously must be confirmed. Finally, the question of “high-wage workers” is of particular importance from the point of view of social representations of inequality, and the study of wage inequality constitutes a key step in analyzing these representations and their evolution over the course of the century.

We will begin by reviewing trends in headcounts for the various categories of workers tallied in the census and examining what these trends can tell us about the structure of the workforce and how the workforce changed over the course of the twentieth century (section 1). We will then present our estimates for the evolution of top wages as a share of total wages in France over the twentieth century, especially our central result concerning the great long-term stability in the top-wage share (section 2). Because an additional reason to be interested in the study of wage inequality is that it is one of the few income categories for which we have long-term information about the bottom of the distribution, we



will then see what these data allow us to say about the evolution of inequality between low- and mid-level wages and between low- and mid-level incomes (section 3). Then we will examine the question of perceptions and representations: Why did the very idea of “high-wage workers” seem to take so long to find a place within social representations of inequality, despite the fact that the weight of high-wage earnings (relative to total wages) seems to have changed little over the course of the century (section 4)? Finally, we will try to determine what reasons might explain this very high degree of long-term stability in wage inequality, a question that might seem to bring us back to purely economic considerations, but that, in reality, probably involves to a greater extent questions of representation and social acceptability (section 5).

### *1. Inequality among Workers in the Censuses*

Information from the census concerning the headcounts of the various categories of workers allows us to take an initial measure of the evolution of the structure of the workforce in twentieth-century France. Obviously, this information does not tell us about the evolution of wage inequality, if only because it deals solely with headcounts and not with the quantities of wages received by individuals. But knowing the headcounts can provide clues and suggest leads, and this basic information will be useful for interpreting the results on the evolution of wage inequality that we will be presenting in this chapter.

Let us begin by recalling that it was only after the Second World War that statisticians began firming up the socioprofessional categories<sup>1</sup> and nomenclatures for classifying workers, according to a grid corresponding more or less to hierarchies of wages and work roles.<sup>2</sup> Before the Second World War, the censuses divided the working population into only four categories: *ouvriers* (blue-collar workers), *employés* (non-blue-collar workers), *chefs d'établissement* (proprietors), and *travailleurs isolés* (independent workers). The distinction between “blue-collar workers” and “non-blue-collar workers” was obviously insufficient for conveying the inequalities already dividing the workforce. In particular, the category of *employés*, which in fact included all those who were not *ouvriers*, was extremely heterogeneous: it included individuals working as waiters or delivery workers in small restaurants, whose wages could be lower than those of many blue-collar workers, as well as individuals working as engineers



or sales directors in large corporations, whose wages could far exceed the profits earned by the restaurant owner who employed the waiter or the delivery worker. The important point is that the pre-World War II censuses did not make it possible to break down the fraction within the vast *employé* category corresponding to higher administrative and technical roles within businesses and government, and in particular it did not provide any way of measuring the number of *cadres* (salaried managerial and professional workers) and *cadres supérieures* (executives), within the meanings those terms would later take on. It is true that the four central categories (*ouvriers*, *employés*, *chefs d'établissement* and *travailleurs isolés*) were divided up by industrial sector (agriculture, industry, transport, trade, public services, etc.), but the information provided about the workers in question is generally only of a "horizontal," rather than a "vertical" nature: that is, knowing that an *employé* is part of the "extractive industries" sector or the "banking and insurance" sector does not tell us whether this is a low-paid employee or a high-level manager who belongs to the company's executive team.<sup>3</sup>

This serious "imperfection," which is interesting in and of itself, and which we will revisit later on, obviously does not mean that the pre-World War II censuses provide no useful information. For example, as we have seen, these censuses also described the distribution of the self-employed ("proprietors" and "independent workers") according to the number of workers they employed; this allowed us to observe that self-employed workers were mostly "small," and that only an infinitesimal fraction of them could be described as "big" entrepreneurs.<sup>4</sup> We may also note that the "independent worker" category is itself emblematic of the ambiguity in the notion of "self-employed": the "independent workers" were supposed to include "small proprietors" (shopkeepers, those who worked from home, etc.) who had no employees; workers, craftsmen, etc., working "independently" from home; "irregularly employed workers who sometimes worked in one place, sometimes in another place, with no fixed employer," etc. In practice, the precise borders defining this vast category were extremely vague, both vis-à-vis the "blue-collar worker" category (at what point should a blue-collar worker working from home no longer be considered "independent" and become a "wage earner" instead?) and vis-à-vis the "proprietor" category (at what point should we consider both the husband and the wife to be actually working within their small farming or shop-keeping operation, which was a sufficient condition for them to be classified as *chefs d'établissement*

rather than *travailleurs isolés*?<sup>5</sup>). The statisticians of the SGF sometimes ventured to estimate the fraction of these “independent workers” who warranted inclusion in the “wage-earner” category (along with “blue-collar workers” and “non-blue-collar workers”), but it goes without saying that such estimates were relatively fragile, as the SGF itself acknowledged.<sup>6</sup>

If we look only at wage earners strictly speaking, that is, individuals classified as *ouvriers* or *employés*, the main regularity that is useful to keep in mind is that in the pre–World War II censuses, *employés*, or non-blue-collar workers, always represented around a quarter of the total: about 2.5 million *employés*, versus 7.5 million *ouvriers*, or blue-collar workers, at the start of the century, and around 3 million non-blue-collar workers versus 9 million blue-collar workers in the interwar period, at least before the Depression.<sup>7</sup> Indeed, the impact of the 1930s crisis was clearly visible in the censuses, as the number of blue-collar workers actually holding a job collapsed between the 1931 and 1936 censuses, whereas the number of non-blue-collar workers remained stable, so that the proportion of non-blue-collar workers in total employment increased significantly.<sup>8</sup> The censuses also allow us to see the importance of public-sector workers within the “non-blue-collar worker” category, though their relative weight tends to decline: nearly half of all non-blue-collar workers at the beginning of the century, but barely a third in the interwar period, which means that the weight of private-sector non-blue-collar workers in total employment was already on a distinctly upward course in the early part of the century and the interwar period.<sup>9</sup> We may also note the very large number of agricultural and domestic workers (the latter were also classified as blue-collar workers, *ouvriers*); their importance was declining, to be sure, but the key point to remember is that it was only during the interwar period that blue-collar workers in industry became the (slight) majority of the blue-collar worker category. At the beginning of the century, blue-collar industrial workers were the minority: in 1901, out of a total of about 7.5 million individuals classified as “blue-collar workers,” fewer than 3.5 million workers were blue-collar workers in industry, versus nearly 3 million agricultural blue-collar workers and nearly 1 million domestic workers. It is especially important to be aware of this fact when studying wage inequality, because the wages of agricultural and domestic workers have always been far lower than those of blue-collar industrial workers, and these two groups of “poor workers” *par excellence* have too often been ignored. For example, the “blue-collar wage” (*salaires ouvriers*) series, so often used by historians and

economists, generally include only blue-collar workers in industry, although scholars often omit this “detail.”

After the Second World War, the nomenclatures used by the census to describe the various groups of workers became much more sophisticated. The nomenclature introduced in the 1946 census used for the first time the concept of *cadre*, that is, a “worker responsible for supervision” (in the broad sense of the term). But it was only a first attempt, which, for our purposes, had the notable drawback of commingling “employers” and *cadres supérieures* (high-level managerial/professional workers) within a single category, and the 1946 nomenclature was never used again.<sup>10</sup> The 1954 census used the complete socioprofessional category nomenclature for the first time, and it would be used without major changes until the 1982 census. In 1954, out of about 12 million wage earners, the tallies showed more than 400,000 *cadres supérieures* (high-level managerial-professional workers), more than 1.1 million *cadres moyen* (mid-level managerial-professional workers), and around 2 million *employés*—this term now being used in a much more limited sense than before the war (because it now excluded *cadres*)—with the rest being split into the categories of “blue-collar worker,” “agricultural worker,” and “service personnel” (the latter two groups had now been separated from industrial blue-collar workers).<sup>11</sup> Between the 1954 and the 1982 censuses, formidable growth in the number of “bourgeois” wage earners was seen: the total number of wage earners rose from around 12 million in 1954 to around 18 million in 1982, an increase of around 50 percent, but the number of non-blue-collar workers (*employés*) rose by more than 100 percent (from 2 million to more than 4 million), the number of *cadres moyen* by nearly 200 percent (from 1.1 to 3.1 million) and the number of *cadres supérieures* by nearly 300 percent (from 400,000 to more than 1.5 million).<sup>12</sup> Here again, these censuses allow us to observe the significant weight of public-sector workers among “bourgeois” wage earners: although the private-sector share rose continuously, public-sector workers in the late 1970s still represented more than a third of mid-level and high-level managerial workers (*cadres administratifs moyens* and *cadres administratifs supérieures*).<sup>13</sup>

A new nomenclature, the so-called PCS (*professions et catégories socio-professionnelles*), was introduced in 1982 (this is the nomenclature still in use today). One of its main innovations vis-à-vis the 1954 nomenclature was to eliminate the *cadres moyens* and *cadres supérieures* categories, and replace them with the *professions intermédiaires* and *cadres et professions intellectuelles supérieures*.

*eures* categories. This obviously goes beyond a simple name change: the precise borders of the two categories have been modified, which means it is impossible to compare headcounts measured before and after 1982 in an entirely rigorous way. Qualitatively, however, there is no doubt about the shifts that took place. While the total number of workers reached a maximum of around 19–20 million in the 1980s and 1990s, the headcounts in the category *cadres et professions intellectuelles supérieures* rose from less than 2 million in 1982 to more than 3 million in 1998, and the *professions intermédiaires* rose from less than 4 million in 1982 to nearly 5 million members in 1998.<sup>14</sup> Finally, the category *employés*, defined in the broad sense—that is, the category of non-*ouvriers* (including *employés*, *professions intermédiaires*, *cadres*, etc.), which represented a quarter of wage-earning employment at the beginning of the century—included about 14 million workers in 1998, that is, nearly three-quarters of wage-earning employment.<sup>15</sup>

We may also note that one of the advantages, for our purposes, of the nomenclature introduced in 1982 is that it makes it possible to isolate the fraction of those within the *cadres et professions intellectuelles supérieures* category (high-level managers and intellectual occupations) made up of “central administrative, financial, and commercial managers of large enterprises.” This makes it possible to see that in the 1990s this subcategory comprised barely more than 10,000 individuals (out of a total of more than 3 million “high-level managers and intellectual occupations”).<sup>16</sup> In other words, just as there are very few self-employed workers who can be described as “big” business owners (around 30,000 *chefs d’entreprise* with more than 50 workers), there are also very few wage earners who correspond to the archetype of the “supermanager.” In the 1990s, if we add together the headcounts for the subcategories “*chefs d’entreprise* with more than 50 workers” and “central administrative, financial, and commercial managers of large enterprises”—that is, the two categories that are most clearly and likely to include recipients of very high incomes—we arrive at barely 40,000 individuals, less than 0.2 percent of the roughly 22 million individuals active in the workforce, and an even smaller proportion of the total number of tax units. Recall, too, that this way of breaking down the 40,000 “potential very high income earners” in the 1990s into 30,000 “large business owners” and about 10,000 “salaried executives of large firms” is unsatisfactory, since the nomenclature introduced in 1982 continues the pre-Second World War convention of counting all individuals actually running a business as self-employed, within the category *chefs d’entreprise*, including CEOs of large corporations who actually

have a wage-earning status.<sup>17</sup> In other words, although it is impossible to calculate precisely, a significant share of the 30,000 “self-employed large business owners” should actually be grouped with the 10,000 “supermanagers.”

Beyond this latter difficulty, which makes little difference for the total headcounts, and beyond the problems posed by changes of nomenclature and the belated introduction of the *cadre* concept in the census, we can thus see that in terms of headcounts of the workers in question, the twentieth century was indeed marked by the “rise of the *cadres*,” and more generally by the rising strength of “wage-earning non-blue-collar workers”: a wage-earning workforce that early in the century had been one-quarter non-*ouvriers* and three-quarters *ouvriers* was gradually replaced by a workforce made up of one-quarter *ouvriers* and three-quarters non-*ouvriers*. Also to be kept in mind is the slow decline in the weight of public-sector workers within the non-*ouvrier* category, as well as the near-disappearance of agricultural and domestic workers within the *ouvrier* category: between the 1901 and 1990 censuses, the share of agricultural blue-collar workers in total wage-earning employment fell from 30 percent to 1 percent, and the share of domestics in total wage-earning employment fell from 10 percent to 1 percent.<sup>18</sup>

## 2. *The Evolution of the Top-Wage Share of Total Wages*

Having reviewed this general information, we can now present our results for the evolution of the top-wage share of total wages. As with income inequality, the only way to properly measure wage inequality and its evolution is to use the fractile concept and examine movements in the shares of total income going to the various fractiles of the wage distribution (and especially the top-wage share). To do this, adequate data are essential, and we will begin by describing the main characteristics of the source used here (section 2.1) (readers lacking a taste for these kinds of technical details can skip directly to the next subsection). Then, as was done for incomes, we will separately present our results on the long-term evolution of the top-wage share of total wages, on the one hand (section 2.2), and short- and medium-term fluctuations on the other hand (section 2.3). Finally, we will see that the method of comparing the wages of different wage-earning socio-professional categories, rather than those of the different fractiles, is an altogether inappropriate method for studying the long-term evolution of wage inequality,

and that it has led some scholars to erroneous conclusions concerning the supposed secular decline of wage inequality in France (section 2.4).

### 2.1. Sources Used

Let us first recall that, in general terms, statistical wage data are considered extremely reliable, notably because wages are usually fixed in advance, in contracts, wage scales, and so on, and thus have a highly “public” character, which largely spares them from the problems of fraud and evasion (legal or otherwise) that sometimes arise for investment income or mixed incomes. This is particularly true of the source we are using here, namely, the wage declarations that employers have been required to submit to the tax authorities every year since the 1917 tax year, where employers must give the volume of wages paid to each of their employees over the preceding period. These declarations are used by the authorities both to monitor the total volume of wages employers are claiming as deductions from their profits for tax purposes—which means that employers have no interest in underreporting wages actually paid (since the authorities would then require them to pay more tax on their profits)—and to monitor the volume of wages declared to the tax authorities by the workers in question, which means that the workers have no interest in their employers’ overstating the wages they actually received (since the authorities would then require them to pay more tax on those wages). Such cross-checking imparts a high degree of reliability to this source.

Most importantly, this is the only long-term source available that allows us to properly estimate wage levels for the various fractiles of the wage distribution. Other available data generally provide information on only a few specific categories of workers, and as we will see in this chapter, it is extremely hazardous to draw conclusions about the overall evolution of wage inequality in this way, especially over the long run—all the more so because the exact definitions underlying the categories used in different eras (engineer, foreman, domestic, etc.) have varied markedly over time, and because the headcounts of the workers covered by the wage estimates are most often ignored. Moreover, as we will see, occupational or sectoral data of this kind are particularly rare and fragmentary for periods prior to the Second World War, especially for the categories of “bourgeois” wage earners—though the notable exception here is public-sector wages, which are the least poorly known by far. By contrast,

employer wage declarations cover all wage-earning workers, because all employers have been subject to this legal obligation since 1917, whatever their industrial sector or geographic location, and the declarations must report the volume of wages paid to each worker in the firm, from the most modest to the most highly paid. In addition, the statistical tables obtained from tabulating these wage declarations, which have been compiled by INSEE since 1947 and were compiled by the tax administration before the Second World War, are presented in exactly the manner we need: these tables are based on rankings of workers at the national level according to their annual wage level, and they show the number of workers and the corresponding volume of wages for a number of annual wage brackets. As was the case with the statistical tables compiled from tabulations of income tax returns, these tables thus allow us to estimate the average wage level received by the best-paid 10 percent of workers, the best-paid 5 percent, the best-paid 1 percent, and so forth, in an extremely precise fashion.<sup>19</sup> Thus, the concepts we use (P90–100, P95–100, P99–100, etc.) will often be the same ones we used when examining top incomes, though it is important not to forget that we are dealing here with fractiles of top wage earners within the hierarchy of wages received by workers at the individual level, not with top-income fractiles within the hierarchy of incomes received at the household tax-unit level.

However, this source does contain several imperfections. First, wage declarations have only existed since 1917: as with income tax returns, this source does not allow us to study years prior to the First World War, so we will have to turn to other, obviously less satisfactory, data in order to evaluate the effects of the First World War on wage inequality.

Also, in contrast to income tax returns, which have been tabulated every year without exception since the 1915 income-year, the wage declarations unfortunately have not been subjected to annual statistical analysis. We only have statistical tables based on the declarations for the 1919–1938, 1947, and 1950–1998 wage-years, so our estimates of the top-wage share of total wages pertain only to those years; this will lead us to turn again to other sources to evaluate the evolution of wage inequality in the missing years, especially the Second World War years.<sup>20</sup> In fact, it is only since the Second World War that the wage declarations have been subjected to genuine analysis for purely statistical purposes. An initial analysis was carried out for 1947 wages, but the experiment was not repeated for 1948–1949 wages; analysis of the wage declarations then took place on an annual basis starting with 1950 wages, and the employer wage



declarations—often denoted by their current official name (*Déclarations annuelles de données sociales*, or DADS)—quickly became the principal source used by INSEE to measure the evolution of wages. Before the Second World War, the statistical tables compiled by tabulating wage declarations—like those compiled from tallies of income tax returns, which we used for the entire 1915–1998 period—had been created in a wholly different spirit. For the tax administration, it was about evaluating how a tax was functioning—in this case, the schedular wage tax, which, as we will see in Part Two, was a component of the 1914–1917 tax reform, along with the general income tax (IGR, *impôt général sur le revenu*, or more simply “the income tax”), which is where income tax returns come from. The schedular tax on wages was levied for the first time in the 1917 tax year, but it took a few years for it to be fully established by the tax administration, which explains why the statistical tables based on tallies of wage declarations were created and published only starting with the 1919 wages. Most importantly, the tables’ strictly tax-oriented origins explain why the series is interrupted in 1938: in 1939, the schedular wage tax was changed into a withholding tax levied at the source, in other words, a tax where the employers themselves calculated and deducted the tax owed by their workers, and where the administration simply collected the corresponding sums and monitored the figures’ consistency with the wage figures appearing in income tax returns. From that point on, therefore, the only tax statistics produced were total receipts from the schedular wage tax, with no information about how those receipts were distributed among different workers. This continued until the tax was definitively abolished in 1948. It was starting only with the 1947 wage-year that the Finance Ministry decided to remedy this problem by moving ahead with analysis of wage declarations for purely statistical purposes, so there are apparently no equivalent statistical wage tables for the years 1939–1946.<sup>21</sup>

Notwithstanding the problems created by the “hole” in 1939–1946, however, it should be made clear that the statistical tables the tax administration compiled before the Second World War and those compiled by INSEE after the Second World War comprise a single series, and that all of the tables are based on a single source, namely, the employer wage declarations, which the tax administration never stopped using for the purpose of tax monitoring, even in years when no systematic tallies were carried out. It is important at this point to note in particular that the schedular wage tax has always been levied strictly at the individual level (unlike the income tax, which has always been levied at the



household tax-unit level): in no case are any wages earned by a spouse or children added to an individual's wage, which would obviously introduce a bias relative to the INSEE statistics, and the family situation of the taxpayer is taken into account only in the form of any tax reductions a worker may receive, which do not affect the volume of taxable wages or the tax administration's rankings of workers in wage brackets. Let us also make it clear that the schedular wage tax has always been based on wage declarations by employers, not on declarations by workers; only at the moment of tax payment are workers called on to make contact with the tax authorities (at least until 1939).

These apparently technical complications and clarifications are important, because they not only likely explain why this source has never been used until now for the whole period under consideration (as we noted in the Introduction),<sup>22</sup> but they also explain why this source does not permit us to study the entire wage distribution for the 1919–1938 period. The statistical tables compiled by the tax administration were intended to assess how a tax was functioning, so they covered only workers whose wages were high enough to be taxable under the schedular wage tax; in practice, this seldom came to more than 10 percent of workers in the interwar period (except at the end of the period).<sup>23</sup> By contrast, the statistical tables compiled by INSEE aim to examine wage inequality in and of itself, so therefore they cover all wage levels, from the most modest to the highest, and they allow us to study the evolution of the entire wage distribution over the 1947–1998 period, and especially the 1950–1998 period. Still, this is a relatively minor imperfection, insofar as we are interested mainly in top incomes and top wages: the statistical tables compiled from wage declarations by the interwar tax administration tell us the wages of the best-paid 10 percent of workers and allow us to calculate their share of total wages, by comparing them to the average wage at the time, just as the statistical tables compiled from income tax returns tell us the incomes of the wealthiest 10 percent of tax units and allow us to calculate their share of total income by comparing them to the average income. For the same reasons, the statistical tables for the 1919–1938 period provide no information about which socioprofessional categories the best-paid workers of the period belonged to. As with tax returns, the tax administration was concerned solely with information relevant to the calculation of taxes owed and therefore paid no attention to socioprofessional nomenclatures (which did not exist at the time in any case, or at least not as we understand them today).

A final imperfection in this source has to do with the fact that analyses of wage declarations from the 1947–1998 period cover only declarations submitted by private-sector employers; public-sector workers are therefore excluded from the analysis.<sup>24</sup> Because the statistical tables for the 1919–1938 period originated from the tax system, they cover all workers subject to the schedular wage tax, that is, all workers with wages high enough (whatever their public- or private-sector status), as do our estimates of top wage levels for this period. However, here again, this is a relatively minor imperfection because, as we will see, for public-sector workers we have other sources of information that allow us to precisely assess the magnitude of the bias thereby introduced—at least for the years 1980–1990.

## 2.2. The Long-Term Stability of the Top-Wage Share of Total Wages

Let us begin by presenting our results for the long-term evolution of the top-wage share of total wages. To our mind, these are the most interesting results that the data analyzed in this book have yielded, on a par with the collapse and nonreconstitution of the incomes of the “200 families.” First, we will examine the evolution of the share of total wages going to the best-paid 10 percent of workers (see Figure 3-2), which is calculated using our estimates of the average wage for the best-paid 10 percent of workers (see Figure 3-1) and of the average wage for the entire wage-earning population (see Chapter 1, Figure 1-8). The first major pattern is that the share of total wages going to the best-paid 10 percent of workers has always been lower than the share of total income going to the best-off 10 percent of tax units: the former was generally around 25 percent, whereas the latter was generally around 30–35 percent (and even above 40 percent before the Second World War).<sup>25</sup> For example, in the 1990s, the average wage per worker was around 120,000 francs per year (about 10,000 francs per month),<sup>26</sup> and the average income per tax unit was just barely higher (around 130,000 francs per year, less than 11,000 francs per month);<sup>27</sup> but while the average wage of the best-paid 10 percent of workers was around 2.5–2.6 times the average (around 310–320,000 francs per year, just over 25,000 francs per month),<sup>28</sup> the average income of the best-off 10 percent of tax units was around 3.2–3.3 times the average (around 410,000–430,000 francs per year, more than 35,000 francs per month).<sup>29</sup> In other words, in the 1990s, the

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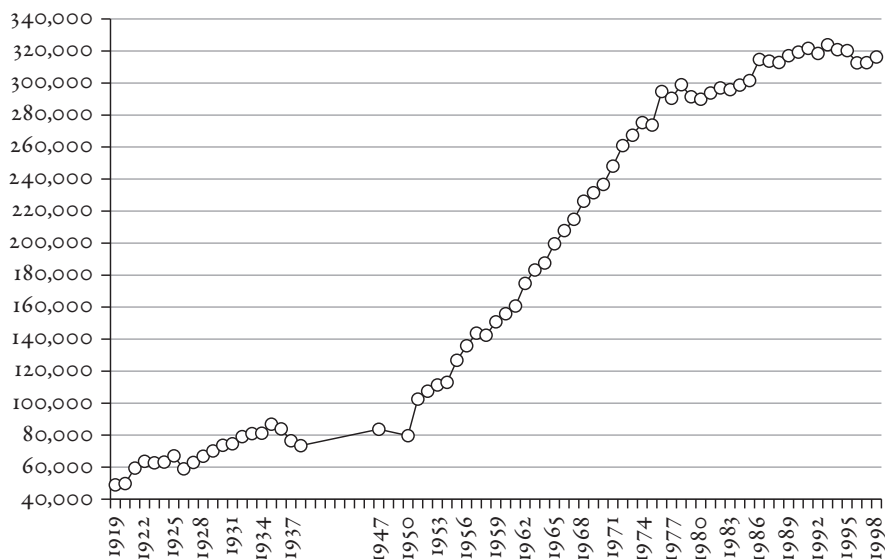


FIGURE 3-1. The average wage of the best-paid 10 percent of workers, from 1919 to 1938, in 1947, and from 1950 to 1998 (in 1998 francs)

*Source:* Columns P90–100 of Tables D-6 and D-15 (Appendix D)

best-paid 10 percent of workers took around 25–26 percent of total wages, whereas the best-off 10 percent of tax units received around 32–33 percent of total income. We are dealing here with a very general regularity: in every country and in every period, income inequality always tends to be greater than wage inequality, which is due to the fact that mixed income and capital income (which are added to wages as we move from wages to incomes) have always been more unequally distributed than wages, as well as the fact that wage inequality is measured within a relatively homogenous population (workers with a job), whereas income inequality is measured within a vaster population, notably including jobless individuals, modest retirees, and so on, as well as both single individuals and households comprising several workers (and / or several wealth-holders).

Even more surprising and interesting, we see that the top-wage share of total wages seems characterized by a very high degree of stability over the long run. To be sure, we observe numerous short- and medium-term fluctuations over the twentieth century, but the important point is that there seems to be no

## WAGE INEQUALITY IN FRANCE IN THE TWENTIETH CENTURY

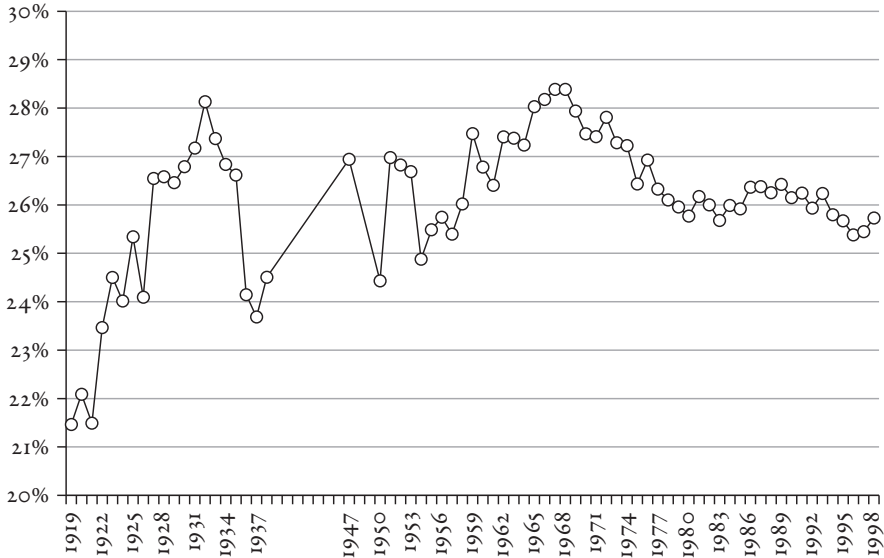


FIGURE 3-2. The share of total wages going to the best-paid 10 percent of workers, from 1919 to 1938, in 1947, and from 1950 to 1998

*Source:* Columns P90–100 of Tables D-7 and D-16 (Appendix D)

clear, long-term trend: except for the 1919–1922 years, the share of total wages going to the best-paid workers has always stood within a range between 24 percent and 28 percent, and generally around 25–26 percent, and this was the case from the 1920s to the 1990s, with no apparent upward or downward long-term trend (see Figure 3-2). Moreover, all the occupational and sectoral data available to us, which will be examined in this chapter, show that the very small share received by the best-paid 10 percent of workers in 1919–1922 (around 21–22 percent of total wages) was, in fact, merely an accident. The inflation of the First World War caused a very sharp narrowing of the wage hierarchy (with top wages receiving far smaller nominal gains than others), and there is every reason to think that at the beginning of the century and on the eve of the First World War, the share of total wages going to the best-paid 10 percent of workers stood at around 25–26 percent, a level virtually identical to that observed in the 1990s. In other words, if we set aside the purely transitory narrowing or widening movements of the wage hierarchy that punctuated the century, it appears as if irresistible forces were ensuring that the average wage of the best-paid

## THE EVOLUTION OF INCOME INEQUALITY IN FRANCE

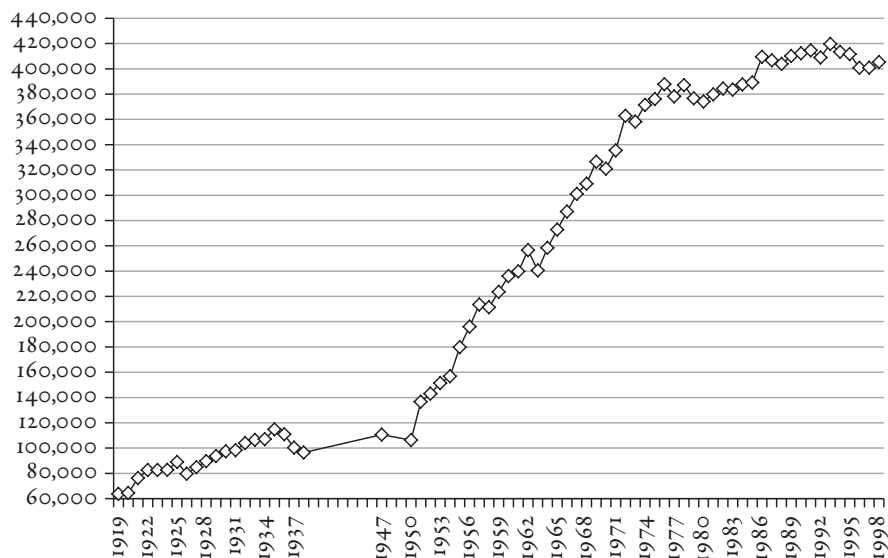


FIGURE 3-3. The average wage of the best-paid 5 percent of workers from 1919 to 1938, in 1947, and from 1950 to 1998 (in 1998 francs)

*Source:* Columns P95–100 of Tables D-6 and D-15 (Appendix D)

10 percent of workers always returned to levels around 2.5–2.6 times the average wage for the total population. The findings we are dealing with here are radically different from those we obtained for income inequality, since the latter point to a structural decline in the top-income share of total income over the course of the century, with a top 10 percent share of total income of around 40–45 percent before the Second World War, and only about 30–35 percent after 1945 (see Chapter 2, Figure 2-6). Over the long run, the top 10 percent saw its share of total income fall from 45 percent (or even slightly higher) in 1900–1910 to around 32–33 percent in the 1990s, which means that its average income fell from 4.5 to 3.2–3.3 times the average income of the overall population.

Another key difference between wage inequality and income inequality is that, in contrast to the various top-income fractiles—which, as we have seen, evolved in highly divergent ways over the course of the century—all of the top-wage fractiles seem to have evolved in the same way, and in particular they all exhibited the same long-term stability. If we examine the evolution of the share of total wages going to the best-paid 5 percent of workers, which by happen-

## WAGE INEQUALITY IN FRANCE IN THE TWENTIETH CENTURY

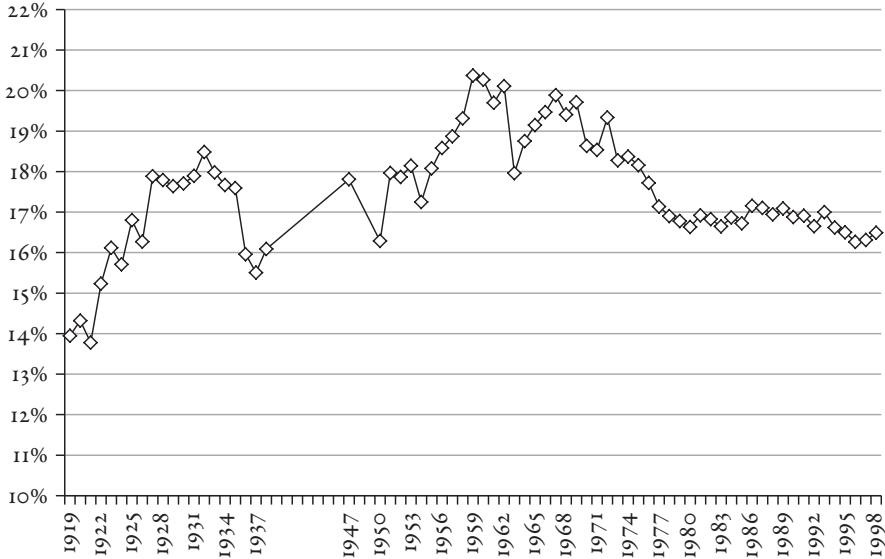


FIGURE 3-4. The share of total wages going to the best-paid 5 percent of workers, from 1919 to 1938, in 1947, and from 1950 to 1998

*Source:* Columns P95–100 of Tables D-7 and D-16 (Appendix D)

stance was low in 1919–1922, we find that in all the other years it always oscillated between 16 percent and 20 percent, with no long-term trend, and with an average value of around 17–18 percent (see Figure 3-4). In other words, the average wage of the best-paid 5 percent of workers has always fluctuated between 3.2 and 4 times the average wage of the overall population, with an average gap of around 3.4–3.6. If we look at the evolution of the share of total wages going to the best-paid 1 percent, which was also low by happenstance in 1919–1922, we find that in every other year it was always fluctuating between 6 percent and 8 percent, with no long-term trend, and with an average value of about 6–7 percent (see Figure 3-6). In other words, in every period the best-paid 1 percent received an average wage between 6 and 8 times (and usually between 6 and 7 times) the average wage of the overall population. The average real wage multiplied by more than 5 over the course of the twentieth century, and the average nominal wage multiplied by more than 10,000 (actually by more than 100, if we account for the shift from old francs to new francs),<sup>30</sup> yet the wage hierarchy remained practically unchanged.

## THE EVOLUTION OF INCOME INEQUALITY IN FRANCE

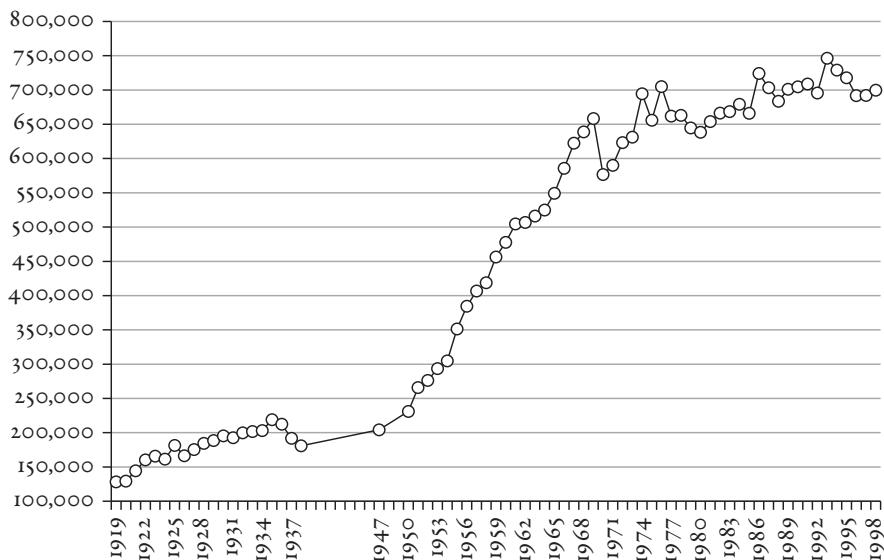


FIGURE 3-5. The average wage of the best-paid 1 percent of workers, from 1919 to 1938, in 1947, and from 1950 to 1998 (in 1998 francs)

*Source:* Columns P99–100 of Tables D-6 and D-15 (Appendix D)

Unfortunately, the wage brackets that INSEE has used since the Second World War for the statistical tables it compiles from the employer wage declarations—in contrast to the brackets that the interwar tax administration used to tally the same declarations—do not go high enough up the wage hierarchy to allow us to study the evolution of the share of total wages going to the best-paid 0.5 percent, 0.1 percent, or 0.01 percent of workers over the entire period under consideration. However, INSEE has provided us with tables for very high-wage earners from the 1990s, based on electronic files of wage declarations, and these data show the very great similarity between estimates for the interwar period and those for the 1990s. In the 1920s and 1930s, the share of total wages going to the best-paid 0.1 percent was typically around 1.5–2 percent, and the top 0.01 percent share was around 0.4–0.5 percent.<sup>31</sup> In the 1990s, the top 0.1 percent share gravitated around 1.5 percent of total wages (or slightly less), and the top 0.01 percent share was again around 0.4 percent (or slightly less).<sup>32</sup> In other words, in the 1990s, as in the interwar period, we observe that the top 0.1 percent

## WAGE INEQUALITY IN FRANCE IN THE TWENTIETH CENTURY

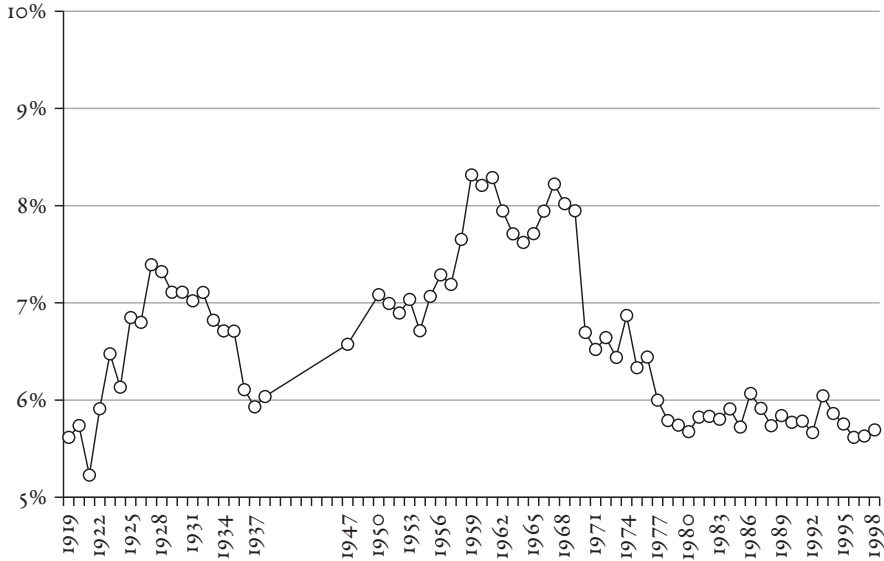


FIGURE 3-6. The share of total wages going to the best-paid 1 percent of workers, from 1919 to 1938, in 1947, and from 1950 to 1998

*Source:* Columns P99–100 of Tables D-7 and D-16 (Appendix D)

of workers received an average wage around 15 times the average wage of the overall wage-earning population, and that the best-paid 0.01 percent of workers received an average wage around 40 times the average wage of the overall wage-earning population. However, the lack of long-term annual data, as well as various technical problems in analyzing available data for the 1990s,<sup>33</sup> prevent us from going further than this general observation and studying the case of the top 0.1 percent and 0.01 percent of workers in an entirely satisfactory way. In any event, the fact that there is a very high degree of long-term stability in share of total wages going to the best-paid 1 percent of workers (taken as a whole) clearly indicates that the magnitude of any fluctuations experienced by the upper strata of the top 1 percent of the wage distribution was necessarily very limited. The contrast with our results for income is striking: the share of total income going to the best-off 1 percent of households fell by half between the century's two endpoints, from around 20 percent on the eve of the First World War and at the start of the 1920s to around 7.5–8 percent in the 1990s (see Chapter 2,



Figure 2-14), but the share of total wages going to the best-paid 1 percent of workers exhibits no long-term trend, either upward or downward, and it seems inescapably destined to oscillate around 6–7 percent (see Figure 3-6).

It does not appear that any bias arising from the nature of the data used can explain such long-term stability in the top-wage share of total wages. In particular, the fact that our estimates for the postwar period cover only the private sector, whereas our estimates for the interwar period cover both the public and private sectors, can in no way bias our conclusions. Indeed, we do have data for the 1980s–1990s from other sources that allow us to separately estimate wage inequality in the private sector alone and wage inequality in the public and private sectors combined, and these sources indicate that the shares of total wages going to the best-paid 10 percent, 5 percent, 1 percent, and so forth, of workers are just barely higher when the private sector is considered alone than when the public sector is added.<sup>34</sup> These results make sense: shifts toward more compression or greater widening in public-sector wage scales played a major role in the first half of the century, as we will see later in this chapter, yet levels of wage inequality among public-sector workers in the 1980s–1990s stood very close to those observed for wage inequality in the private sector, with the only difference between the two sectors being that the share of total wages going to very high-wage earners is slightly higher in the private sector than in the public sector. The top-wage shares of total wages in the 1980s–1990s shown in Figures 3-2, 3-4 and 3-6 are thus very slightly overstated relative to levels for the interwar period, but this slight bias in no way alters the fact that the top-wage share of total wages was essentially the same in the interwar period as in the 1980s–1990s.

This very high degree of long-term stability in the differentials between top wage earners and the average worker appears truly impressive. Throughout the twentieth century, notwithstanding the vagaries of inflation and the dizzying rise in real wages, an “invisible hand” seems to have ensured that the best-paid 10 percent of wage earners always earned around 2.5–2.6 times the average, that the best-paid 5 percent of wage earners always earned 3.4–3.6 times the average, and that the best-paid 1 percent of wage earners always earned 6–7 times the average. Thus, whatever explains this astonishing stability in wage scales, we can see that “high-wage workers” have always existed, and in very similar proportions to those we see today. In particular, these results confirm what we hinted at in Chapter 2 about the very high degree of long-term stability in the shares of

total income going to the “middle classes” and “upper-middle classes” (fractiles P90–95 and P95–99). The opposite would have been surprising: given that the average wage per worker and average income per tax unit followed extremely similar paths throughout the century; that the incomes of the “middle classes” (upper or otherwise) have always been made up mainly of wages, in this case high wages falling within the highest 10 percent of wage earners; and that the income levels declared by the “middle classes” (upper or otherwise), relative to the average income, have been extremely stable over the course of the century, it is perfectly normal that top wage levels should also be characterized by a very high degree of long-term stability, relative to the average wage. The similarity between our results for “middle-class” incomes and those for top wages only confirms what we already noted about the very limited possibilities for fraud and evasion available to wage-earning households: because the tax authorities have always had access to employer wage declarations to ensure that the wages declared in tax returns are not underreported.<sup>35</sup>

These results also confirm the deep doubts we expressed in Chapter 2 about the Kuznets theory, and, more generally, any theory based on the notion of an inexorable and spontaneous decline in inequality during the advanced stages of capitalist development, at least when it comes to the French case. The fact that the secular decline in the top-income share of total income took place in spite of a very high degree of long-term stability in the top-wage share of total wages confirms that this secular decline is explained solely by the collapse and nonreconstitution of very high capital incomes, and we have seen how little that phenomenon resembled any kind of “natural” or “spontaneous” process. In the long run, the two phenomena that marked the history of inequality in twentieth-century France were, on the one hand, the collapse and nonreconstitution of large fortunes, and, on the other hand, the very high degree of stability in wage hierarchies, and these are the two phenomena that need to be explained.

### 2.3. Short-Term and Medium-Term Fluctuations

This high degree of long-term stability in wage scales, however impressive, should not lead us to forget the many short-term and medium-term fluctuations experienced by wage inequality in twentieth-century France. These short- and medium-term movements were caused first and foremost by the world wars and the very

high inflation they engendered. Indeed, in both world conflicts, the wartime years featured larger pay hikes for low-wage earners than for high-wage earners, and thus resulted in a significant compression of wage disparities. Likewise, in both cases the postwar years featured a reconstitution of wage hierarchies that had been deeply disrupted during the conflicts. The fact that statistical data from employer wage declarations only began in 1919, and were interrupted in 1939–1946, obviously represents a major handicap in studying these processes. But all of the sectoral and occupational data we have available reassure us that this is indeed how things unfolded.

Let us begin with the case of the First World War. Data on non-*ouvrier* (non-blue-collar) wages are particularly scarce for the early part of the century, and to a large extent for the interwar period as well, which is due mainly to the fact that prior to the Second World War all official studies carried out by the SGF or the *Office du Travail* covered only *ouvriers*, or blue-collar workers. Nevertheless, these studies do allow us to get a sense of the very large wage disparities among the various blue-collar occupations, even without taking agricultural and domestic workers into account. They also allow us to observe a significant compression in these disparities between 1913–1914 and 1919–1920.<sup>36</sup> In addition, the extreme paucity of data on “non-blue-collar worker” wages is made up for by the fact that the data always go in the same direction: all available data for the First World War period indicate that a very sharp narrowing of wage differences took place, not only among blue-collar workers, but also, and most importantly, between blue-collar workers and all “non-blue-collar workers,” as well as among the “non-blue-collar workers” themselves. In “metal-working in the Paris region,” one of the few industrial sectors for which relatively precise data were gathered (though unfortunately they cover only a few isolated years), we observe that the wage gap between unskilled laborers and skilled blue-collar workers was 1.9 in 1914 (the skilled worker earned 1.9 times what the unskilled laborer earned), but it was only 1.5 in 1920; the gap between the unskilled laborer and an entry-level machinist (*ingénieur*) was 2 in 1914, but only 1.4 in 1920; the gap between an unskilled laborer and a machinist with two years’ tenure was 3 in 1914, but only 1.7 in 1920; the gap between an unskilled laborer and a machinist with 8 years’ tenure was 5 in 1914, but only 2.4 in 1920, and so on.<sup>37</sup> In the insurance sector, the wage gap between an entry-level accountant and a certified accountant fell from 2.4 in 1914 to 1.6 in the early

1920s; the gap between a beginning accountant and a departmental director fell from 8.9 in 1914 to 4.3 in the early 1920s, and so on.<sup>38</sup> In banking, the gap between a third-class assistant and a chief accountant fell from 4.6 in 1914 to 3.5 in the early 1920s; the gap between a third-class assistant and an inspector-general fell from 7.7 in 1914 to 5.8 in the early 1920s, and so on.<sup>39</sup> These data are obviously highly fragmentary, and they are often based on samples from only a few firms, but they all indicate that the higher up a worker was in the wage scale, the more the worker in question suffered from the narrowing of wage disparities that took place over the course of the First World War.

The best documented case is that of public-sector wages, which are of particular interest in that the censuses show that public-sector workers accounted for nearly half of all “non-blue-collar worker” wage earners on the eve of the First World War. The first important fact is that public-sector wages were completely frozen during the first years of the war: until 1917, the government continued to pay its workers exactly the same nominal wage they had been paid on the eve of the war, despite very high inflation.<sup>40</sup> In 1917, the lowest public-sector wage levels, those of mail carriers, for example, received a slight pay increase (around 10 percent), but other wage levels, like those for elementary schoolteachers and administrative assistants, and, *a fortiori*, for university professors, bureau chiefs, and other senior civil servants, remained completely frozen.<sup>41</sup> By way of comparison, the average wage for blue-collar workers in industry experienced nominal growth of more than 50 percent between 1913 and 1917,<sup>42</sup> slightly below the increase in the price level, but considerable relative to public-sector wages. Not until 1918–1919 was a substantial pay increase implemented for public-sector workers: nominal wages for mail carriers almost tripled, and those for elementary schoolteachers almost doubled.<sup>43</sup> But even this first major pay increase, instituted at the end of the conflict and in the initial months following the armistice, did not cover the highest wage levels in the public sector: in 1919, the government continued to pay university professors, bureau chiefs, and other senior civil servants the same nominal wage it had paid them in 1913,<sup>44</sup> despite the fact that the general price level had almost tripled between 1913 and 1919.<sup>45</sup> Meanwhile, the average blue-collar wage nearly tripled between 1913 and 1919 (in nominal terms), so that from 1913 to 1919 blue-collar purchasing power fell only very slightly (around 5 percent).<sup>46</sup> Ultimately, the wage gap between the average blue-collar worker and the best-paid senior

civil servants, like that between the lowest-level public-sector workers (such as mail carriers, whose average wage was close to that of industrial workers) and the best-paid senior civil servants fell by a factor of 2 between 1913 and 1919.

Thus, available data for the First World War period allow us to be certain that the historically low level we obtained for the top-wage share of total wages in 1919 and the very early 1920s was, in reality, a mere “accident,” and that the share had been significantly higher on the eve of the war and in the early part of the century. But these data are not sufficient to be certain of the overall magnitude of the phenomenon or the respective roles played by the public and private sectors: we know that wage hierarchies collapsed in both sectors, but the meagerness of the data for top private-sector wages makes it difficult to compare the two evolutions precisely. Given the nature of the process at work, however, we may suppose that the collapse was more pronounced in the public sector, and that it even possibly facilitated the concomitant collapse we observe in the private sector (when the government grants no pay increase, or only a very small increase, to its upper-level employees, it becomes easier for the private sector to do likewise). In the public sector, the mechanism at work is particularly transparent. At the start of the conflict, after a century of total monetary stability, everyone thought it obvious that inflation could only be temporary, and that, in any event, the government lacked the means to be munificent toward its employees; at the end of the conflict and in the initial months after the armistice, the purchasing power of public-sector workers fell so fast that the lowest-paid government workers found themselves in a situation close to poverty, and a significant pay hike for the lowest-wage earners (and, to a lesser degree, medium-level wage earners) in the public sector became inevitable, so that by 1919 wage hierarchies ended up sharply compressed. It is likely that an analogous mechanism was also at work in the private sector, which was just as unaccustomed to living with inflation as the public sector was, but one tends to think the effects would not have been of the same magnitude, especially given the far more decentralized nature of the pay-increase process in the private sector: for example, the idea that every firm in the private sector would manage to completely freeze the wages of their managers from 1913 to 1919 would be unthinkable, though that is what was done in the public sector.

Likewise, the large public-sector pay increases carried out in the 1920s appear to have played a seminal role in that decade’s process of wage-scale restoration. According to our estimates, this process reached its maximum intensity in

1922–1923, and then in 1927–1928. For example, if we examine the evolution of the share of total wages going to the highest-paid 10 percent of workers, we see that it rose from barely 21–22 percent in 1919–1921 to around 24–25 percent in 1922–1923, before stabilizing at around 24–25 percent between 1923 and 1926, then crossing a new threshold by rising from 24–25 percent in 1923–1926 to 26–27 percent in 1927–1928. And these two quite separate phases of upward movement correspond quite precisely to the two great phases of public-sector pay increases that marked the 1920s. Between 1919 and 1923, nominal wages for all public-sector workers nearly doubled, and this very large increase, unlike that of 1918–1919, also applied to the highest public-sector wage levels.<sup>47</sup> By way of comparison, the average wage of industrial blue-collar workers experienced nominal growth of just over 40 percent between 1919 and 1923.<sup>48</sup> Then, between 1923 and 1926, public-sector wages were increased much more modestly, and only after the Poincaré stabilization, in 1927, could a new cycle of pay hikes begin. This second step lasted until 1931, and was presented by the government of the time as a great national effort that could finally settle the accounts from the First World War. Indeed, the avowed objective of this second step was to reestablish public-sector wage hierarchies and reverse the effects of the very sharp compression of 1918–1919, and the pay increases of 1927–1931 were significantly larger for high-wage levels than they were for low- and medium-wage levels.<sup>49</sup> It is particularly striking to note that it was in 1927 that the highest public-sector wage levels experienced their largest increase,<sup>50</sup> and it was also in 1927 that our estimates of the top-wage share of total wages show their strongest growth.<sup>51</sup>

In the 1930s, too, everything seems to indicate that public-sector wages played a central role in the history of wage inequality. Indeed, more than any other social category, public workers embody the “revenge of the middle classes” phenomenon that, as we saw in Chapter 2, characterized the 1930–1935 years. The reason is simple: the major public-sector pay hikes of 1927–1931 were still not over when private-sector workers, especially blue-collar industrial workers, were starting to bear the costs of the global economic crisis. Indeed, the crisis put very strong pressure on the wages of those blue-collar workers who were lucky enough to keep their jobs: the average nominal wage of blue-collar workers in industry fell by nearly 15 percent between 1930 and 1935, with a particularly rapid drop between 1930 and 1932,<sup>52</sup> and nominal wages for agricultural and domestic workers fell by equivalent proportions.<sup>53</sup> To be sure, these nominal

declines were smaller than the decline in the price level (which came to 25 percent between 1930 and 1935), but the wages of public-sector workers were not subject to pressures of such magnitude: the big pay hikes of 1927–1931 had just gone into effect, wages for all public-sector workers were still rising in 1930–1931, and then wages stayed frozen at the same nominal level in 1931–1932—the very moment when blue-collar workers’ wages were experiencing their strongest decline—and it was only in 1933–1934 that governments in power started to impose “exceptional levies” aiming to reduce the nominal wages actually received by public-sector workers according to the new public-sector wage scale. In practice, these “exceptional levies” of 1933–1934 were extremely small (with reductions of 2 percent, 3 percent, etc., affecting only very high wage levels in the public sector), and in reality, even the famous Laval decree of July 1935, which envisioned a uniform 10 percent reduction for all public-sector wages, had been considerably softened by early 1936.<sup>54</sup> Thus, the fact that in the early 1930s the top-wage share of total wages continued its rising trend from the 1920s, and that this trend subsided starting in 1933–1934, seems perfectly consistent, as our estimates indicate that the share of total wages going to the best-paid 10 percent of workers increased strongly in 1930–1932, exceeding 28 percent in 1932, before declining very slightly in 1933–1935, when it hovered around 27 percent.

Also, the effects of the economic crisis on blue-collar workers were not limited to pressures on their wages. Blue-collar workers were also subject to a very high risk of unemployment during the 1930s, a risk that obviously did not affect public-sector workers, and that often took the form of partial unemployment (blue-collar workers working a reduced number of hours per week, with their pay declining proportionally). Partial unemployment explains why the total wage bill in the private sector fell by more than 50 percent between 1930 and 1935 (in nominal terms) whereas the public sector wage bill, which had risen strongly in the late 1920s and until 1931, held steady at the same nominal level until 1933, and declined only very slightly in 1934–1935.<sup>55</sup> According to available estimates, the average rate of partial unemployment for blue-collar workers in industry, which was around 2 percent in 1929–1930, increased suddenly to 12 percent in 1931, then stood in the neighborhood of 20–25 percent from 1932 to 1939, reaching an absolute maximum level in 1935.<sup>56</sup> The average blue-collar wages series we referred to earlier, like all the wage estimates cited in this book, reports the average wage for full-time employment, which means that after



taking partial unemployment into account, the average nominal wage for blue-collar workers actually declined by nearly 40 percent, rather than 15 percent, between 1930 and 1935. In other words, because our estimates of the top-wage share of total wages pertain only to full-time workers, and thus do not take this phenomenon of partial unemployment into account,<sup>57</sup> they significantly underestimate the growth of wage inequality that actually took place between 1930 and 1935, especially toward the end of the period.

Although the extreme paucity of available data about “non-blue-collar” private-sector wage earners again prevents us from reaching completely satisfactory conclusions, it seems logical to assume that the exacerbation of wage inequality observed over the course of the deflation was due mainly to public-sector workers. Indeed, “non-blue-collar” workers in the private sector were likely far less exposed to the risk of unemployment than their blue-collar counterparts (as census findings suggest), but it is hard to believe that this risk—and especially its repercussions, along with those of the recession in general, on the wages of “non-blue-collar workers” who kept their jobs—could have been completely negligible for the engineers and managers of the industrial firms that were hit with the full force of the crisis.<sup>58</sup> Our analysis of the statistics from wage declarations reveals that over 1930–1935, very high wage levels fell more than the corresponding wage levels within the public-sector wage schedule, which shows that “non-blue-collar workers” in the private sector suffered far more from the deflation than did public-sector workers of the same rank—or in any event that they did so sufficiently to cause a decline in the average wage for those fractiles. For example, a late-career university professor, whose wage in the interwar period was fairly representative of the top 0.5 percent of wage earners (fractile P99.5–100), saw his annual wage (expressed in current francs) rise from 78,240 francs in 1930 to 92,240 francs in 1931–1933, before declining slightly in 1934–1935 due to the “exceptional levies,” even while remaining at a higher level than in 1930 (85,240 francs in 1934, 84,140 francs in 1935).<sup>59</sup> In comparison, our estimates indicate that the annual average wage of the highest-paid 0.5 percent of wage earners declined in every year over the 1930–1935 period, ultimately falling from 92,385 francs in 1930 to 75,149 francs in 1935.<sup>60</sup> We observe an analogous phenomenon if we consider the maximum wage of a late-career *chef de bureau d'administration central* (a senior civil servant), who in the interwar period was fairly representative of the P99–99.5 fractile of the wage distribution,<sup>61</sup> or that of a late-career elementary schoolteacher, who in the interwar period was still



located in an intermediate position between the average wage of the P<sub>90–95</sub> fractile and that of the P<sub>95–99</sub> fractile of the wage distribution.<sup>62</sup> We may also note that the share of total wages going to the best-paid 0.1 percent of wage earners declined in 1931–1932, unlike the shares going to the top 10 percent, 5 percent, or 1 percent,<sup>63</sup> which suggests that wage earners in the upper strata of the era’s top 1 percent, like those of the 1990s, were much more often “supermanagers” of large public companies than senior civil servants, and that the “supermanagers” did not entirely manage to escape the crisis.

A late-career elementary schoolteacher is an especially interesting case, because it epitomizes the interwar “middle classes.” Indeed, we find that in all years of the interwar period, the average income of “middle-class” tax units (P<sub>90–95</sub>), which we estimated from income tax returns—and which, as noted in Chapter 2, had grown by nearly 70 percent, relative to the average for the overall population, between 1920 and 1935—settled at a level extremely close (within a few percentage points) to the maximum wage for a late-career elementary schoolteacher, as indicated in the public-sector wage scale. This was particularly true in 1920–1935, when the two trend lines differed by barely 2 percent (over 15 years!).<sup>64</sup> We may also note the excellent correspondence between our estimate of the evolution of “middle-class” incomes (based on statistics from income tax returns) and our estimates of top wage levels (based on statistics from wage declarations), which confirms both the slim opportunities for fraud and evasion among wage-earning taxpayers and the very high reliability of our estimation procedures.<sup>65</sup>

In fact, the rupture of 1936—which sounded the death-knell of the “revenge of the middle classes”—emerges as clearly from the wage declarations as from the income tax returns: our estimates show that the share of total wages going to the highest-paid 10 percent of workers, which hovered around 27 percent in 1934–1935, suddenly declined in 1936 and was only about 24 percent in 1936–1937, returning it to its level from the mid-1920s.<sup>66</sup> This finding is wholly consistent with the fact that only blue-collar wages, and especially the lowest blue-collar wages, were increased by the Matignon accords; white-collar professionals and managers, and public-sector workers in particular, whose pay increases in 1936–1937 were negligible,<sup>67</sup> bore the brunt of the upswing in inflation. The case of public-sector workers, and the typical case of the late-career elementary schoolteacher, is also emblematic of the dilemma faced by the Popular Front government, which we discussed in Chapter 2. When Léon Blum announced

the “pause” in a radio address to the French public in February 1937, a central point of his speech concerned public-sector wages; these, Blum explained, would not be increased further, at least “as long as the country’s financial situation has not improved.” This pause was seen as an abandonment of the promises made before the elections, and it hardly satisfied all socialists.<sup>68</sup> It is also interesting to note that the “supermanagers,” unlike “big” self-employed entrepreneurs, did not benefit from the Popular Front’s arrival in power or from the return of inflation, which is consistent with what we have said about that rupture.<sup>69</sup> Finally, we will note that the share of wages going to the best-paid 10 percent of wage earners recovered very slightly in 1938, while remaining significantly lower than in 1934–1935,<sup>70</sup> which seems consistent with the fact that in 1938 public-sector workers finally managed to obtain a more substantial pay increase than they received in 1936–1937.<sup>71</sup>

Our estimates of the top-wage share of total wages are, unfortunately, interrupted in 1939 for lack of adequate sources, and thus it is extremely difficult to study the precise evolution of wage inequality over the years 1939–1946. However, the information we do have seems to indicate that the narrowing of wage differentials that began in 1936 continued over the course of the Second World War. As was the case during the First World War, wage inequalities would appear to have reached their lowest level at the very end of the conflict, probably in 1944. An administratively ordered increase in all wages was decided by the provisional government shortly after the Liberation, and the flat-rate nature of this 1944 hike appears to have significantly accentuated the flattening of the wage hierarchy.<sup>72</sup> This hypothesis is consistent with the fact that 1944 also saw the wage share of the “middle classes” (P90–95) reach its lowest level of the period, before starting to recovering in 1945.<sup>73</sup> Still, it is worth pointing out several important differences between the two wars and the two immediate postwar periods, in terms of the processes by which wage hierarchies narrowed and were then reconstituted.

First and foremost, the narrowing seems to have been significantly more limited in the Second World War, and the corresponding reconstitution phase far more rapid. According to our estimates, by 1947 the share of total wages going to the best-paid 10 percent of wage earners settled at nearly 27 percent, a level similar to that of 1934–1935 and higher than that of 1938 (around 24.5 percent)—indeed, a graphical comparison of the years 1938 and 1947 and the “hole” in 1939–1946 could lead one to believe (wrongly) that wage hierarchies

were experiencing a leisurely widening over this period.<sup>74</sup> This situation was therefore altogether different from that observed after the First World War, when the share of total wages going to the top 10 percent of wage earners did not approach 27 percent until the 1920s, after a decade of slow recovery.<sup>75</sup> This is entirely consistent with the fact that by the spring of 1945 a vast “reordering” of the private-sector wage hierarchy had been launched with the Parodi decrees, which went into effect over the course of 1945 and early 1946; the objective was, precisely, to reestablish the hierarchy as it had been in 1936.<sup>76</sup> The scant occupational and sectoral data available also seem to indicate that the compression of wage disparities was more limited than it had been during the First World War and that the restoration had already been largely accomplished by 1945.<sup>77</sup> The hypothesis of a more limited compression and thus a more rapid restoration is also supported by our estimates of the evolution of “middle-class” incomes.<sup>78</sup> We may also note that this very rapid restoration affected all top-wage fractiles, including those of the upper strata of the top 1 percent: by 1945 the share of total wages going to the highest-paid 0.1 percent of wage earners had settled at more than 1.5 percent,<sup>79</sup> almost identical to its late 1930s level,<sup>80</sup> which means that in both cases the average wage of the best-paid 0.1 percent of wage earners was around 15 times the average wage for the overall population, even though nominal wages had risen by a factor of more than 10 between the two dates.<sup>81</sup>

These findings certainly do not mean that the wage hierarchy had completely stabilized by 1946–1947. The hyperinflation of 1944–1948 was not yet over, the Pinay stabilization would come only in 1952, and in such a context nothing can ever be taken for granted: all that was needed was higher-than-expected inflation and a pay hike for low- and medium-wage earners only, and the hierarchy would have been leveled. In fact, our estimates show that the top-wage share of total wages declined sharply between 1947 and 1950, increased in 1951, declined in 1952, and did not begin to experience anything like a steady upward trajectory until the mid-1950s—an upward trend that continued with no major disturbances until 1967–1968.<sup>82</sup> From the Liberation to the Pinay stabilization, wages occupied a central place on the political scene, and issues concerning price freezes or wage hikes often caused governments to fall. These uncertainties perhaps explain why the notion of a “leveling of the wage scale” was very much present in the immediate postwar debates, especially in the demands and public statements of the CGC (*Confédération générale des cadres*). The organization (the labor union for *cadres*) saw the wage rates granted to white-collar man-

agers and professionals by the Parodi decrees and subsequent pay increases as quite insufficient, even though our estimates show that the wage hierarchy reattained its previous level extremely quickly, thanks especially to the Parodi decrees, a fact that a number of knowledgeable observers at the time were pointing out, at least with respect to the private sector, by the early 1950s.<sup>83</sup>

The second important difference between the wage developments brought about, respectively, by the two world wars is precisely the contrast between the public and private sectors: during both the compression phase and the restoration phase, public-sector wages appear to have played a much less important role in the developments resulting from the Second World War. Indeed, except for the years 1940–1941, the public-sector wages during the Second World War were never completely frozen; pay increases happened constantly, and though they were generally larger for modest wage earners than for the highest earners, the latter were never completely forgotten, and a reform carried out in 1943 even tried to “restore order” by re-widening the public wage scale a bit.<sup>84</sup> The contrast vis-à-vis the First World War was considerable, since the latter was accompanied by a total public-sector wage freeze for six consecutive years, from 1913 to 1919, which led to an exceptionally sharp compression of public-sector wage hierarchies. The case of public-sector wages probably illustrates a more general difference between the two world wars: namely, by the second conflict, inflation to a large extent had become customary; no one any longer expected prices to return to their previous levels, and this explains why the process of granting wage increases unfolded far more rapidly, especially in the public sector, which had experienced particularly sluggish pay increases after the First World War. In such circumstances, it makes perfect sense that the impact of the Second World War inflation on real-wage inequality should have been both smaller and less lasting than that of the First World War, and that public-sector wages should have played a smaller role in the process (especially because the share of public-sector workers among “non-blue-collar” wage earners was declining structurally over time and was already significantly smaller on the eve of the second war than it had been on the eve of the first).

Moreover, in contrast to what had happened in the 1920s—when governments had explicitly sought to reestablish the public-sector wage hierarchies of 1914, especially in the major public-sector pay hike of 1927–1931—the corresponding measures adopted after the Second World War were far more modest. In particular, although the complexity of the reclassifications that were carried

out makes comparisons with the prewar period difficult, and while various mechanisms were developed in the 1950s to try to restore the wage spread somewhat (“hierarchical bonuses,” senior civil servants placed “outside the scale,” etc.), the measures adopted in 1945, and especially the new public-sector wage scale adopted in 1948 (simultaneous with the general civil service statute), led to a wage scale that was significantly narrower than that of 1914 or 1930, so that public-sector wage hierarchies do not appear to have ever regained their levels from before the world wars.<sup>85</sup> Thus it would seem that the growth of wage inequality in the 1950s–1960s was led by the private sector, and that the public sector lost the animating role it had had in the 1920s–1930s.

Indeed, the available data show a quite exceptional increase in the private-sector wage gap between blue-collar workers and white-collar professionals and managers over the 1950s and 1960s, at least until 1967–1968.<sup>86</sup> Our estimates indicate that 1967–1968 was also when the share of total wages going to the best-paid 10 percent of wage earners reached its highest level in history, nearly 28.5 percent.<sup>87</sup> The available data make it difficult to arrive at any precise estimate of the top-wage share of total wages before 1919, but information from the public-sector wage scales does make it possible to estimate that the share going to the best-paid 10 percent of workers had not exceeded 25–26 percent on the eve of the First World War,<sup>88</sup> so that the level reached in 1967–1968 was indeed the highest of the century. Also, our estimates show that the topmost wage earners played a key role in this development: in 1967–1968, the share of total income going to the best-paid 10 percent of wage earners exceeded its 1932 peak only slightly (28.4 percent versus 28.1 percent), whereas the share going to the top 5 percent of wage earners was more than 20 percent in the 1960s (while having never exceeded 18.5 percent in the interwar period), and the share going to the top 1 percent reached 8–8.5 percent in the 1960s (whereas it never surpassed 7–7.5 percent in the interwar period).<sup>89</sup>

The rupture that took place in 1968, like that of 1936, shows up just as clearly in the wage declarations as it does in the income tax returns: starting in 1968, the share of total wages going to the best-paid 10 percent of wage earners suddenly began to decline, and this decline continued in a relatively steady fashion throughout the 1970s and until 1983. By the end of this 15-year decline, the share going to the top 10 percent of wage earners had thus risen from around 28.5 percent in 1967–1968 to around 25.5 percent in 1983, on a par with its level

in the early 1950s, before the period of rising inequality in the 1950s–1960s had made its effects felt.<sup>90</sup> Like the phase of widening wage inequality, this period of compression was particularly pronounced for the topmost wage earners: the share of total wages going to the best-paid 5 percent of wage earners, which approached 20 percent on the eve of the May 1968 events, was less than 17 percent in 1983, and the top 1 percent share, which exceeded 8 percent on the eve of the May 1968 events, was less than 6 percent in 1983.<sup>91</sup>

There can be no doubt that the rupture of 1968, like that of 1983, was the result of an abrupt shift in the government's wage policies, especially its policy toward the minimum wage. The extremely rapid growth of the minimum wage between 1968 and 1983 led to a very high rate of wage inflation, which was transmitted to low- and mid-level wages as a whole, while the highest wage earners experienced more "normal" growth, hence the large decline in the top-wage share of total wages (especially for the topmost earners). The establishment of a minimum wage in 1950 (the *salairé minimum interprofessionnel garanti*, or SMIG) in no way signaled that the government was seeking to reduce wage inequality; rather, the law of February 11, 1950, was generally interpreted as a sign that the government was disengaging from wage policy, especially in comparison to the endless and relatively heavy-handed interventions of 1944–1950, which often affected the entire wage hierarchy (flat-rate bonuses, the Parodi decrees, differential bonuses, etc.). The creation of the SMIG meant that the government would henceforth leave the job of setting wage rates to the social partners and the "market," and that it would limit itself to setting a minimum wage below which no wage could fall. Indeed, the minimum wage created in 1950 played a truly minimal role as the purchasing power of the SMIG rose by barely 25 percent between 1950 and 1968,<sup>92</sup> while that of the average wage more than doubled in the same period,<sup>93</sup> as did the average wage for blue-collar workers,<sup>94</sup> which means that on the eve of May 1968 very few wage earners were directly affected by the SMIG. The 20 percent pay increase adopted in the Grenelle accords radically changed the situation: the symbolic decision to replace the SMIG with the SMIC (*salairé minimum interprofessionnel de croissance*; interoccupational minimum wage for growth) and to replace automatic inflation indexing with automatic indexing to the average blue-collar wage was made not long afterward (law of January 2, 1970), and most importantly, every successive government of the 1970s felt compelled to grant a significant

“bump” in the SMIC. The rupture with the 1950–1968 period was clear and massive. Between 1968 and 1983 the purchasing power of the minimum wage rose by more than 130 percent,<sup>95</sup> while in the same period the average wage grew by only about 50 percent;<sup>96</sup> hence there was a very sharp narrowing of wage disparities.

The rupture of 1983 was just as sharp: after a final large “bump” in 1981, increases in the SMIC after 1982–1983 were most often limited to the legal minimum, and the infrequent “bumps” never exceeded 2 percent. Yet the 1983–1998 period was very different from the 1950–1968 period from the point of view of wage inequality. Between 1983 and 1998 the purchasing power of the average wage grew by barely 10 percent; therefore since 1983, the very slow growth in the purchasing power of the minimum wage has simply reflected the very slow growth in the purchasing power of wages in general, rather than a structural decoupling of the minimum wage from other wage levels.<sup>97</sup> In fact, our estimates indicate that after a slight increase between 1983–1984 and the end of the 1980s, the top-wage share of total wages appears to have stabilized in the 1990s, at around 25.5–26 percent for the share going to the top 10 percent of workers, 16.5–17 percent for the top 5 percent share, and very slightly below 6 percent for the top 1 percent share.<sup>98</sup> In other words, the 1983 rupture clearly put an end to the period of narrowing wage inequality that began in 1968, yet it did not lead to a new period of persistently rising wage inequality. It should be noted, however, that the apparent stabilization of the top-wage share of total wages observed in the 1980s–1990s concerns only full-time wage earners, the only workers taken into account in our estimates. Yet, as in the crisis of the 1930s, the increase in unemployment of the 1980s–1990s was accompanied by significant growth in precarious and intermittent work, especially part-time work. If we measure wage inequality not just for full-time workers but also for all employed wage earners, whatever their working time, which can be done with available data for the 1990s, we observe a nontrivial increase in wage inequality, rather than a stabilization, over the 1990s.<sup>99</sup>

Let us conclude by noting that our analysis of short- and medium-term fluctuations in the top-wage share of total wages has allowed us to confirm the entire periodization that our analysis of fluctuations in top-income shares of total income suggested. In particular, the fluctuations analyzed here fully confirm one of the principal findings of Chapter 2: the history of inequality in twentieth-century France was an eventful one, and the main ruptures in the story were



those of twentieth-century France's general political history (the two world wars, 1936, 1968, 1983, etc.). As for wage inequality more specifically, we must again emphasize that periods of falling inequality were always offset by periods of rising inequality, so their effects were always purely temporary; unlike income inequality, wage inequality experienced no major structural transformation in France over the twentieth century.

#### 2.4. Errors Introduced When Comparing “Archetypal Workers”

We should add that the very high degree of long-term stability in top-wage shares of total wages does not, obviously, mean that we would find the same stability if we tried to measure the long-term evolution of wage distributions by comparing wages for a few categories of “archetypal workers,” hastily assumed to be representative of broader trends. Studying short- and medium-term fluctuations in the wage hierarchy has just shown us how useful an analysis of wage differentials between various categories of “archetypal workers” (blue-collar workers, public-sector workers, high-level white-collar workers, etc.) can be. Such occupational and sectoral data can help us put some “flesh” on an otherwise rather arid story about fractiles, and most importantly, they help in formulating hypotheses about the evolution of wage inequality for periods when the meagerness of available sources makes it impossible to properly estimate wage developments in terms of fractiles. In fact, over short periods—that is, when worker headcount levels and the representativeness of the various categories remain more or less the same—studying the evolution of wage gaps between these “archetypal workers” generally provides an acceptable sense of the overall evolution of the wage hierarchy, at least to a first approximation. But over long periods, that is, when the socioprofessional structure of the workforce is radically changing, occupational and sectoral data must be handled with the greatest caution, because only by using concepts such as deciles, centiles, and so on, can the long-term evolution of overall inequality be properly measured. These difficulties arising from the use of occupation and sectoral data can lead to significant errors of interpretation, and we feel it will be useful to dwell a bit on these complications.

Let us start with the example of blue-collar workers (*ouvriers*). Given that blue-collar workers represented three-quarters of wage-earning employment at the start of the century, and that they represent only one-fourth at the end of



the century, it is perfectly natural to expect wage inequality among such workers to have been much greater at the beginning of the century than at its end. In fact, although we lack data that could tell us the precise evolution of the occupations held by various “high-wage worker” fractiles going back to the beginning of the century, there can be no doubt that at the beginning of the century the highest-paid 10 percent of wage earners included a fair number of blue-collar industrial workers. By definition, these “high-wage blue-collar workers,” who were mainly found in the most dangerous and / or highly skilled blue-collar industries, for example, mining or stone-cutting, constituted a very small minority of the total number of blue-collar workers, but they could receive wages that were 4 or 5 times those of blue-collar workers in agriculture or the lowest-paid domestic workers; these latter social categories have almost entirely disappeared today, so it would be difficult to find such disparities among blue-collar workers at the end of the twentieth century.<sup>100</sup> Thus, while wage gaps between different blue-collar occupations appear to have narrowed over the course of the century, clearly such a compression tells us nothing about the evolution of overall wage inequality (all wage earners included); in particular, it tells us nothing about the evolution of the top-wage share of total wages.

We may also note that the position of industrial blue-collar workers within the wage hierarchy continually deteriorated over the course of the century: according to the available estimates, the average wage of all wage-earning workers was practically identical to the average industrial blue-collar wage at the beginning of the century, but it was about 10–15 percent higher on the eve of the Second World War, and about 30 percent higher in the 1990s.<sup>101</sup> The decoupling of industrial blue-collar workers from the average wage obviously does not mean that wage inequality increased over the course of the century. Here again, the phenomenon is just the mechanical result of changes in the employment structure. At the beginning of the century, almost 30 percent of wage-earning workers were farm laborers, and nearly 10 percent were domestic workers, so blue-collar industrial workers held roughly a median-level position (or above the median) within the wage hierarchy; it is therefore not surprising that the average wage of industrial blue-collar workers was not far from the average wage. According to estimates from Alain Bayet, we can even say that the average wage of blue-collar industrial workers was about 10–20 percent higher than the average wage in the mid-nineteenth century, a time when farm la-

borers and domestics alone made up more than half of total wage employment.<sup>102</sup> In the late twentieth century, these groups lying below blue-collar industrial workers in the wage scale have practically disappeared, so that the average blue-collar wage is much lower than the average wage for all workers, with an (average wage) / (average blue-collar wage) ratio of around 1.3. It must be emphasized that this ratio would be even higher had new categories of workers poorer than industrial workers not appeared, notably in the form of cashiers in large retail stores and restaurant waiters, who have become far more numerous than before, while remaining numerically less important than the farm workers and domestics of yesteryear, and who in the late twentieth century make up the majority of *smicards* (minimum-wage workers), to such an extent that the average wage of *ouvriers* surpassed the average wage of *employés* in the early 1990s.<sup>103</sup> All these phenomena are obviously quite interesting in and of themselves, but they reflect the evolution of the socioprofessional makeup of the workforce, not the structural evolution of the wage hierarchy (all workers included).

In the same way, the very strong growth in the number of *cadres* (skilled white-collar professionals and managers) means that extreme caution is needed when studying the evolution of the wage hierarchy by separating the *cadres* from the *ouvriers*. Indeed, the “proliferation of cadres” phenomenon means one should quite naturally expect the gap between the average wage of skilled white-collar workers and the average wage of blue-collar workers, and *a fortiori* between the average wage of white-collar workers and the average wage overall, to have had a downward trend over the course of the century, yet without any genuine compression in the wage hierarchy, as measured by top-wage fractiles. Indeed, analysis of employer wage declarations and the socioprofessional nomenclatures developed by INSEE since the Second World War allow us to observe that such a phenomenon did actually take place, and it did so in an extremely pronounced way: the ratio between the average wage of high-level white-collar professionals (*cadres*) and the average wage of blue-collar workers (*ouvriers*) was slightly above 4 in the early 1950s but was only about 2.5–2.6 in the late 1990s, a decline of nearly 40 percent in a half-century (see Figure 3-7).<sup>104</sup> Can we deduce from this that wage inequality fell by nearly 40 percent between the 1950s and 1990s? Obviously not. In fact, in both the 1950s and the 1990s, the highest-paid 10 percent of workers received wages around 2.5–2.6 times the

## THE EVOLUTION OF INCOME INEQUALITY IN FRANCE

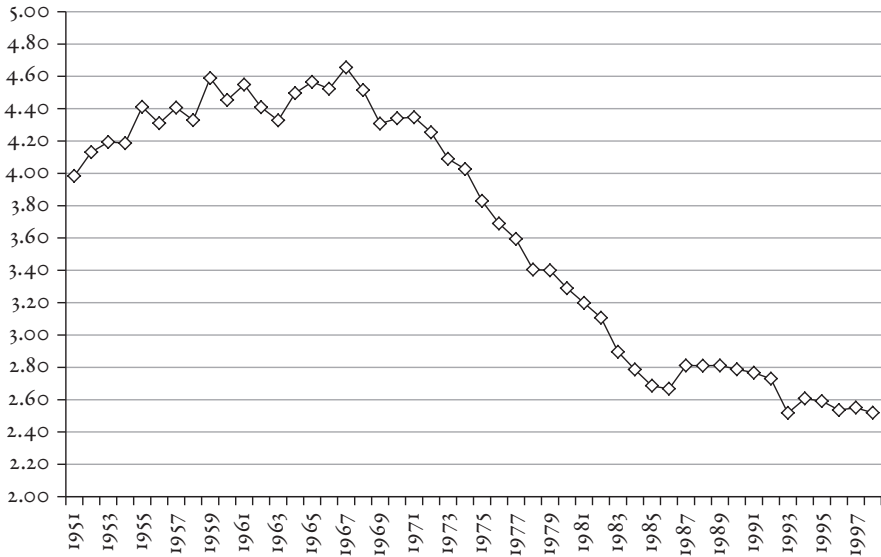


FIGURE 3-7. The ratio between the average wage of *cadres supérieurs* (skilled managers and professionals) and the average wage of *ouvriers* (blue-collar workers) in industry from 1951 to 1998

Source: Column (9) of Table E-2 (Appendix E)

average wage, the top 5 percent of workers received a wage around 3.4–3.6 times the average wage, the top 1 percent of workers received a wage around 6–7 times the average wage (see Figures 3-2, 3-4, and 3-6), and as we will see later in this chapter, we find the same long-term stability for the entire wage hierarchy, from the lowest to the highest. In other words, the ratio between the average wage of high-level white-collar professionals and managers (*cadres*) and that of blue-collar workers declined by 40 percent over the second half of the century, but inequality measured in terms of fractiles remained extremely stable. This “paradox” is explained very simply: fewer than 500,000 *cadres* were tallied in the 1950s, but we have more than 3 million in the 1990s, so that the high-level *cadres* of the 1950s represented a much narrower elite (relative to the society of the time) than the high-level *cadres* of the 1990s. This means, for example, that to be among the highest-paid 1 percent of wage earners, one only needed to be a relatively “average” high-level *cadre*, whereas in the 1990s one would have had to be a much “higher-level” high-level professional. These results also demonstrate the altogether extraordinary nature of the increase in

wage inequality in the 1950s–1960s, for despite the structural increase in the percentage of *cadres supérieurs*, the ratio between their average wage and that of *ouvriers* rose from just over 4 in the early 1950s to more than 4.6 on the eve of May 1968.

These results, which can also be seen at the income level (the income gap between tax units of *cadres supérieurs* and those of *ouvriers* declined sharply between the 1950s and the 1990s, yet income inequality measured in terms of fractiles remained extremely stable),<sup>105</sup> probably represent the best illustration of the fact that occupational and sectoral data must be handled with a great deal of caution when studying the evolution of long-term inequality, even when the occupational categories used are defined in as precise and rigorous a manner as are the socioprofessional categories developed by INSEE. Here we see the limits of analysis of inequality in terms of socioprofessional categories. Thus, it goes without saying that when one has occupational and sectoral data that are defined in an extremely imprecise and shifting way, as is generally the case for periods prior to the Second World War, the greatest caution is essential. Some scholars, such as Christian Morrison, have presented data for the early part of the century indicating a ratio between the wage of *cadres supérieurs* and that of *ouvriers* that is significantly higher than the ratios seen at the end of the century.<sup>106</sup> But the estimates for the early part of the century are based on extremely partial data (wages for machinists in Saint-Gobain, in this case).<sup>107</sup> Given that such ratios often vary spectacularly depending on the sector or company,<sup>108</sup> it is extremely difficult to know whether these estimates are representative at the national level. Also, and most importantly, in an optimistic scenario in which they are representative, the example of the 1950–1998 period has shown us how “normal” a phenomenon the long-term decline in the average-wage ratio between *cadres supérieurs* and *ouvriers* was, from which it is impossible to deduce anything precise about the true evolution of the wage hierarchy. As noted cautiously by Christian Morrison himself, the strong growth in the number of *cadres* means that such data are entirely inadequate to conclude that there was a long-term decline in French wage inequality in the twentieth century.<sup>109</sup> Unfortunately, not all researchers have shown the same caution. In particular, Jean Fourastié, in his many publications, tried vigorously to defend the thesis of a very large long-term decline in income and wage inequality in France, and he did so by relying solely on data concerning the wages of a few very senior public employees (Counselor of State, first president of the Public Comptroller’s Office, professor at the

College de France, etc.), and then noting a large long-term decline in the ratio between their wage and that of a “provincial laborer,” or the ratio between their wage and that of their “office boy.”<sup>110</sup> Fourastié’s conclusions raise numerous problems. First and foremost, the fact that Fourastié refers solely to data concerning very high-level government agencies is obviously unacceptable: wage hierarchies in the public sector appear to have had even more difficulty recovering from the shocks caused by the two world wars than did the private sector, so to posit the hypothesis that the long-term evolution of public-sector wage inequality was representative of the long-term evolution of wage inequality in general is utterly impossible. The question of wage inequality among public-sector workers is a very interesting one, but it should not be confused with that of wage inequality in general, and even less with income inequality.

In addition, even if we agree to restrict ourselves to the highly interesting (but very specific) case of public-sector workers, the problem is that the data gathered by Fourastié are far too fragmentary to permit proper study of the long-term evolution of public-sector wage inequality. Fourastié merely indicates the wages received by a few categories of public workers, covering a few isolated years, and he never provides the slightest information about the numbers of public workers that these wages concerned. In particular, Fourastié totally ignores the “proliferation of *cadres*” phenomenon, which also involved the public sector (the number of *cadres* sharply increased among government workers, as they did in all sectors), and which means that one must be wary of ratios like (wage of Counselor of State) / (wage of office boy), just as one must be wary of ratios like (wage of higher-level *cadres*) / (wage of *ouvriers*). Before drawing conclusions about a long-term decline in public-sector wage inequality, and especially before seeking to understand why the public sector would have experienced such a specific long-term evolution, one would first have to gather systematic data on every public-sector wage scale in effect from the start of the century to the 1990s, as well as the numbers of public workers belonging to each of the wage-scale levels from each of the periods.

To our knowledge, no such work has ever been done; many authors (including Fourastié) have used fragmentary data concerning the wages of a few categories of public workers,<sup>111</sup> but no one seems to have undertaken a systematic effort to collect data from budget documents and the various administrative sources available.<sup>112</sup> It is quite possible that such an effort would yield the conclusion that the share of total public-sector wages going to the highest-paid

10 percent of workers (or even the highest-paid 1 percent of workers) actually underwent long-term changes that were far more measured than what Fourastié's data, which cover only a handful of very senior civil servants, would lead one to believe. We would also note that the likely long-term decline in the share of total public-sector wages going to the best-paid 0.1 percent or 0.01 percent of public workers was much less linear than Fourastié would lead one to think. For example, the Counselors of State so dear to Fourastié actually almost returned to their 1914 relative position at the end of the big public sector-pay increase that took place during the years 1927–1931,<sup>113</sup> and it was the absence of a similar increase at the end of the Second World War that seems to have caused very senior civil servants to lose ground in the twentieth century.<sup>114</sup> An effort of this kind would make it possible to estimate precisely the weight of public-sector workers within the various “high-wage wage-earner” fractiles in different periods, and especially over the course of the interwar period, when public-sector wages seem to have played such a large role. The rise of private-sector workers within the group of “non-blue collar” wage earners, as well as the private sector's more complete reconstitution of wage hierarchies after the Second World War, suggest that the share of public workers among “high-wage wage earners” experienced a significant decline over the century, but this would obviously have to be clarified. Finally, let us note that the beginning of the erosion in the relative position of very high-level civil servants seems to date back to the French Revolution: according to data gathered by Fourastié, the nominal wage of Counselors of State (and a few other very high-level civil servants) was higher in the early nineteenth century than at the start of the twentieth century. Thus it is possible that the very specific case of public-sector wages can be properly grasped only by examining the profound changes undergone by the very notion of the “public sector” since the late eighteenth century. It goes without saying that such an effort would far exceed the scope of this book.

In any event, Jean Fourastié's hasty generalizations, which stand in peculiar contrast to the rigor and attention to detail with which he put together hundreds of individual price series making it possible to measure the long-term growth of purchasing power,<sup>115</sup> seem to reflect a more general phenomenon: the question of an inexorable decline of inequality in a capitalist system has always been a matter of considerable political contention, especially in an age when capitalism was still being radically called into question, and it must be recognized that Fourastié is not the only author to have sought out this optimistic conclusion without taking

all necessary precautions.<sup>116</sup> If it seemed to us that this obvious lack of rigor needed to be pointed out, it is not only for methodological reasons. The problem is that the sparse data gathered by Fourastié, which have very often been repeated in popularizing articles on the subject of inequality,<sup>117</sup> present an image of diminishing inequalities that is quite different from that which our findings allow us to present.

Fourastié's data, and especially the interpretations he draws from them, leave the impression that the narrowing of differentials was a continuous phenomenon, practically a "natural" one, without its own periodization, and perhaps the result of inequality of compensation among different kinds of human labor becoming less and less accepted over time. Our results show incontestably that this is not the case: if we consider wage earners as a whole, we see that in reality pay differentials between the average worker and the highest-paid 10 percent of workers, 5 percent of workers, 1 percent, and so on, were practically unchanged over the twentieth century, and that every period of declining wage inequality was compensated by periods of rising inequality (and vice versa). The different kinds of human labor were completely transformed, yet the hierarchy of how they were compensated remained the same. Our results indicate very clearly that the decline in the top-income share of total income between the century's two endpoints is solely explained by the collapse and nonreconstitution of the topmost capital incomes, a phenomenon that has nothing to do with the question of wage inequality, and which most importantly looked nothing like a "natural" or "spontaneous" economic process; the collapse of very high capital incomes took place at very precise moments of very brief duration, not in a continuous, gradual, or irreversible manner.

### 3. *What Do We Know about the Evolution of Inequality at the Bottom of the Distribution?*

So far, we have measured the evolution of inequality by examining only the evolution of various top-wage fractiles of total wages (or, in Chapter 2, the evolution of the income shares of the various top-income fractiles). As was explained in the Introduction, this choice was justified because the primary purpose of this book is to examine the incomes of the most advantaged social categories, as well as the fact that available sources covering long-term inequality at the bottom of



the distribution are much rarer. In addition, the top-wage share of total wages is an excellent indicator of the overall evolution of wage inequality (just as the top-income share of total income is an excellent indicator of the overall evolution of income inequality). For example, it is hard to imagine that a strong increase or decrease of inequality could take place solely within the bottom 9 deciles of the distribution, while leaving the top-decile share of the total unchanged. However, it cannot be ruled out that focusing exclusively on the top decile and its position vis-à-vis the average might sometimes allow important phenomena to be lost, and any additional information on the bottom or the middle of the distribution is thus welcome. One reason why examining wage inequality is of interest is precisely the existence and availability of long-term data about the bottom of the distribution. We will begin by examining what these data permit us to say about the evolution of inequality between low- and mid-level wages (section 3.1), and then we will see what they allow us to deduce about the evolution of inequality between low- and mid-level incomes (section 3.2)

### 3.1. The Evolution of Inequality between Low- and Mid-Level Wages

For the 1950–1998 period, the statistical analyses of employer wage declarations carried out by INSEE afford us a very good understanding of the entire wage distribution and its evolution, from the first decile to the tenth decile. In measuring inequality between the two extremes of the distribution, one frequently used indicator is the  $P_{90} / P_{10}$  ratio. Recall that  $P_{90}$  is the bottom threshold of the 10th decile, and that  $P_{10}$  is the top threshold of the 10th decile: thus,  $P_{90} / P_{10}$  measures the ratio between the wage that must be exceeded in order to belong to the highest-paid 10 percent of workers and the wage below which one would have to go in order to belong to the least-paid 10 percent of workers. Figure 3-8 indicates that over the 1950–1998 period the  $P_{90} / P_{10}$  ratio evolved entirely in line with the periodization discussed earlier:  $P_{90} / P_{10}$  grew very rapidly between 1950 and 1967–1968, rising from about 3.2–3.3 in the early 1950s to nearly 4.2 on the eve of the May 1968 events, which corresponds to the period of sharply rising wage inequality in France. Then  $P_{90} / P_{10}$  declines just as rapidly over the 1968–1983 period, which corresponds to the “great compression” period of wage inequality, which was driven by the very large increase in the



minimum wage; finally,  $P_{90} / P_{10}$ , after reaching a minimum level of about 3.1 in 1983–1984, rose again over the subsequent years and stabilized at around 3.2–3.3 in the 1990s, which again corresponds to the movements observed for the top-wage share of total wages.

Ultimately, in the 1990s the  $P_{90} / P_{10}$  ratio, like the top-wage share of total wages, returned to its level from the 1950s. In both the 1990s and the 1950s, the wage level that had to be exceeded in order to belong to the highest-paid 10 percent of workers was around 3.2–3.3 times higher than the wage below which one had to belong to the lowest-paid 10 percent of workers (see Figure 3-8). For the 1990s, the orders of magnitude are familiar, and particularly easy to remember: the  $P_{10}$  threshold corresponds to a wage of about 5,000 francs per month (about 60,000 francs per year), and the  $P_{90}$  threshold corresponds to a wage of about 16,000 francs per month (about 200,000 francs per year).<sup>118</sup> In other words, lowest-paid 10 percent of workers are minimum-wage workers, and the highest-paid 10 percent of workers are those who earn at least 3.2–3.3 times what the minimum-wage workers earn.<sup>119</sup> The key fact is that these disparities were exactly the same in the early 1950s, a period when all real wages were almost 4 times lower than in the 1990s.<sup>120</sup>

An even more expressive way to get a sense of the very high degree of long-term stability in the overall wage distribution over the 1950–1998 period is to express the  $P_{10}$  and  $P_{90}$  thresholds, as well as the  $P_{50}$  threshold (that is, the median wage), as a function of the average (mean) wage (see Figure 3-9). The long-term stability of these ratios is truly impressive: the  $P_{10}$  always corresponds to about 40–50 percent of the average wage, the  $P_{50}$  always corresponds to about 80–85 percent of the average wage, and the  $P_{90}$  always corresponds to 150–170 percent of the average wage. To be sure, we do observe variations, which correspond to the short- and medium-term fluctuations already noted: the  $P_{10}$  falls to 40 percent of the average wage on the eve of May 1968, while at the same time the  $P_{90}$  threshold rises to 170 percent of the average wage (hence the nontrivial increase in the  $P_{90} / P_{10}$  shown on Figure 3-8). But the fact is that these are chart-run fluctuations, and by the 1970s, the  $P_{10}$  threshold returned to its “usual” level (about 50 percent of the average wage), as did the  $P_{90}$  threshold (about 160 percent of the average wage). The “typical” wage hierarchy in the 1950–1998 period might thus be described in the following way: 10 percent of workers earn less than 50 percent of the average wage (generally speaking, very slightly less); 40 percent of workers earn between 50 percent of

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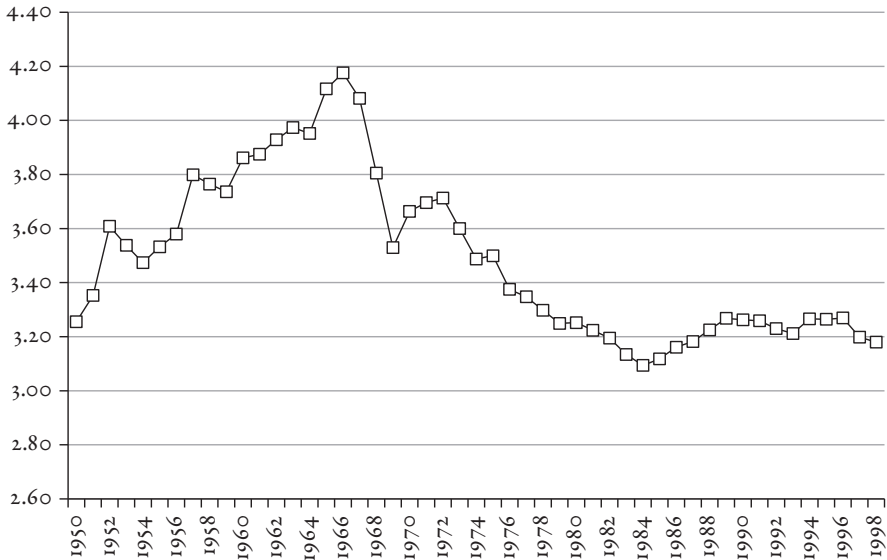


FIGURE 3-8. The P<sub>90</sub> / P<sub>10</sub> ratio for the wage distribution from 1950 to 1998  
*Source:* Column (14) of Table D-12 (Appendix D)

the average wage and 80 percent of the average wage; 40 percent earn between 80 percent and 160 percent of the average wage; 10 percent earn more than 160 percent of the average wage; on average, this 10 percent of workers earning more than 160 percent of the average wage earn about 2.5–2.6 times the average wage, that is, about 5 times more than the lowest-paid 10 percent. In the 1990s, the average wage of the highest-paid 10 percent of workers was around 25,000–26,000 francs per month (about 310,000–320,000 francs per year),<sup>121</sup> thus about 5 times higher than the 5,000 francs per month of the minimum-wage workers. The same was true in the early 1950s, when the average real wage was almost 4 times lower.

What about before 1950? Given the fact that by the interwar period, and very probably earlier in the century, the share of total wages going to the highest-paid 10 percent of workers had settled at the same level it had been in 1950–1998, and given the very high degree of stability in the P<sub>10</sub>, P<sub>50</sub>, and P<sub>90</sub> thresholds over the course of the 1950–1998 period, with relative positions vis-à-vis the average wage remaining confined to the same purely temporary fluctuations as the top-wage share of total wages, it seems logical to suppose that, in

## THE EVOLUTION OF INCOME INEQUALITY IN FRANCE

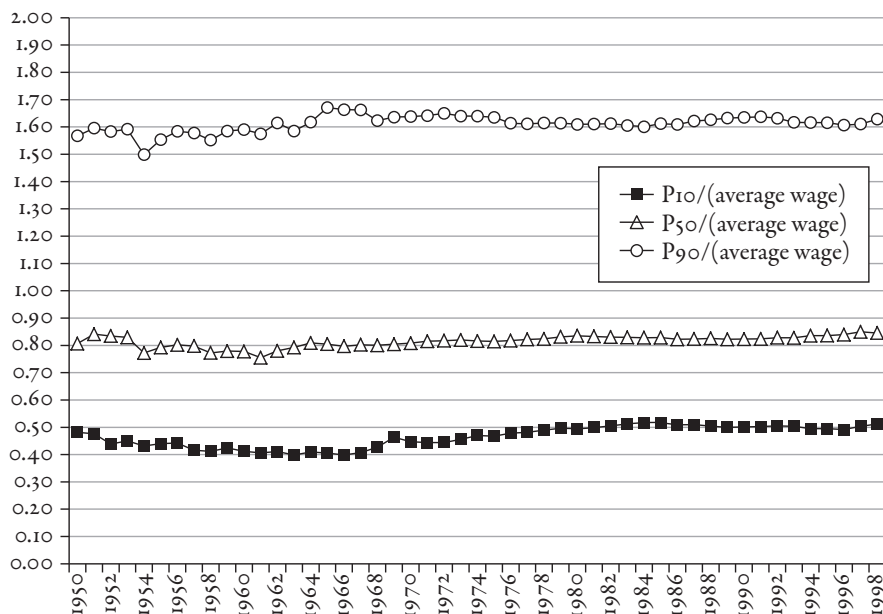


FIGURE 3-9. The position of the P<sub>10</sub>, P<sub>50</sub>, and P<sub>90</sub> thresholds of the wage distribution vis-à-vis the average wage from 1950 to 1998

Source: Columns (11), (12), and (13) of Table D-12 (Appendix D)

fact, the entire wage hierarchy barely changed over the course of the twentieth century. It might also be pointed out that our estimates derived from employer wage declarations show that in the interwar period the P<sub>90</sub> settled at around 150–170 percent of the average wage (except for the accident of the 1919–1921 years, when the P<sub>90</sub> just barely reached 140 percent of the average wage),<sup>122</sup> just as it did in the second half of the century. It would be very surprising if the median wage in the interwar period and earlier in the century were very far from about 80–85 percent of the era’s average wage, or if the P<sub>10</sub> threshold of the interwar years were very far from about 40–50 percent of the era’s average wage. The data we possess for very low wages in the first half of the century fully confirm our hypothesis. Indeed, we observe that the lowest wage levels received by domestic workers settled in every period at about 40–50 percent of the average wage: on the eve of the First World War, the wage (in current francs) of “female servants,” “chambermaids,” and “manservants” was typically around 500–600 francs per year (slightly less for the first of these, slightly more for the last), at a

time when the average wage was around 1,200 francs per year; in the 1930s, the average wage for the same categories of domestics was about 4,000 francs per year, at a time when the average wage was about 9,000 francs per year; in 1950, the wage for the same categories of domestics was close to 100,000 francs per year, at a time when the average wage was about 230,000 francs per year; and so on.<sup>123</sup> It should be clarified that these are wages received by domestic workers in the French provinces, so it is hard to imagine categories of workers that could have had lower wages. We should also add that domestics represented nearly 10 percent of wage-earning employment in the early part of the century, and between 5 percent and 10 percent in the interwar period, so that these wages may be considered rather good estimates of the lowest 10 percent of wages prevailing during these periods. We thus see that in both the early part of the century and the interwar period, the fact that the lowest-paid 10 percent of workers received about 25–26 percent of total wages means that their average wage, about 2.5–2.6 times higher than the average wage of all workers, was also about 5 times higher than the average wage of the lowest-paid 10 percent of workers.

The data we have—though very incomplete for the first half of the century—thus allow us to conclude that it was the entire wage hierarchy (not just the position of high-wage earners vis-à-vis the average wage) that appears to have been characterized by a very high degree of long-term stability in France in the twentieth century.

### 3.2. The Evolution of Inequality between Low- and Mid-Level Incomes

What can we conclude about income inequality? As we saw in the Chapter 2, the gap between the incomes of the “middle classes” (fractile P90–95) and the average income overall was characterized by a very high degree of long-term stability: beyond the short- and medium-term fluctuations, the average income of the “middle classes” (fractile P90–95) always returned to levels around 2.2–2.3 times the average income for all household tax units. Our estimates also point to a very high degree of stability in the position of the P90 threshold vis-à-vis the average: throughout the twentieth century, apart from short- and medium-term fluctuations, the threshold that had to be exceeded in order to belong to the best-off 10 percent of household tax units always settled at around

180–200 percent of average income per tax unit.<sup>124</sup> The results presented in this chapter have allowed us to confirm that this stability is explained by the very high degree of inertia in the position of the top 10 percent of wages vis-à-vis the average wage. If we hypothesize that the lowest 10 percent of incomes correspond approximately to the lowest 10 percent of wages, we may deduce from the stability in the gap between the lowest 10 percent of wages and the average wage that the gap between the lowest 10 percent of incomes and the average income was also characterized by a very high degree of long-term stability in twentieth-century France. We would thus arrive at the conclusion that the only important alteration in French income inequality in the twentieth century arose from the collapse in the position of the topmost incomes: the gap between the incomes of the “200 families” (fractile P99.99–100) and the average income overall, like the gap between the incomes of the “200 families” (fractile P99.99–100) and that of the “middle classes” (fractile P90–95), fell by a factor of about 5 between the century’s two endpoints, but the gap between the “middle classes” (fractile P90–95) and the poorest 10 percent—rather than just the gap between the “middle classes” (fractile P90–95) and the average income overall—remained approximately the same. Since the position of the “upper-middle classes” (fractile P95–99) vis-à-vis the average income overall varied just barely more than that of the “middle classes” (fractile P90–95), this very high degree of stability would then actually pertain to the poorest 99 percent of household tax units: below the top 1 percent—that is, once capital incomes begin playing a relatively negligible role—the income hierarchy would have hardly changed.

While it seems incontestable that income inequality within the poorest 99 percent of tax units experienced much less significant long-term changes than did inequality between the poorest 99 percent of households and the top 1 percent (and especially between the poorest 99 percent of tax units and the upper strata of the top 1 percent), the information we have is insufficient to conclude that there was complete long-term stability in inequality within the poorest 99 percent of tax units. Indeed, moving from wage inequality to income inequality, and especially from low wages to low incomes, is extremely complicated. For the 1990s, we have studies allowing us to observe that the more unequal character of the income distribution, as already noted in connection with the top-decile share and the position of the P90 threshold, also pertains to the position of the P50 and P10 thresholds: the median wage is typically around

80–85 percent of the average wage (see Figure 3-9), but the median income in the 1990s was around 75–80 percent of the average income;<sup>125</sup> the P10 threshold of the wage distribution is typically around 40–50 percent of the average wage (see Figure 3-9), but the P10 threshold of the income distribution in the 1990s was around 30 percent of the average income.<sup>126</sup> As a result, the P90 / P10 ratio of the income distribution was above 5 in the 1990s,<sup>127</sup> whereas it was around 3.2 for the wage distribution (see Figure 3-8). The more elongated nature of income distribution, and in particular the small size of the lowest incomes, is explained notably by the fact that the income distribution includes not only workers with a stable job, but also the unemployed, individuals working intermittently, modest retirees, small farmers, and so forth. In the 1990s, the lowest-income 10 percent of tax units all had less than 4,000 francs per month to live on, and their average income was less than 3,000 francs per month.<sup>128</sup> These incomes were significantly below the full-time minimum wage, showing that it is impossible to understand precisely how disparities between low and medium incomes evolved solely on the basis of the evolution of disparities between low and medium wages. Nonwage incomes must also be taken into account, especially social transfers received by the poorest 10 percent of households.

Actually, the *Revenus Fiscaux* studies carried out periodically by INSEE since 1956, and mentioned in the Introduction, and which despite their name also take into account some social transfers not declared to the tax authorities (including the *minimum-vieillesse* and family benefits), seem to point to a rather high degree of stability for the position of the median income (the P50 threshold always lies at about 75–80 percent of average income, and its position vis-à-vis the P90 threshold is therefore equally stable). But there was a significant narrowing of the gap between P10 and P50, even during periods when the top-income share of total income rose and wage inequality increased, so that the P50 / P10 ratio of the income distribution seems to have experienced a more or less continuous decline from the mid-1950s to the early 1980s, before stabilizing in the 1980s–1990s.<sup>129</sup> No similar study was ever carried out in France before 1956, but given the fact that social transfers experienced a continuous growth throughout the twentieth century,<sup>130</sup> it seems logical to suppose that this narrowing of income inequality at the bottom of the distribution did not begin in the 1950s, and that it was already at work in the first half of the century. We may also imagine that the very high number of tiny farm operations in the

early part of the century and the interwar era contributed to making the gap between the poorest 10 percent or 20 percent of tax units and the median or average income particularly large.<sup>131</sup>

Although the scenario of a downward trend in inequality at the bottom of the distribution seems the most likely, the fragility of the available data must be emphasized. It is extremely difficult to measure the level of small-transfer incomes received by households in need, especially due to the multiplicity of programs and mechanisms in play, just as it is extremely difficult to measure the level of small-farmer incomes, so that estimates of the P<sub>10</sub> threshold of the income distribution are always very fragile, even in the 1990s, and even more so over long periods. That is why one must always be wary of indicators like the P<sub>90</sub> / P<sub>10</sub> or P<sub>50</sub> / P<sub>10</sub>: the P<sub>10</sub> is often not far from zero, and all it takes is for certain transfer incomes to be better accounted for, for example, due to transfers becoming national rather than local, or assessments of farm income being revised upward (for example, due to better estimates of food self-provisioning), for the P<sub>10</sub> threshold to be dramatically increased, without actual income inequality at the low end of the distribution being any narrower.<sup>132</sup> By comparison, indicators like the top-income share of total income (or the high-wage share of total wages), which do not depend on slight shifts affecting the bottom of the distribution, are much more robust and generally experience far fewer chaotic changes, changes that can be traced year by year in the income tax returns, and whose plausibility can be confirmed by appealing to many other sources, such as macroeconomic data and data on top wages, as we have already seen.

#### 4. *Were Contemporaries Aware of These Facts?*

Let us move on now to the question of perceptions. How is it that the very idea of the “high-wage worker” seems to have taken so long to find a place in social representations of inequality, even though in reality the weight of high-level wages (relative to total wages) barely changed over the course of the century? To be more precise, it would seem that the most widespread way of describing social inequality long consisted of an almost dichotomous opposition between wage-earning workers and self-employed employers and capitalists, the former situated by definition in the lower portions of the income hierarchy and the latter occupying the upper portions, and that the idea that high-income

households often took the form of “high-wage workers,” and especially *cadres* (white-collar managers and professionals) only gradually prevailed over the second half of the century. How can this state of affairs be explained?

First, there is a need for modesty in respect to this diagnosis: we do not have, and will never have, opinion surveys making it possible to measure precisely the slow emergence of the “high-wage worker” concept over the twentieth century. And in fact, this concept was never really totally absent from political debate. It is particularly interesting to note that at the beginning of the century, supporters of the establishment of an income tax often asserted that the dizzying salaries of “directors of large corporations” in no way merited privileged tax treatment relative to the incomes of “small industrialists” or “small shopkeepers,” and even that “the schoolteacher, the tax collector, and the railroad employee are often rich compared to the small farmer or independent professional.”<sup>133</sup> Indeed, it might be said that the very fact of creating an income tax expressed a relatively “neutral” understanding of social inequality: in principle, such a levy was precisely a matter of taxing the entire income of the taxpayer, of whatever kind, without regard to whether it came from labor income, mixed income, or capital income. However, there are a number of indications that allow us to confirm that there is a certain validity to the idea that the “high-wage worker” concept emerged gradually.

A detailed study of income tax legislation, which will be undertaken in Part Two of this book, will no doubt offer us the most convincing indications. Indeed, the rules for calculating the tax, more than any other source of information, and more than abstract rhetoric in particular, best express the understanding that politicians had of income inequality and the social groups deserving of favor or disfavor, and it may be generally assumed that this understanding was not unrelated to the majority opinion of their time. As we will see, despite its “neutrality” in principle, and the rhetoric already quoted, the income tax was from its origins designed so as to significantly advantage wages, from the lowest to the highest, relative to mixed incomes and capital incomes of equivalent size, which would not fail to elicit very strong discontent from among the “small-scale” self-employed. It was only after the Second World War, and especially since the 1960s–1970s, that these advantages were ultimately dampened, while leaving traces in legislation that are still present.

Another very significant indication is furnished by the study of the socio-professional nomenclatures used in the census since the beginning of the



century. The fact that the nomenclatures in use before the Second World War merely contrasted “wage earners” (*ouvriers* and *employés*) with *patrons* (*chefs d'établissement* and “independent workers”) expressed in the clearest way possible an almost dichotomous understanding of social inequality. To be sure, these censuses did make it possible to observe that many of the self-employed were “small self-employed,” but they made it impossible to demonstrate the existence of “big-wage earners” and to tally their numbers. The disconnect between the concrete reality of “high-wage workers” on the one hand, practically unchanged over a century, and on the other hand the slow development of the social categories used to catalog these wage earners and give them a name, seems truly striking. The highest-paid 10 percent of workers, the highest paid 5 percent, 1 percent, and so on, occupied the same hierarchical positions throughout the century (relative to the average wage or low wages of their era), but only since the Second World War have the means been developed for classifying wage earners according to a true hierarchical scale and thus for making “high-wage workers” visible in the census, especially because of the invention of the *cadre* concept. Let us also recall that censuses before the Second World War classified all individuals who effectively managed a firm as *chefs d'établissement*, even in many cases when these individuals had a wage-earning status. This rule, which amounts to viewing the “head” (*chef*) of a capitalist firm as someone who can never entirely be a “wage earner,” whatever their formal status, testifies to a very high degree of suspicion toward the very idea of a “high-wage worker.” Finally, let us recall that this same rule is still applied by the socioprofessional nomenclature in effect for the 1980s–1990s (CEOs and board chairmen of public companies are part of the *chefs d'entreprise* category, and thus are not considered wage earners (*salariés*), despite their formal status), which shows that some early twentieth-century perceptions still have not entirely disappeared. How can the slow development of the “high-wage worker” concept be explained?

An initial, and obvious, explanation would be to blame the baneful, but happily declining, influence of Marxist ideology. According to Marxist theory, the decisive inequality in capitalist society arises from property in the means of production, and all wage earners, by virtue of their status, are condemned to exploitation and proletarianization. Moreover, there is nothing surprising about the considerable influence of these ideas, since this vision of a fundamentally

homogenous workforce inexorably destined to live in misery compared to capital owners, which in its most extreme form embodies pure dogmatism, also corresponds in its least extreme version to a fundamental regularity about income inequality in a capitalist system. As we saw in Chapter 2, workers have always tended to become rarer as one rises through the hierarchy of topmost incomes, and in particular, the highest incomes have always been made up principally of income not corresponding to any current labor, thus merely rewarding the ownership of capital accumulated in the past. It may well be argued that this is an inevitable and even legitimate regularity, and that to condemn it would be condemning saving and investment, but the fact is that if we go by this regularity, then the idea of an irreducible opposition between workers (including “high-wage workers”) and large owners of means of production is not unfounded.

The problem, obviously, is that this vision of the world captures only a part of reality: it amounts to sweeping under the rug the inequalities that exist among “workers” themselves, that is, among 99 percent of the population, which undeniably reflects a certain demagoguery (as we have seen, it is pretty much only for tax units of the top 1 percent, and especially those in the upper strata of the top 1 percent, that capital incomes cease to be merely supplementary). According to this explanation, the slow development of the “high-wage worker” concept should thus be laid at the door of a mélange of ideology and demagoguery, which in the end happily had to give way to the weight of reality (at least partially). This explanation probably captures part of the truth, but it seems to us somewhat limited. We think that the late emergence of the “high-wage worker” concept, and especially the notion of *cadre*, far from being simply the result of a partisan misunderstanding of the reality of income inequality, also reflected the dawning of a collective awareness of the major upheaval experienced by income inequality following the crises of the first half of the twentieth century, namely, the collapse and nonreconstitution of large fortunes. In other words, it was objectively more justifiable to “forget” that there were “high-wage workers” and high-income households living on wages in an era when the gap between the incomes of the “200 families” (fractile P99.99–100) and the average income, like that between the “200 families” and the “middle classes” (fractile P90–95), was around 5 times larger than it has been since 1945. At the beginning of the century and in the interwar period, the gap between very high capital incomes and the rest of the population, including “high-wage workers,” was so gigantic that the need

to have a name for “high-wage worker” seemed less pressing; the unmistakable target of any redistribution policy, “the 200 families,” was already known, and there seemed no point in looking any further. After the Second World War, awareness dawned that very large capital incomes had to a very great extent disappeared, or at least that they were far less numerous and far less elevated than in the past, and thus it became necessary to give a name to those high-income earners who lived on wages, which contributed to the birth of the *cadre* concept.

An obvious objection to this interpretation is that the statistical analysis of income tax returns, which has allowed us to demonstrate the collapse and non-reconstitution of large fortunes, had never been done until now. But the fact is that this phenomenon was of such a magnitude that it was impossible not to notice it: even if contemporaries were unable to quantify it in the same way that we have, and even if we have a hindsight that they obviously did not have, we think that those who lived through these events in real time were fully aware of the structural collapse of very high capital incomes. This hypothesis is confirmed by multiple indications. Here again, the most persuasive indications will be provided by the study of income tax legislation. We will see in Part Two of this book how successive governments after the Second World War put in place a whole series of mechanisms aiming to lighten the tax burden on capital incomes, clearly in hope of encouraging saving and the rebuilding of wealth-holdings destroyed by the war, to the point where the balance of taxation prevailing in the early part of the war and interwar period (characterized by higher taxation of capital incomes than of labor incomes), was completely reversed in the latter part of the century.

Another particularly clear indication will be furnished by an analysis of the evolution of tax-rate schedules. Since the Second World War, the highest brackets of the income tax schedule were set at structurally lower levels than in the interwar period or at the time of the initial creation of the income tax, as if it had come to be seen as inappropriate to point a finger at very high income earners who no longer existed. The evolution of the social categories used to catalog the population also testifies in its own way to this dawning of collective awareness. Indeed, it is particularly striking to note that at the end of the Second World War, at the very moment when the census first introduced the notion of *cadre*, it also stopped using *rentier*, a concept that had a place in every census prior to the Second World War. Of course, this category of *rentiers* must be handled with caution. As Adeline Daumard noted in his study of nineteenth-century

bequest declarations, among the deceased described by their heirs as “rentiers” or “rentier proprietors,” we find a very large number of retired individuals living off of very small state pensions or annuities, and even some individuals lacking any bequest to declare.<sup>134</sup> The same problem arises in all the censuses of the early twentieth century and interwar period, in which the category “*rentiers, proprietaries rentiers, retraités*, etc.” includes, among others, all retirees already participating in organized retirement systems (public workers, railroad employees, miners, “workers and peasants,” etc.), and more generally all “individuals without a paying occupation” who could not be fit into the categories “housewives solely engaged in housekeeping, children, schoolchildren, etc.,” “transients,” “incarcerated prisoners,” or “persons hospitalized, invalids, and the insane,” and there were no reliable statistical criteria to determine the share of genuine *rentiers* in the total.<sup>135</sup> The category “*rentiers, proprietaries rentiers, retraités*, etc.” used before the Second World War was thus an extremely heterogeneous category, as was the category “miscellaneous individuals without occupation,” a category which, in the censuses carried out after the Second World War, combined all “inactives” except for “retirees,” and which also included the rare individuals living off their rentier incomes.<sup>136</sup> The mere fact of appealing to the notion of *rentier* in the official nomenclatures was not neutral: it showed that individuals living mainly from capital incomes were part of the social landscape of the early twentieth century and interwar era, just as the abandonment of the concept testifies to the dawning of collective awareness that these individuals had very largely disappeared. The censuses had never made it possible to “see” the topmost capital incomes, but in an era when their presence was more imposing, the censuses at least made it possible to “glimpse” them. We may also note that the economists of the late nineteenth century and early twentieth century, when they tried to estimate the number and level of “high incomes,” relied exclusively on data dealing with wealth, and especially large bequests, to which they applied a flat rate of return to obtain the corresponding income level. They did not even try to take into account “high-wage workers,” since it seemed so obvious to them that a gulf existed between the topmost capital incomes and the incomes that could be reached by wage-earning labor.<sup>137</sup> This did not prevent these economists from being convinced free-market liberals all, deeply committed to the defense of the capitalist society of their time,<sup>138</sup> which shows the extent to which this way of doing things first and foremost reflected a certain reality, rather than being the baneful consequence of Marxist ideology.

Here we see the scope of the distance traveled between the twentieth century's two endpoints: from a world where recipients of "top incomes" were described and measured as the owners of large wealth-holdings to a world where "top incomes" were routinely analyzed using the scale of socioprofessional categories, a scale from which *rentiers* had disappeared, and which was now crowned by the category *cadres supérieurs* with their average income of barely 30,000 francs per month.<sup>139</sup> This evolution was clearly excessive, as "high-wage workers" already existed at the start of the century, and very high capital incomes still existed at the end of the century. But we think that it also reflected the dawning of the awareness of a quite real transformation, namely, the collapse and nonreconstitution of large fortunes.

### 5. *How to Explain the Long-Term Stability of Wage Inequality?*

We come now to the question of the long-term stability of wage inequality. How do we explain the fact that, throughout the century, an "invisible hand" seems to have ensured that the highest-paid 10 percent of workers always ended up earning about 2.5–2.6 times the average wage, that the highest-paid 5 percent of workers always found themselves earning about 3.4–3.6 times more than the average, that the highest-paid 1 percent of workers always found themselves earning 6–7 times the average, and inversely that the lowest-paid 10 percent of workers always found themselves earning about half the average?

First, let us clarify that, from a purely economic point of view, it is entirely normal that wage inequality should be much more stable than income inequality. In particular, it seems to make perfect sense that the world wars and the 1930s crisis should have led to purely transitory fluctuations in wage inequality, even though these same events lay at the origin of a structural collapse in capital incomes. Indeed, the economic model traditionally used to explain wage inequality and how it changes brings into play a "supply" of skills and a "demand" for skills: workers put the skills they possess onto the labor market (hence a certain composition of labor "supply"), firms try to find the skills they need on the labor market (hence a certain composition of labor "demand"), and the need to establish an equilibrium between this supply and this demand leads to a certain inequality in wages. If the structure of supply and demand re-

main approximately stable, it is perfectly logical that wage inequality should hardly vary. And the fact is that there is no reason to expect world wars, in and of themselves, to have led to lasting structural changes in the composition of supply or demand for skills. The structure of firms' demand for skills changes relatively slowly, notably due to changes in available technologies or the structure of goods and services consumed by households: for example, a war might lead to distortions in the demand for skills, generally favoring the least skilled workers (soldiers, construction workers, etc.), but these distortions can only be temporary. As for the structure of supply, it mainly depends on the education and training of each generation of workers, and it is hard to see how the wars could have radically changed it: after each of the two wars, workers found themselves with skills not much different from those they possessed before the conflict.

Here we see the magnitude of the difference between the issue of wage inequality and that of capital income: "physical" capital (buildings, factories, etc.) owned by wealth-holders—and *a fortiori* "nominal" capital taking the form of securities not indexed to inflation—can be completely and irremediably destroyed, whereas "human" capital possessed by workers is happily spared from this kind of risk, except in cases of generalized genocide, which would also need to strike a particular skill group to have a structural impact on wage hierarchies. One could certainly imagine that these human losses brought about by the world wars, especially the First World War, might have had an impact on the labor market: for example, if we suppose that the bloodshed of 1914–1918 affected the least skilled workers to a greater extent, thus leading to a new composition of the supply of skills, the war could help to explain why wage inequality settled in the early 1920s at a lower level than that prevailing on the eve of hostilities. But the fact is that the human losses brought about by the world wars, and *a fortiori* the differences between the losses suffered by the different strata of the workforce, were of an incomparably smaller magnitude than the destruction of physical capital. It is natural, therefore, that we observe on the one hand limited movements in wage inequality, and on the other hand a massive collapse of private wealth-holdings and their incomes. If we now position ourselves from the point of view of very long-term evolution, the "economic" explanation for the very high degree of stability of wage hierarchies would thus be that the supply and demand for skills always managed to develop in a more or less parallel way over the course of the twentieth century. In other words, the

socioprofessional structure of the workforce and the skills needed to occupy jobs experienced radical transformations over the century, but these transformations would always have been sufficiently gradual for the supply of skills to be able to adjust to evolutions in demand, in such a way that every level of wages was pulled upward in equivalent proportions, leaving the wage hierarchy approximately unchanged. The “invisible hand” would thus be the supply of skills, which was always able to catch up with demand in the event of a momentary lag, and which, inversely, was always able to avoid exceeding demand too blatantly, which would have caused unpleasant disruptions at the individual level. Let us add, finally, that the very high degree of stability of wage inequality in twentieth-century France can also be explained by the fact that over the course of the century France experienced an extremely slow and steady demographic evolution (the total number of jobs remained stable at around 20 million), and the composition of labor supply changed very gradually, according to the pace of generational replacement, so that workers and the education and training system never had to face large demographic shocks and always had time to adapt to the continuous evolution of the demand for skills. This distinguishes France from countries like the United States, which experienced several large-scale migration shocks over the course of the twentieth century—shocks that dramatically transformed the structure of the labor force—and this may explain the particularly high degree of stability in French wage inequality. We will return to this point in Part Three of this book (Chapter 7) when we discuss the French experience in comparison to experiences abroad.

This “economic” explanation cannot be completely wrong, because if the demand for a certain type of skill had evolved in a totally different way from the corresponding supply, then the wage hierarchy could not have stood still for very long. Nevertheless, if this explanation seems insufficient to us, it is because the economic model based on supply and demand seems to assume that “skills” or “human capital” always have a measurable objective basis, and that it is always possible to evaluate their “productivity.” That is often not the case: assessments of the productivity of different skill levels often leave significant margins for adjustment, within which different perceptions of what is fair and what is not fair, often unique to each particular national history, may be expressed. This is obvious when it comes to public-sector wages: the government certainly has to take into account the supplies and demands manifested in the private sector, but as we have seen, that often leaves appreciable margins of adjustment.



But perceptions and shifts in public opinion also play a great role in explaining the evolution of wage inequality in firms, as illustrated by the considerable impact the May 1968 events had on wage hierarchies. To account for the very high degree of long-term stability in wage inequality, it seems necessary to add to the strictly “economic” explanation a “cultural” explanation, according to which wage inequality was always relatively well accepted in twentieth-century France, especially in comparison to the inequality between “workers” (seen as a bloc) and those receiving very large capital incomes. The best way of precisely testing and clarifying the idea of a broad consensus on wage inequality would obviously be to have access to relevant public opinion surveys. Unfortunately, while available surveys for the 1990s allow us to fully confirm this hypothesis,<sup>140</sup> we do not have similar surveys for the entire century,<sup>141</sup> and we will thus have to make do with certain clues.

The simple fact that the role of “high-wage workers” among “top-income earners” was often denied, even obscured, already represents an interesting clue: denying the importance of “high-wage workers” amounts to accepting the wage-inequality world as it is. This clue is closely connected to the issue of the “middle classes.” The very fact that we describe as “middle class” workers belonging the highest-paid 10 percent, and households of workers whose incomes stand at the level of the P90–95 fractile of the income distribution (even at the level of the P95–99 fractile for the “upper-middle classes”), is a very clear way of signifying that these workers deserve their pay and that wage inequality is acceptable, or at least much more acceptable than the very high capital incomes received by the “200 families.” And while it is difficult to collect systematic data on the way different speakers use these terms, the hypothesis of a very broad consensus seems relatively plausible. For example, during the 1997–1998 controversy over capping family benefits that we mentioned in the introduction, all political sensibilities, from the French Communist Party through the old-school Right, demanded in unison that the “middle classes” with incomes above 25,000 francs per month continue to receive their benefits.

Also, and most importantly, the scattered information we have available indicates that this kind of use of the notions of “middle classes” and “upper-middle classes” was hardly a creation of the 1990s. In his book examining the social-identity formation of *cadres*, Luc Boltanski showed how “appeals to the middle classes,” already present in the nineteenth century, played a fundamental role in the political rhetoric of the interwar period: long before the 1944



creation of the CGC, the labor union for *cadres*, multiple organizations emerged in the 1920s and 1930s, such as the Union Sociale des Ingénieurs Catholiques (USIC; Society of Catholic Engineers) or the Confédération Générale des Syndicats de Classe Moyenne (CCM; Confederation of Middle Class Trade Unions), whose stated mission was to defend the interests of engineers, teachers, managers, public workers, others—that is, the “middling” categories who felt themselves to be caught “between the anvil of plutocracy and the hammer of the proletariat.”<sup>142</sup> These “middle classes” were never defined explicitly by their income level (we merely know that their incomes lay between those of the “200 families” and those of the “proletarians”),<sup>143</sup> but judging by the occupations that were usually cited, every indication is that in the interwar period their position in the hierarchical income spectrum was rather close to the P90–95 fractile (or the P95–99 fractile for the upper fringe of the “middle classes”). Also, in the interwar period, as in the 1990s, every political sensibility, from the PCF to the Comité des Forges (the metalworking employers’ association) vigorously took up the defense of these same “middle classes.”<sup>144</sup> In 1945, as the CGC was denouncing the compression of the wage hierarchy and the assassination of the “middle classes,” the CGT also began to demand a more energetic “putting back in order” than that proposed by the Parodi decrees, explaining that the ministerial decrees “do not reflect the normal hierarchical order,” and that they were “flattening the hierarchy.”<sup>145</sup> During the deflation of 1930–1935, it was the socialists who tried to force the centrist Radicals to accept an increase in the wage threshold above which the “exceptional contributions” would be levied on public-sector wages.<sup>146</sup> Likewise, during the inflation of the 1944–1952 years, it was the socialists who took up the defense of the wage hierarchy and tried to force the Christian-Democratic MRP to accept an increase in the wage threshold above which workers would no longer receive “exceptional bonuses.”<sup>147</sup>

It is also interesting to note that in the early part of the century, free-market liberal economists who sought to estimate the income distribution also tended to speak of “middling incomes” or even “middle-class incomes” when talking about incomes lying very precisely at the P90–95 and P95–99 levels.<sup>148</sup> Judging by the parliamentary debates that preceded the creation of an income tax, this use of the “middle class” concept was entirely in keeping with the usage of economists at the time, including those on the left and far left.<sup>149</sup> This very high degree of stability in the concept of “middle class” in twentieth-century France

seems particularly striking to us: throughout the century, the “middle classes” referred to households lying at the P90–95 and P95–99 levels of the income hierarchy, fractiles that, as we have seen, were themselves characterized by a very high degree of long-term stability in their position vis-à-vis the average. In other words, throughout the century the “middle classes” have included wage earners (as well as self-employed workers of equivalent rank) whose wages were typically 2 or 3 times higher than the average wage, and 5 or 6 times higher than the lowest wage levels, but they were considered to “deserve” these wages in the sense that they corresponded to their skills, to the efforts they had undertaken to acquire them, to their responsibilities, to the fact they spent a lot of time at work, and so on. We will also note that the structural collapse in large fortunes does not seem to have disturbed this equilibrium: “the anvil of the plutocracy” became less oppressive than before, and very high capital incomes became less elevated and fewer in number than in the past, but “high-wage workers” still form the “middle classes,” in the sense that their pay and their social position are still perceived as deserved.

All of this information, however, is suggestive and still remains relatively anecdotal. The most convincing clues about a very broad consensus on wage inequality in twentieth-century France will, again, be furnished by the study of income tax legislation, and in particular by the analysis of the effective tax rates on the various top-income fractiles. As we will see, the income tax has always been a tool intended mainly to hit the upper strata of the top 1 percent of the income hierarchy, the bastion of very high capital incomes, rather than the “middle classes” (fractile P90–95) or “upper-middle classes” (fractile P95–99), the kingdom of high-wage levels: for example, these social groups were not affected by the tax increases adopted by the Popular Front in 1936 or by the socialist government that emerged from the 1981 elections—tax increases that may be supposed to quite faithfully reflect the socialist vision of inequality and income distribution. Thus, the notion that the very high degree of long-term stability in the wage hierarchy could be explained (at least in part) by the simple fact that this hierarchy has always been relatively well accepted seems relatively plausible.



PART TWO

TOP INCOMES AND  
REDISTRIBUTION  
IN FRANCE IN THE  
TWENTIETH CENTURY



## Income Tax Legislation from 1914 to 1998

How did the creation of the progressive income tax, and above all, the vertiginous rise in its highest rates, disturb the accumulation of large fortunes in twentieth-century France? What do the rules for calculating income tax—and especially the tax rates successive governments have inflicted on the various “top” income fractiles—tell us about perceptions of income inequality and their evolution over the century? These are the two central questions that our findings from Part One have led us to formulate and that Part Two will attempt to answer. In this chapter, we describe the principal episodes in the evolution of income tax legislation in twentieth-century France, especially the evolution of the rate schedules established and enforced by the succession of governments between 1914 and 1998. The history of the income tax is, obviously, a highly eventful one, marked notably by multiple shifts in political power, so the chronological narrative offered in this chapter is necessarily a bit long, perhaps too long for readers unaccustomed to studying the technicalities of taxation, other than their experience in filling out their own returns. However, we thought it would be useful to provide a detailed account of the most important events of this story and to place them in the political context of their time: not only are these legislative developments of prime importance for our inquiry, but we think that the question of income taxation constitutes an interesting (and very poorly understood) prism for understanding the political history of twentieth-century France. In the next chapter (Chapter 5), we will then combine the strictly legislative information from this chapter with the estimates of the levels of top-income fractiles presented in Part One, which will allow us to study the evolution of the tax rates imposed on the various fractiles of each period’s income hierarchy, and to provide more precise answers to the questions formulated above.

Before approaching this political-legislative narrative, we will begin by reviewing the main characteristics of the tax system in effect for affluent taxpayers

before the law of July 15, 1914 (section 1). Then we will present the overall architecture of the new system established by the 1914–1917 reform (section 2). Finally, and most importantly, we will describe the evolution of the legislation and the tax-rate schedules that successive governments have instituted since that foundational reform, distinguishing between the 1915–1944 period, which was characterized by fairly chaotic changes, in line with the period’s uniquely chaotic economics and politics (section 3), and the 1945–1998 period, when the income tax looked more like a “pacified” tax (as much as an institution of this kind can be) (section 4).

## I. *Top Incomes and the Tax System, to 1914:* *“Accumulation in Peace”*

### I.1. The “Four Old Ladies”

The income tax in France was established by the law of July 15, 1914. This law marked a key break with the tax system that had been in effect, with no major interruptions, from 1792 to 1914. The key feature of the four “direct taxes” created by the French Revolution, which came to be called the “four old ladies” (*les quatre vieilles*) due to their exceptional longevity, was that they never depended directly on the income of the taxpayer. Because of their rejection of the inquisitorial procedures associated with the Old Regime, and perhaps also to prevent a rising industrial bourgeoisie from having to pay too much in taxes, the revolutionary legislators chose to establish an “indicator-based” tax system, meaning that the tax owed was always calculated on the basis of outward “indicators” that were supposed to gauge the taxpaying capacity of the taxpayer, not on the basis of income itself, which never had to be declared. The “door and window tax” (*contribution des portes et fenêtres*) was calculated according to the number of doors and windows in the taxpayer’s primary residence, an indicator of wealth that had the great virtue, for the taxpayer, of allowing the authorities to assess the tax owed without having to enter his house, let alone his account books. The “real estate tax” (*contribution foncière*), which was actually made up of a “real estate tax on built property” (houses, buildings, etc.) and a “real estate tax on nonbuilt property” (lands, forests, etc.), was calculated according to the rental value of the properties owned by the taxpayer. But here again, the amount of the tax was never calculated directly according to the rents actually received

by the owner (nor through an assessment of the market rental prices he would have been able to get from renting all of his properties), but according to estimates of an “average” of rental values from the past 10–15 years, estimates that were revised only every 10–15 years, when the tax administration organized large-scale inquiries to tabulate all built and nonbuilt properties on the national territory. The “business-license tax” (*contribution des patentes*) was owed by shopkeepers, artisans, industrialists, and so forth, according to the size of their businesses and rate schedules that were fixed for each occupation, with no direct connection to the profits actually earned by the individuals in question, which never had to be declared. Finally, the “personal property tax” (*contribution personnelle-mobilière*), the fourth of the “four old ladies,” was in theory owed by all taxpayers (renters and owners) according to the rental value of their principal residence, again with revisions to the aforementioned rental values every 10–15 years.<sup>1</sup>

These taxes based on indicators of taxpaying capacity, rather than on income itself, never completely disappeared from the tax landscape, and the late twentieth-century French taxpayer will thus have some idea of what direct taxes were like in pre-World War I France and, more generally, of the unfairness and political tension, but also the formidable inertia, that an indicator-based tax system inevitably engenders. The law of July 31, 1917, in creating the system of so-called schedular taxes, which will be described in this chapter, actually eliminated only that portion of the revenue from the “four old ladies” that had gone to the central state budget under the old system,<sup>2</sup> while preserving the share going to the local governments of the *départements* and *communes*, so that the old *centimes communaux et départementaux* (municipal and departmental percentages) of the “four old ladies” remained in effect after the 1914–1917 reform and still constituted the main source of financing for local governments in the late 1990s (only the tax on doors and windows definitively disappeared, even as a local tax, following its elimination by the law of July 19, 1925). An order of January 7, 1959, modified the official names of these “old direct taxes,” but the calculation rules have remained unchanged in their broad outlines. The *taxe foncière* (real-estate tax) replaced the *contribution foncière* (real-estate contribution), but it is still a tax owed by all property owners according to the rental value of their properties (built and nonbuilt, rented or otherwise), with widely spaced revisions of those rental values; these revisions were still a major political headache for governments in the 1980s and 1990s.



The *taxe professionnelle*, or license duty, which replaced the *contribution des patentes*, is no longer calculated according to a schedule fixed separately for each commercial, artisanal, or industrial profession, but it still does not depend directly on the profits earned by particular firms, and the “archaic” nature of its tax base has earned it almost universal rejection from the late twentieth-century French political class.<sup>3</sup> Finally, the “community tax” (*taxe d’habitation*), which replaced the *contribution personnelle-mobilière*, continues to be owed by all taxpayers (whether renters or owners) according to the rental value of their primary residence, and governments in the 1980s–1990s still regularly promised to replace this “unfair” tax base (not only are the rental values very rarely revised, but the correlation with income is far from perfect) with a tax base more directly linked to income.

In addition to the indicator-based nature of the “four old ladies,” a key characteristic of these taxes created by the French Revolution was that they were “allocated” taxes, rather than “proportional” taxes: that is, instead of setting a tax rate each year that would apply to a fixed tax base (a so-called proportional system), as all modern taxes do, the state each year set the total volume of revenue that the various taxes should generate, and this total amount was then to be divided in one way or another among the taxpayers of each local *département* and *commune* in such a way as to generate that sum (a so-called allocated system). Because of these twin characteristics (the “indicator-based” and “allocated” systems), it is extremely difficult to calculate precisely what the tax burden of the “four old ladies” was as a percentage of taxpayers’ incomes. On the one hand, by the very nature of the indicator-based system, taxpayers’ overall incomes never had to be declared under the system of the “four old ladies.” The tax system in effect until 1914 produced statistics on the number of built and nonbuilt properties and their rental values, the number of doors and windows, the number of business licenses, and the rents on residences and their distribution, but it produced no statistics dealing directly with incomes, which happens to explain why it is so difficult to study the evolution of the income distribution before 1914.<sup>4</sup> Moreover, even if one managed to arrive at a satisfactory estimate of the income levels of the era’s taxpayers, it is very difficult to estimate how the average burden of the “four old ladies” varied with the level of income, both because of the imperfect correlation between individual incomes and the indicators used to calculate the tax (doors and windows, real estate property, the business-license tax schedule, rents) and because of the large variation in effec-

tive tax rates between different *départements* and *communes* due to the vagaries of the allocated tax system.

Despite these difficulties, however, we can be certain that the burden of the “four old ladies” paid by recipients of high incomes was relatively light, even insignificant. In 1907, during the parliamentary debate on the creation of an income tax, the Finance Ministry carried out surveys of tax comptrollers “in more than 80 communes and covering nearly 26,000 taxpayers,” to obtain an approximate estimate of the average tax burden of the “four old ladies” as a function of taxpayers’ “real” income levels. The results, presented on January 20, 1908, by finance minister Joseph Caillaux on the floor of the Chamber of Deputies, speak volumes: the effective tax rate was reported on average to be 1.38 percent of income for annual incomes below 1,250 francs, 1.49 percent for annual incomes between 1,250 and 2,500 francs, 2.08 percent for annual incomes between 2,500 and 5,000 francs, 2.06 percent for annual incomes between 5,000 and 10,000 francs, 1.94 percent for annual incomes between 5,000 and 10,000 francs, 1.94 percent for annual incomes between 10,000 and 20,000 francs, and 1.62 percent for annual incomes above 20,000 francs.<sup>5</sup> Recall that incomes from the beginning of the century expressed in current francs should be multiplied by a factor of about 20 to obtain incomes in 1998 francs; that the average income at the time was about 1,400–1,500 francs per year, per household (thus about 28,000–30,000 1998 francs);<sup>6</sup> and that, according to our estimates, in 1900–1910 one needed “only” an annual income above 2,500 francs (about 50,000 in 1998 francs) to belong to the top 10 percent of tax units, and an annual income of 10,000 francs (about 200,000 1998 francs) to belong to the top 1 percent of tax units.<sup>7</sup> The figures provided by Caillaux’s ministry thus indicate a very slight degree of progressivity for the “four old ladies” up to the level of the top decile, then a very slight regressivity within the top decile, and especially within the top 1 percent. The precision of these figures is probably largely illusory, notably due to the very great difficulties that tax comptrollers in this period must have faced in estimating the “real” incomes of their sample of taxpayers, but the orders of magnitude may be considered significant. In particular, the fact that the “four old ladies” were slightly less burdensome, proportionally, for low incomes and high incomes than they were for “middling” incomes is perfectly consistent with what we know about the legislation for these taxes. As Caillaux explained on the floor of the Chamber, although in principle the “four old ladies” were more or less proportional taxes (as much as non-“quotient”-based

taxes can be), in practice low incomes benefited from a number of tax-reduction mechanisms: for example, taxpayers with rents below a certain threshold (500 francs per year in Paris at the start of the century) paid no personal property tax. As for high incomes, they benefited especially from the fact that, proportionally, their rent (or the rental value of their residences, if they were owners) generally increased less than their incomes.<sup>8</sup>

But beyond these very slight variations by income level, the key fact to remember is that effective tax rates were in all cases extremely low: according to the estimates presented by Caillaux, French taxpayers before 1914 never paid a total of more than 2.0–2.1 percent of their income under the “four old ladies.” These orders of magnitude are also perfectly consistent with the fact that when the real estate tax on built property was transformed into a proportional tax in 1890, its rate was set at 3.2 percent. After levying a uniform 3.2 percent rate on the rental values of all houses and residential buildings tallied in the 1887–1888 inquiry, the resulting tax receipts were equivalent to what the real estate tax on built property had generated under the allocated system that had been in place until 1890.<sup>9</sup> In other words, even in the unfavorable case of a taxpayer whose income entirely took the form of real estate income, the real estate tax he owed never would have exceeded 3.2 percent of his total income. The real estate tax on nonbuilt property was, in its turn, transformed into a proportional tax by the law of March 29, 1914, and its rate was set at 4 percent (this provided an opportunity to raise the rate on built property from 3.2 percent to 4 percent). These maximal rates of about 3–4 percent are entirely representative of the highest tax rates applied on the period’s few proportional taxes. We should also stress that a significant share of incomes were not subject to any tax: real estate incomes were by far the most heavily taxed under the “four old ladies” system, and though its share of total receipts declined slowly over the nineteenth century, the real estate tax continued throughout the entire century and up to 1914 to bring in much more revenue than all the other direct taxes.<sup>10</sup> From a tax point of view, the fundamental characteristic of the period that ended in 1914 is that for more than a century, individuals with high incomes could “accumulate in peace”: the direct taxes they had to pay throughout the nineteenth century and up to 1914 never exceeded levels of about 3–4 percent of their incomes, that is, practically insignificant amounts. Very concretely, this means that throughout the nineteenth century, recipients of very high incomes, after paying their taxes, still had at least 96–97 percent (even more than

98 percent according to the estimates provided by Caillaux) of their pretax income for consumption, to pay their domestic employees, and above all to acquire more property, expand their investment portfolios, and finance new investments in their firms. These were thus ideal conditions for accumulating considerable fortunes, especially since the 1915–1914 period was also characterized by a very high degree of monetary stability.

### 1.2. The Tax on Investment-Securities Income (IRVM) (Law of June 29, 1872)

One must nevertheless be careful not to exaggerate the magnitude of the rupture effected by the law of July 15, 1914, in and of itself. As we will see in the following discussion, the tax rates introduced by the law of July 15, 1914, actually lay squarely within the bounds of what at the time was considered to be “reasonable” tax rates: the rates of the first progressive income tax schedule, applied to 1915 incomes, ranged between 0.4 percent and 2 percent, and the marginal tax rate on the highest incomes was 2 percent. It was only after the First World War that top marginal tax rates reached the “modern” levels of several dozen percentage points that we have long been accustomed to. In itself, the law of July 15, 1914, thus changed nothing about the previous system’s key feature from the point of view of capital accumulation by high-income individuals, namely, that the tax represented a practically insignificant burden for them. The rupture effected by the law of July 15, 1914, was therefore of a more conceptual and institutional nature (creating a tax based on the overall income of taxpayers for the first time), rather than of a quantitative nature. The institutional rupture did, of course, pave the way for a quantitative rupture in terms of tax rates, but as we will see, it is quite possible that extremely low tax rates would have continued in force for a long time, had four years of “world” war not placed the nation’s finances and its public opinion in such a state that by the end of hostilities a vertiginous rise in tax rates on top incomes became unavoidable in everyone’s view. Thus the real rupture was probably due more to the major social and political fractures of the First World War than to the law of July 15, 1914, in and of itself.

This interpretation seems to be confirmed by the fact that institutional ruptures of the same magnitude had already taken place before the law of July 15, 1914, without becoming “quantitative” ruptures in terms of tax rates. First and

foremost, we should mention the law of June 29, 1872, instituting a “tax on investment securities income” (the IRVM, or *impôt sur le revenu des valeurs mobilières*), probably the most important innovation introduced between 1792 and 1914 under the system of the “four old ladies.” The IRVM was, from the first, a “modern” tax in terms of form: it was a proportional tax, with rates initially set at 3 percent, before being raised to 4 percent by the law of September 26, 1890, and it hit all securities income at this uniform rate. What made the rupture vis-à-vis the “indicator-based” logic of the “four old ladies” especially clear was that from the beginning, the tax base of the IRVM was designed to be extremely broad. The IRVM hit not only dividends paid to shareholders and interest paid to bondholders, but also “incomes of any kind” that the holders of securities might receive over and above the redemption of their invested capital, whatever the legal form such income might take (distributions of retained profits previously earned by a firm, redemption bonuses, capital gains arising from the liquidation of a firm, etc.).<sup>11</sup> The only major exemption concerned interest paid to holders of state annuities, Treasury loans and bonds, National Defense Bonds, and so on; all “state funds” would remain exempt from the IRVM (except for bonds issued by local governments, the national post and telegraph company, the national railroad, etc., which were always subject to the IRVM). We should also mention the case of “foreign state funds” (that is, bonds issued by states other than France) and “unsubscribed foreign securities” (that is, securities issued by foreign companies with no operations in France),<sup>12</sup> which were not subject to the IRVM under the 1872 law. However, these two exemptions were eliminated by the law of March 29, 1914, which even took advantage of the occasion to set the rate on foreign state funds and unsubscribed foreign securities at 5 percent while keeping the general rate for all other investment securities at the 4 percent rate that had been in effect since 1890,<sup>13</sup> so that only French state funds remained exempt from the IRVM after 1914 and throughout the interwar period; this is a rather common practice for states seeking to encourage savers (small and large) to lend them money at reasonable interest rates. Ultimately, aside from this important exception, the tax base of the IRVM was probably the broadest that any tax on investment income has ever had in France, especially if we compare it to the many exemptions granted to such incomes by the late twentieth-century income tax. The “modernity” of the IRVM could also be seen in its mode of collection: the IRVM was always levied at the source, that is, by the entity issuing the securities

(banks, corporations, insurance companies, etc.), every time the latter executed a dividend distribution to its shareholders, or an interest payment, or a payment of “income of any kind” to its bondholders or holders of “investment securities of any kind,” whatever their exact legal form. In the view of all observers at the time, this mode of collection always guaranteed excellent collection rates for the IVRM as well as an extremely limited level of fraud, which also explains why the IRVM’s receipts have always been a go-to statistical source for estimating the volume of investment income in France before 1914 and in the interwar period.<sup>14</sup>

Apart from this rupture regarding its form (a proportional tax levied at the source on a very broadly defined tax base), the rupture that the IRVM introduced into the “four old ladies” system above all concerned the very nature of the incomes that were taxed. Before 1872, holders of investment securities (“capitalists”) were never taxed as such, unlike owners of real estate, who were hit by the real estate tax, or “entrepreneurs,” who were hit by the business-license tax. Of course, owners of securities paid the door-and-window tax and the personal property tax (as everyone did), but they paid no specific tax on their investment income. In creating the IRVM, the legislators of 1872 were in a sense only adapting the tax system to economic and social changes, as the emergence and irresistible rise of a new category of property owners was finally recognized, a category whose wealth was made up of stocks and bonds far more than lands, houses, or apartment buildings. In addition to this well-known contrast between the new “capitalists” and the old landed proprietors, who until that point had been the main targets of the system of direct taxes bequeathed by the French Revolution, the contrast between “capitalists” and “entrepreneurs” was also of importance and merits some elaboration.

From its origins, the IRVM was indeed presented as a tax levied on “capitalists” rather than on “entrepreneurs”: the IRVM taxed dividends and interest paid to the holders of investment securities but never the profits generated by individual entrepreneurs. Only corporations were required to pay the IRVM, while proprietorships were never affected by the tax, even when they took the form of large businesses operating as partnerships. It should also be stressed that what was being targeted was the income paid out to holders of the securities issued by corporations, not the profits of corporations as such: a listed company could very well earn profits and pay no IRVM (if it retained all its profits and undertook no dividend distributions), and conversely, it could earn no

profit but pay IRVM (on any interest paid out on bonds).<sup>15</sup> The typical social group targeted by the IRVM was composed of stockholders and bondholders of big listed corporations (“capitalists”), as opposed to “entrepreneurs,” salaried company directors, or the corporations themselves. In practice, the borders between “capitalists,” “entrepreneurs,” and “salaried directors” were probably just as porous in the nineteenth century as they were in the twentieth century, as we saw in Chapter 2.<sup>16</sup> But it is no less true that in creating the IRVM, the legislators of 1872 intended above all to hit “capitalists getting rich in their sleep,” rather than “CEOs.” This continued to be the outlook behind the IRVM throughout its existence. For example, compensation paid to managers of SARLs, an income category that appeared after the creation of this new company form in 1925, was never subject to the IRVM, nor was the portion of profits received by the *associés* of CNCs or the wages paid to salaried directors of SAs: the managers of SARLs, like the *associés* of SNCs and the salaried directors of SAs, were considered to be “chief executive officers,” not “capitalists who get rich in their sleep.”

Thus, we see that with the IRVM, the Third Republic by the 1870s possessed a powerful institutional instrument that allowed it to tax the income category most emblematic of the era’s egregious social inequality in a relatively simple and efficient way, while sparing those within the capitalist world who were perceived to be the most “entrepreneurial.” It would have been technically very simple for the governments of the 1872–1914 period to turn this potential instrument into a genuine tool of redistribution and social justice; all that would have been required was a substantial increase in the IRVM tax rate, for example, raising it to 10 percent or 20 percent, or even more. Yet no government before the First World War took on such a responsibility. A succession of governments chose to keep the IRVM rate at 3 percent from 1872 to 1890, then 4 percent from 1890 to 1914. In other words, the IRVM made essentially no difference to the fact we are studying here, namely, that down to 1914 the tax hit on top income recipients represented a practically insignificant burden for them, at least by our “modern” standards. It was only after the First World War that IRVM rates reached “modern” levels, at a time when the burden of the new income taxes created in 1914–1917 had in any case far surpassed that of the IRVM for top incomes.<sup>17</sup> The example of the IRVM is interesting, because it shows indisputably that the low burden of taxation for top incomes down to 1914 was far more than a mere institutional problem: before the First World



War, the very idea of a tax rate exceeding a level of around 3–4 percent of income, even “capitalist” income, simply did not seem “reasonable.”

### 1.3. The Progressive Inheritance Tax (Law of February 25, 1901)

In addition to the creation of the IRVM by the 1872 law, the other great conceptual and institutional break introduced into the French tax system before 1914 was the establishment of a progressive inheritance tax by the law of February 25, 1901. Until 1901, the inheritance tax was completely proportional: every bequest was taxed at the same rate, from the very first franc, whatever its size, and however large it may have been. The proportional rate that applied varied according to the degree of family relation—the rate imposed on heirs in the collateral line of succession (brothers and sisters, cousins, etc.), and nonfamily relations was always slightly higher than for bequests in the direct line of succession (children, grandchildren, etc.)—but it never varied with the size of the bequest. This proportional inheritance tax had been instituted in 1799 (the law of 22 Frimaire, Year VII), replacing the multiple inheritance taxes that already existed under the Old Regime, and it has continued in effect since then. Between 1799 and 1901, the only important reform to the law of Year VII was the law of May 18, 1850, which put an end to the exemption of French annuities from the inheritance tax (an exemption that had been instituted in 1799 to restore the state’s credit after the default on two-thirds of the public debt). The law also determined that movable assets would henceforth be taxed at the same rates as buildings (under the law of Year VII, movable assets had been taxed at a slightly lower rate), which, like the creation of the IRVM in 1872, represented a sort of official recognition of the importance that investment wealth had assumed.<sup>18</sup>

But it was only in 1901 that the sacrosanct principle of tax proportionality was undermined. The progressive inheritance tax created in 1901 was the first big progressive tax in France, coming before the creation of the progressive income tax in 1914, and it could thus be said that it was 1901, rather than 1914, that marked France’s entry into the age of “modern” tax redistribution. As would be the case with the income tax, the vote on the progressive inheritance tax gave rise to long and tumultuous parliamentary debates, and the Senate delayed its adoption (the principle of progressivity in the inheritance tax had



been approved by the Chamber of Deputies as early as November 22, 1895). In addition to opening the way to the creation of a progressive income tax, the law of February 25, 1901, actually represented a radical challenge to the earlier “philosophy of taxation.” Until 1901, the fiction could still be maintained that the inheritance tax was somehow there as a sort of compensation to the state for guaranteeing the security of individuals’ assets and property titles, services whose value and cost could be considered to be more or less proportional to the value of the property in question and which were paid back once and for all by each generation at the moment of bequest. With the law of 1901, there was a definitive turn to a system in which the tax also had the purpose of correcting (if only slightly) inequalities of wealth transmitted through inheritance, by means of higher tax rates on large bequests. The traditional conception, according to which payment of the inheritance tax was merely a way of registering one’s property with the state so as to be able to enjoy it securely, rather than a mode of redistributing wealth passed on through inheritance, had also been expressed by the fact that in official tax terminology, from the law of 1799 down to the present, the inheritance tax has always belonged to the broader category of “registration duties.” Specifically, these were “transfer duties,” that is, duties levied on “transfers undertaken on a gratuity basis” (in other words, with no financial compensation in exchange), and especially on “transfers through death” (that is, bequests), but also, depending on the particular tax modalities, on “transfers subject to payment,” that is, transfers of property titles undertaken in exchange for money (or for other property titles). The law of February 25, 1901, also represented a revolution for the researcher, because it was from this date that the tax administration began to classify bequests according to their overall amounts and to publish the corresponding statistical tables; these are the tables that will allow us to examine the evolution of the level of large inheritances over the entire twentieth century (see Chapter 6).

However, one must have no illusions about the consequences of the progressive inheritance tax for the effective rates burdening wealthy taxpayers before the First World War. As with the IRVM, the practical impact of this resolutely “modern” institutional innovation was greatly limited by the low levels of the tax rates imposed. The rates set by the law of February 25, 1901, were indeed extremely modest: through the direct line, that is, between parents and children, grandparents and grandchildren, and so on, the top marginal rate, applicable to the portion of bequests passed on to each heir above 1 million francs,

was only 2.5 percent. In other words, under the law of February 25, 1901, a wealthy capitalist or landowner could be assured that, whatever might happen, he could pass almost the whole of his fortune on to his children; whatever his level of wealth, after his death and after paying inheritance tax, his children would always have at least 97.5 percent of the fortune that he had built (or had himself inherited). The law of February 25, 1901, thus had no effect on the key feature of the capital accumulation regime that had prevailed throughout the nineteenth century, namely, that the tax bite taken by the state in each generation represented a practically insignificant burden for each dynasty as it built and passed on its wealth. No doubt, such a tax bite appeared exorbitant in the eyes of the era's wealthy taxpayers, who often tended to believe that a "son succeeding his father" was in reality merely fulfilling the "sacred duty" of perpetuating a single family property, and that this mere act of perpetuation should not give rise to any tax at all.<sup>19</sup> Indeed, the top marginal tax rate of 2.5 percent, as low as it was, represented a significant increase relative to the rates in effect before, because under the law of Year VII, the (proportional) rate on bequests in the direct line of succession was only 1 percent.<sup>20</sup> According to observers at the time, opposition to the progressivity of the inheritance duty and the feeling that the tax burden was far too excessive were so great that the volume of inheritance-tax fraud increased significantly as soon as the law of 1901 was voted. But with a century of hindsight, and from the "objective" vantage point of the concrete economic consequences of the inheritance tax on the process of dynastic capital accumulation and the generational transmission of wealth inequality, it must be emphasized that this tax levied once per generation could hardly have had more than a marginal impact. If we add the fact that under the "four old ladies" and the IRVM, annual flows of property income were curtailed by 3–4 percent per year at the very most, we see the extent to which the tax system in effect before the First World War was one that allowed one to "accumulate in peace," even after the creation of the progressive inheritance tax.

It is particularly interesting to note that between 1901 and 1914, the tax rates set by the law of February 25, 1901, were increased only extremely modestly: an initial hike was carried out in 1902 (new brackets were created and the top marginal tax rate rose from 2.5 percent to 5 percent), then a second in 1910 (the top marginal rate rose from 5 percent to 6.5 percent), with the objective, in the latter case, of contributing to the financing of the "worker and peasant pensions" (ROPs, or *retraites ouvrières et paysannes*) established in the same year. But the key

point is that it was only after the First World War that top marginal tax rates on bequests in the direct line of succession underwent far more substantial increases and quickly reached “modern” levels.<sup>21</sup> This evolution in the progressive inheritance tax between 1901 and 1914 is even more revealing than that of the IRVM between 1872 and 1914, since it shows that the moderate taxation of the pre-1914 era was about far more than progressivity. The low rates of the proportional IRVM tax might well be explained by the fear of hitting small savers too hard, but the fact that the top rates of the progressive inheritance tax remained frozen at only barely higher levels shows that the notion of “reasonable” tax rates prevailing at that time also applied to the largest fortunes (only a handful of bequests each year were subject to the top marginal rates of 5 percent and 6.5 percent, which in any case applied only to a small fraction of the fortunes in question).<sup>22</sup> And this political point did not escape defenders of the income tax, who, in the parliamentary debates of 1907–1908, argued to those opponents predicting that top rates of a progressive income tax would quickly reach astronomical levels, that the rates of the progressive inheritance tax had remained practically unchanged since 1901.<sup>23</sup>

## *2. The General Architecture of the Income Tax System Created in 1914–1917*

The law of July 15, 1914, was the culmination of a very long legislative process. Early income tax proposals had been debated as early as 1848, but they lay dormant during the Second Empire. It was the advent of the Third Republic that marked the real return of tax reform to the fore of the political stage, with the creation of the IRVM as early as 1872. During the early decades of the Third Republic, however, income tax proponents were more preoccupied with consolidating the new regime than with putting forward their “revolutionary” tax plans, and it was not until the late 1890s and the rise of the Radical Party that the income tax issue became a permanent preoccupation of Parliament and the object of major political conflict in electoral contests. The parliamentary process leading to the law of July 15, 1914, has been widely studied, and we will not go into the long chronology of the many plans, commissions, and parliamentary maneuvers that unfolded up to 1914.<sup>24</sup>

Simply keep in mind that in its broad outlines the income tax was the subject of a fairly “classic” right–left conflict: the plan was pushed by the parlia-

mentary groups and political parties located on the left side of the political spectrum, while the parliamentary groups and political parties on the right opposed it; the former saw the income tax as an indispensable tool for redistribution and social justice, while the latter described the plan as a “dangerous adventure,” which at best would propagate the illusion that “taxing the rich” could suffice to improve the masses’ lot, and at worst risked seriously disturbing the “natural forces” that spontaneously brought about such improvement. However, the novelty of the issue, especially compared to that of France’s political regime or the role of the Church (issues that structured the era’s political life even more strongly), explains why individual political position taking was often more complicated. On the right,<sup>25</sup> one could find among opponents of the income tax republicans of the so-called center and center-right, who were fervent supporters of economic liberalism and state nonintervention in private finances, and deeply attached to the “four old ladies” tax system inherited from the French Revolution. But one could also find monarchist groups, or parties only recently won over to the Republic, who never failed to ridicule the income tax bills as merely reviving the inquisitorial procedures often attributed to the Old Regime, but who in practice were often much more distrustful of economic liberalism and “raw” capitalism, and far less hostile to the income tax, than were many republicans situated to their left on the parliamentary benches.<sup>26</sup>

On the left, the situation was hardly less complex: while the deputies on the right wing of the Radical Party were often very close to the republicans of the “center” and “center-right” on economic issues, the Radicals as a whole were nevertheless the main force behind the income tax, given how well the proposal aligned with their political project of “social reform with respect for private property.” Conversely, the Socialists, who in theory should have been the most receptive to the idea of “taxing the rich,” often expressed a degree of skepticism: true, the income tax could lead to a degree of income redistribution, but the plan did not strike at the basis of capitalist inequality itself (namely, private property in capital), and it even risked softening up the workers in their historic march toward the socialist revolution and the collective appropriation of the means of production. Moreover, this ambivalence on the part of the Socialists (and even more of the Communists, after the 1920 schism) vis-à-vis the income tax could be seen throughout the twentieth century, and as we will see, this factor helps to explain certain key points in the evolution of the legislation,

especially the difficulty with which wages were incorporated into the body of general tax law.

Recall, too, that after a number of detours—the Calmette Affair being no doubt the most spectacular<sup>27</sup>—it was the second Caillaux bill (1907) that ended up forming the central pillar of the system adopted in 1914–1917. This is why the creation of the income tax is often associated with the name of Joseph Caillaux, a young *inspecteur des finances*, author of an 1897 treatise on taxation in France (*Les Impôts en France*), and Radical finance minister in 1899–1900 and again in 1907–1908—despite the fact that Caillaux himself was no longer in office when his bill finally passed. The bill introduced by Caillaux in 1907 proposed completely eliminating the “four old ladies” and replacing them with a two-part system made up of a set of so-called schedular duties, taxing each category (or “schedule”) of income separately, as well as a “general income tax” (IGR, or *impôt général sur le revenu*), a progressive levy on the taxpayer’s overall income (that is, the sum of incomes from each of the different categories). The basic principle of Caillaux’s system was that each category of income was to be levied first under the corresponding schedular tax, and then the small minority of taxpayers with sufficiently high overall incomes were to be taxed a second time under the IGR, according to a progressive rate structure with rates that were to rise as a function of the taxpayer’s overall income. Each of the two components of this mixed system thus played a distinct role: the schedular taxes were supposed to hit a broad share of the population, on the basis of a nearly proportional rate structure, and their primary purpose was to generate tax receipts for the government, replacing the receipts formerly provided by the “four old ladies” but in a “fairer” way (since the schedular taxes were more proportional to the taxpayer’s actual ability to pay). The IGR, on the other hand, was designed to hit only a small minority of wealthy taxpayers, following a strongly progressive rate structure, and its role was to ensure a degree of income redistribution.

After nearly two years of parliamentary debate, the two-part system proposed by Caillaux was definitively adopted by the Chamber of Deputies on March 9, 1909. But the Senate, which was as hostile to the progressive income tax as it had been to the progressive inheritance tax, refused to vote on the bill and blocked the new system’s implementation. It is hard to say how long this Senate resistance could have lasted had it not been for the First World War, but it is certain that the international tensions of 1913–1914, in particular the new

financial burdens created by the 1913 *loi des trois ans* (a law extending mandatory military service to three years) and “national defense imperatives” contributed decisively to the unfreezing of the situation, probably more so than the strong performance of the Socialists and Radicals in the May 1914 elections. The Senate at first hoped to get out of the situation unscathed by approving the law of March 29, 1914, which took up certain provisions of the Caillaux bill dealing with the schedular taxes on capital incomes.<sup>28</sup> But the budget bill voted on July 15, 1914, barely two weeks before the assassination of Jean Jaurès and the declaration of war, was finally forced to include the Caillaux bill’s articles concerning the IGR. In its essentials, the law of July 15, 1914, took up the overall form of the IGR proposed by Caillaux in 1907 and approved by the Chamber of Deputies in 1909. In particular, as in the Caillaux bill, only taxpayers with overall incomes above 5,000 francs per year would be taxed under the IGR and required to file a tax return declaring their incomes; this was more than three times the era’s average income (before the First World War, average annual income was about 1,400–1,500 francs per household tax unit).<sup>29</sup> The key point that the Senate in 1914 took up from the second Caillaux bill was that the IGR was designed to be a genuine tax on total income, based on an annual declaration by each liable taxpayer listing all income received by members of the household over the previous year—as opposed to the Peytral bill (1898) or the first Caillaux bill (1900), which, under the guise of a progressive income tax, proposed only a pure indicator-based tax, with no declaration of income, that is, based only on flat-rate income estimates calculated from the rent (or rental value) of the taxpayer’s primary residence.<sup>30</sup> The law of July 15, 1914, set the IGR to go into effect on January 1, 1915; in other words, the first taxpayers would have to file their 1914 tax returns in early 1915. Due to the unprepared state of the tax administration, whose normal functioning was severely disrupted by the war, the law of December 26, 1914, pushed back the effective date of the IGR to January 1, 1916. The date was not put off further, so in early 1916 the first taxpayers of a progressive income tax in France filed their tax returns for their 1915 incomes. Therefore starting in 1916, taxpayers with total incomes high enough to be subject to tax have been required early in each calendar year (usually March) to declare their previous year’s income, a legal obligation that has been in effect without interruption down to the present. Incomes for 1915 were the first to be declared and taxed under a French progressive income tax, and it is from 1915 onward that we have annual statistical tables compiled by the tax

administration on the basis of an exhaustive tally of tax returns; these statistics constitute the central source analyzed in this book.

The concept of “taxpayer” (*contribuable*) instituted by the law of July 15, 1914, was also very similar to the concept of “tax unit” (*foyer fiscal*) still in effect in the late twentieth century. In particular, each “head of family” (*chef de famille*) was required to declare not only his own income, but also the income of any spouse he might have, as well as all individuals living with him whom he was entitled to declare as being a dependent (*à sa charge*) (that is, minor children, as well as infirm parents in a few rare cases).<sup>31</sup> Meanwhile, unmarried couples had to file separate tax returns (two cohabitating individuals were always considered to make up two distinct household tax units), as did brothers and sisters, cousins, and so on, and thus also individuals with no family relationship living in the same dwelling.<sup>32</sup> The progressive income tax was thus conceived from the beginning as a tax falling not on individuals, nor on couples, but on households (*foyers*), that is, married couples and their dependent children, and that is how it has been applied in France throughout the twentieth century.

Although the IGR as adopted by the deputies in 1909 remained unchanged in its broad outlines, the Senate had softened the Caillaux bill on certain points. First, it introduced into the July 15, 1914, law a two-part system of accounting for a taxpayer’s family situation, made up on the one hand of flat-rate deductions from taxable income for family dependents, and, on the other hand, proportional tax reductions for family dependents. In the original bill supported by Caillaux, the taxpayer’s family situation effectively played no role: all taxpayers, whether single or heading a large family, had to pay the IGR if their overall income exceeded the standard exemption of 5,000 francs per year, and the progressive rate structure for incomes above 5,000 francs was the same for everyone. This lack of interest in the “family” aspect of the income tax had earned Joseph Caillaux, a wealthy and childless taxpayer himself, the ferocious hatred of the many pro-family and natalist organizations of the time.<sup>33</sup> The Senate was more sensitive to natalist arguments and decided to introduce flat deductions for dependents, equal to 2,000 francs for married couples, 1,000 francs per dependent child up to the fifth child, and 1,500 francs per dependent child starting from the sixth child.<sup>34</sup> These deductions thus resulted in a significant increase in the taxable-income threshold Caillaux envisioned: single individuals with no dependent children would continue to be taxed under the IGR



once their income exceeded 5,000 francs per year, but the taxable-income threshold rose to 7,000 francs for married couples without dependent children, 8,000 francs for married couples with one child, 9,000 francs for married couples with two children, and so on. Moreover, the introduction of these deductions to a large extent explains (far more than the slight forecasting errors or the decline in income due to the war) why the IGR, when it first went into effect, counted only 260,000 liable taxpayers (about 1.7 percent of the roughly 15.2 million households at the time),<sup>35</sup> even though Caillaux had estimated that there were 500,000 households in France with annual incomes above 5,000 francs (about 3.3 percent of the 15.2 million household tax units).<sup>36</sup> Thus he had hoped the IGR would have about 500,000 taxpayers when it first went into effect, an emblematic number that had frequently been cited in the parliamentary debates of 1907–1908.

The July 15, 1915, law also introduced a system of proportional tax reductions for dependents. The tax liability calculated from the rate schedule (after accounting for any flat-rate deductions from taxable income for dependents) was reduced by 5 percent for taxpayers with two dependents, by 20 percent for taxpayers with three dependents, and then by an extra 10 percent for each additional dependent up to the sixth (the percentage tax deduction was capped at 50 percent, and it therefore did not increase after the sixth dependent).<sup>37</sup> This system did not result in any additional increase in the taxable-income threshold (a taxpayer whose liability was positive before taking these reductions into account would still have a positive liability afterward), but it did bring about a large reduction in the amount of tax actually owed by taxable families. This two-part system established by the Senate in 1914 to account for family situations remained in effect for calculating the IGR in the 1915–1933 tax years, but the system of tax reductions for dependents was then eliminated in 1934, and only the system of flat-rate deductions from taxable income for dependents continued to apply in calculating the IGR for the 1934–1944 tax years, before itself being eliminated and replaced by the family-quotient system.

In addition to these gestures on behalf of families, the Senate also decided to significantly lighten the rate structure proposed by Caillaux, in particular the marginal tax rate for the highest incomes, which had been 5 percent in Caillaux's bill but fell to 2 percent in the law passed on July 15, 1914 (see Table 4-1 in the next section). The "official" justification for these breaks was that the IGR was now presented as a "war tax," coming on top of all of the taxes already in



effect, rather than as a tax whose creation was to be offset by the elimination of other taxes. Indeed, the law of July 15, 1914, was limited to the creation of the IGR and made no changes to the “four old ladies” system, which continued in effect as usual through 1917. It was not until three years afterward that the “schedular” portion of the bill presented by Caillaux in 1907 and approved by the Chamber of Deputies in 1909 was definitely adopted: the law of July 31, 1917, eliminated the “four old ladies,” or at least the portion of them going to the central government, and established the schedular taxes, which went into effect from the 1917 tax year, in the middle of the war.<sup>38</sup> Since the old real estate tax, recently updated by the law of March 29, 1914, had been preserved, taking the place of a schedular tax on real estate incomes, and since the IRVM, also updated by the law of March 29, 1914, was also preserved and took the place of a schedular tax on investment-securities income, the law of July 31, 1917, was actually limited to the creation of four schedular taxes: the “tax on remuneration, wages, pensions, and life annuities,” or more simply the “tax on wages,” which applied to wage earners’ labor incomes; and, on the other hand, the “tax on industrial and commercial profits” (known as BIC, for *bénéfices industriels et commerciaux*); the “tax on farm profits” (known as BA, for *bénéfices agricoles*); and the “tax on noncommercial profits” (known as BNC, for *bénéfices non commerciaux*), which applied to the mixed incomes of self-employed workers.<sup>39</sup> These income categories, created from scratch by the second Caillaux bill and by the reform of 1914–1917 in order to “cover” all categories of income that taxpayers might receive, were still used in the tax legislation in effect in the late twentieth century. In particular, from 1914–1917 onward BNC income was defined using the “residual” definition still in effect today: in addition to the profits of the liberal professions (doctors, lawyers, notaries, etc.), which have always made up the largest share of it, BNC income from the start included all incomes not specified explicitly as belonging to another category, in particular those of the few self-employed workers whose professional activities can be classified neither as “industrial or commercial” (in which case those incomes would fall in the BIC category), nor as “farm” income (in which case they fall in the BA category), for example, incomes received by inventors, artists, writers, and so forth. For completeness, it should be said that the law of July 31, 1917, also enacted the creation of a “tax on income from credits, deposits, and collateral,” which was to round out the IRVM to form the schedular tax on investment income. The logic of this additional measure was that the IRVM, as it had

been established in 1872, covered only income from investment securities narrowly speaking (shares, bonds, etc.), and the new tax was to hit all capital incomes other than those from securities, such as interest paid by banks on deposits and checking accounts, interest on lending between individuals, and so forth, which until then had never been taxed. In practice, the volume of capital income taxed in this way never comes close to the size of incomes subject to the IRVM, and this residual tax has always been of relatively modest importance. But the mere desire to create this tax to complement the IRVM shows the spirit of comprehensiveness in which the system established in 1914–1917 was designed: it was about ensuring that no category of income could escape the new tax system (at least in theory).

In addition to the fact that the IGR was designed as a sharply progressive tax hitting a small minority of taxpayers, and that the schedular taxes were designed to hit a larger fraction of the population at nearly proportional rates, another important difference between the two components of the system created in 1914–1917 concerned the unit of taxation: whereas the IGR has always been collected at the level of the household tax unit, all of the schedular taxes have always been collected strictly at the individual level. For example, the schedular tax on wages was calculated separately for each worker in the household, and only under the IGR were any wages earned by a husband and wife, along with any other incomes from the household, added together (assuming that the resulting total income was high enough for the household in question to be taxable under the IGR). Likewise, a married couple made up of a doctor and his shopkeeper wife would first have to first pay the schedular tax on BNC profit on the husband's income and the schedular tax on BIC profit for the wife's income, and only under the IGR would the husband's BNC income and the wife's BIC income, as well as the entirety of any other incomes, be added together to constitute the total income of the household.

It should also be noted that the general rule by which total income subject to IGR was to be the sum of all incomes that were subject to the various schedular taxes bore a number of exceptions. The most important of these concerned interest on the public debt (state annuities, Treasury bonds, etc.). Although this interest income escaped the IRVM, and obviously did not fall within the jurisdiction of the tax on credits, deposits, and collateral (since such income is from securities in the strict sense), Caillaux had managed to convince the deputies to include it in the list of incomes that households had to declare under the

IGR, and the Senate in 1914 had taken up that provision. We should also mention another provision of the law of July 15, 1914, that would take on considerable importance in the interwar period: after adding up all schedular incomes, taxpayers in a given year were entitled to deduct all “direct taxes” owed on the previous year’s income from their taxable income under the IGR. In the near term, when the only “direct taxes” were the “four old ladies” and these taxes represented only 2 percent or 3 percent of taxpayers’ total income, this provision was of little practical consequence. But when the IGR reached significant levels, this option to deduct all “direct taxes,” and in particular the IGR, owed on the previous year’s income, took on an entirely new significance.<sup>40</sup>

In this study, which is interested in taxes above all from the perspective of their impact on top incomes and the accumulation of large fortunes, much more interest will be taken in the rate structures and tax rates of the IGR than in those of the schedular taxes, and we will often refer to the IGR as “the income tax” (when not further specified). Indeed, for top-income earners, and especially the topmost earners, the burden of the IGR quickly became incomparably heavier than that of the schedular taxes, whose rates always remained relatively moderate (compared to the top rates of the IGR).<sup>41</sup> Also, the schedular taxes had an ephemeral existence, since they were definitively abolished by the reforms of 1948 and 1959, with the result that the general income tax instituted by the law of July 15, 1914, became the “sole” income tax still in effect in the late twentieth century. We may add that, from the point of view of analyzing perceptions of income inequality and how they evolved over time, the schedular taxes, which by definition applied only to income categories at the individual level, and which were always nearly proportional to income, can give us only very indirect information about the overall income levels that successive governments thought fit either to soak or to spare. However, it is useful to keep in mind the composite nature of the system created in 1914–1917, because the schedular taxes lay at the origin of a significant inequality in tax treatment between wage income and self-employment income, an inequality that would spark sharp social and political tensions. These tensions strike us as highly revealing of the way the wage earner–self-employed distinction was perceived over the twentieth century, especially because it left traces that are still present in the income tax legislation of the late twentieth century, despite the elimination of the schedular taxes in 1948–1959, as we will see in this chapter. The composite nature of the system created in 1914–1917 also explains why the interwar

tax system provides us not only with statistical tables derived from tax-return tabulations, but also statistics on the distribution of the categorical incomes levied under the schedular taxes, starting with statistics from the schedular tax on wages, which we used in Chapter 3.<sup>42</sup>

### 3. *1915–1944: The Chaotic Evolution of the Income Tax*

#### 3.1. The First World War Years: “Marginal Rate” Schedules and “Average Rate” Schedules

As we already noted, the law of July 15, 1914, was a rupture much more in institutional and conceptual terms than in quantitative terms. When the IGR first went into effect, the marginal tax rate on the highest incomes was only 2 percent, so the new tax system curtailed top incomes in proportions that were just as trivial as those under the previous system of the “four old ladies.” But this rate structure remained in effect for only a year (the 1915 tax year), and tax rates were increased repeatedly by the so-called Union Sacrée governments that were in power during the First World War (see Table 4-1).

The first increase took place in the budget law of December 30, 1916, which established a new rate schedule for 1916 incomes: the standard exemption was lowered to 3,000 francs, additional brackets were created for very high incomes, and the marginal rate on the highest incomes (above 150,000 francs) reached 10 percent. Then the law of June 29, 1918, brought the top rate up to 20 percent. This new rate schedule, which would apply to 1917–1918 incomes, also had the particularity of being defined in “average-rate terms,” rather than in “marginal-rate terms” (as had been the case for the 1915–1916 tax years). This apparently technical difference played an important role in the history of the French income tax, especially during the tax reform instituted by the Popular Front, and thus it seems useful to provide a bit of elaboration (readers resistant to the charms of such questions can skip directly to the next section).

Rate schedules defined in marginal-rate terms have been in effect without interruption since the 1942 tax year, and were still in effect in the 1990s, which explains why they are better known. By definition, the “marginal rate” applies only to the portion of a taxpayer’s income lying within a given tax bracket. For example, in the 1915 tax year, a single taxpayer with no dependent children (who thus received only the 5,000-franc standard deduction) and a taxable income

TOP INCOMES AND REDISTRIBUTION IN FRANCE

TABLE 4-1

*The general income tax (IGR) rate schedules in effect for the 1915-1918 tax years*

1915	%	1916	%	1917-1918	%
0-5,000	0.0	0-3,000	0	0-3,000	0.0
5,000-10,000	0.4	3,000-8,000	1	3,000-8,000	1.5
10,000-15,000	0.8	8,000-12,000	2	8,000-153,000	15-16
15,000-20,000	1.2	12,000-16,000	3	153,000-553,000	16-20
20,000-25,000	1.6	16,000-20,000	4	553,000-	20
25,000-	2.0	20,000-40,000	5		
		40,000-60,000	6		
		60,000-80,000	7		
		80,000-100,000	8		
		100,000-150,000	9		
		150,000-	10		

*Interpretation:* (i) 1915 and 1916 incomes in French francs were subject to rate schedules expressed in marginal-rate terms: for 1915 incomes, the portion of taxable income between 5,000 and 10,000 francs was subject to a marginal rate of 0.4 percent, the portion between 10,000 and 15,000 francs was subject to a marginal rate of 0.8 percent, etc.; for 1916 incomes, the portion of taxable income between 3,000 and 8,000 francs was subject to a marginal rate of 1 percent, etc.; (ii) 1917 and 1918 incomes in French francs were subject to a rate schedule expressed in average-rate terms: the average rate in effect was 1.5 percent for taxable incomes between 3,000 and 8,000 francs, then rose from 1.5 percent to 16 percent between 8,000 and 153,000 francs, with an increase of 0.01 percentage points per 100-franc bracket; then the rate rose to 20 percent between 153,000 and 553,000 francs, with a 0.01 percent increase for each 1,000-franc bracket (the average rate applied to taxable incomes net of the standard 3,000-franc deduction).

of 9,000 francs would have been subject to a marginal rate of 0 percent on the portion of income below 5,000 and a marginal rate of 0.4 percent on the portion between 5,000 and 10,000 francs, that is, on 4,000 francs (9,000 francs - 5,000 francs = 4,000 francs), so the tax owed would have been 0.4 percent of 4,000 francs, or 16 francs. Expressed as a percentage of the individual's 9,000-franc income, the tax this taxpayer owed would thus be only 0.18 percent (16 / 9,000 = 0.18 percent). One would then say that this taxpayer's "average effective tax rate," or more simply the "average rate," was 0.18 percent (the tax owed represents only 0.18 percent of the person's income), even though the "marginal rate" was 0.4 percent (the taxpayer's income put him or her in the 0.4 percent tax bracket, and thus this individual would pay a tax of 0.4 percent on any "marginal" increase in income). The "average rate" for this taxpayer would be even lower if

he or she received the flat-rate deductions and tax reductions for family dependents prescribed by the law of July 15, 1914.<sup>43</sup> We can see that in the case of the 1915 tax year, and for this taxpayer in particular, the distinction between the “average rate” and “marginal rate” was of little importance, since the tax rates were extremely low in any event. But this phenomenon takes on fundamental importance for recipients of high incomes when marginal rates reach high levels. For example, the highest marginal rate of the tax schedule in effect in the late twentieth century (referred to as the “top marginal rate”) stood at 54 percent, but obviously that does not mean that the income tax paid by taxpayers in that bracket came to 54 percent of their taxable incomes: since only a fraction of their income was subject to this 54 percent rate, their average tax rate often did not exceed 15–20 percent, and it approached the limit level of 54 percent (though without ever reaching that limit) only for infinitely high incomes. We will analyze the consequences of this phenomenon in the next chapter, when we study the evolution of the average effective tax rates owed by the various top-income fractiles. In the meantime, it is useful to keep in mind that the average tax rates to which taxpayers are actually subject are always significantly below the “official” marginal rates that appear in tax schedules defined in “marginal-rate terms.”

In contrast to schedules defined in “marginal-rate terms,” those defined in “average-rate terms” set rates that apply directly to the whole of taxable income, rather than to just a fraction of it. For example, the tax owed by a taxpayer with a 1917 or 1918 taxable income between 3,000 and 8,000 francs would have equaled 1.5 percent of the taxpayer’s income.<sup>44</sup> To avoid discontinuities, the average rate for incomes between 8,000 and 553,000 francs rose gradually from 1.5 percent to 20 percent, with a 0.01 percent increase for every 100 francs between 8,000 and 153,000 francs and 0.01 percent for every 1,000 francs between 153,000 and 553,000 francs (see Table 4-1). Finally, recipients of incomes above 553,000 francs paid a tax equal to 20 percent of their income. The advantage of schedules expressed in “average-rate terms,” which were used in France only in the 1917–1918 and 1936–1941 tax years, is precisely that the income groups intended to bear the tax burden can be better “targeted.” With an average-rate schedule, all that needs to be determined are the average tax rates one wishes to impose on different “target” groups (for example, in 1917–1918, 1.5 percent for incomes of around 3,000–8,000 francs, 16 percent for incomes of around 153,000 francs, and 20 percent for incomes above 553,000 francs);

afterward it is always possible to “join up” those different average rates, using a curve giving the average rates on the intermediate incomes.<sup>45</sup> Rate schedules expressed in marginal-rate terms lack such freedom of maneuver. For example, if you want to reduce the tax rate on the lowest incomes, you also have to reduce the tax owed by the highest incomes, since the marginal rate on the lowest incomes also applies to the initial portions of the highest incomes. The only solution, then, is to alter the entire schedule, which in practice is always more difficult to manage from a political point of view. Thus, opponents of the Popular Front’s tax reform, which was based largely on the freedom of maneuver that came with a schedule expressed in average-rate terms, were not mistaken, and they strenuously denounced the demagoguery and “short-cuts” made possible by abandoning a tax schedule expressed in marginal-rate terms. Schedules defined in average-rate terms have the extra advantage, from a civic point of view, of clearly showing citizens the size of the contributions that different people are being asked to make; one only has to read the schedule to know how much each person pays in proportion to their income, whereas schedules defined in marginal-rate terms require more complicated calculations, which in practice generate a great deal of confusion and often lead many observers and taxpayers to overestimate actual tax rates on top incomes, sometimes considerably so.

The price of this transparency, obviously, is that rate schedules defined in average-rate terms do not show the marginal rates clearly, and these may well follow a fairly chaotic path according to income. For example, in the 1917–1918 tax years (see Table 4-1), the marginal rate on income above 553,000 francs was 20 percent (since the average rate in the schedule was no longer rising), but it exceeded 25 percent for incomes slightly below 553,000 francs: thus the average rate rose from 19.99 percent at the 552,000-franc level to 20 percent at the 553,000-franc level, an implicit marginal tax rate of 25.52 percent for incomes between 552,000 and 553,000 francs.<sup>46</sup> In other words, to make the average tax rate rise fast enough between the different chosen groups, average-rate tax schedules often have to impose higher implicit marginal tax rates on incomes lying between two target groups than on incomes above the second target, unlike schedules defined in marginal-rate terms, which, in practice, have marginal rates that systematically always rise as income goes up. We find the same chaotic marginal-rate path in the average-rate-based schedule instituted by the Popular Front, which was in effect for the 1936–1941 tax years. In that schedule, the



average rate on income above 1.33 million francs was 40 percent, but the implied marginal rate on incomes slightly below that threshold exceeded 53 percent.<sup>47</sup> That average-rate-based schedules can feature chaotic marginal-rate paths does not pose any particular problem in itself, however: the principle of a progressive tax is that the average tax rate should be a rising function of income, not that the marginal tax rate should be a rising function of income. It may also be pointed out that to increase their freedom of maneuver—which is highly circumscribed under a marginal-rate-based schedule when there is also a self-imposed requirement to make marginal rates rise with income—post-World War II governments have repeatedly had to come up with parallel systems alongside the official rate schedule, such as the “rebate” mechanism, designed to reduce taxes on incomes close to the taxable income threshold without reducing them too much on slightly higher incomes. This mechanism inevitably leads to significantly higher marginal rates on incomes receiving the rebate than on slightly higher incomes, just as with average-rate schedules. In fact, the only downside of average-rate-based schedules is that the marginal rates are defined only implicitly—not that the rates follow a chaotic path as a function of income. Given the many advantages of average-rate-based schedules, it is legitimate to ask whether this slight drawback justifies today’s complete abandonment of average-rate systems.

In any event, the fact is that the adoption of average-rate schedules with the law of June 29, 1918, meant that the increase in the tax burden on very high income earners during the First World War was even larger than it appears from a superficial examination of the rates in the official schedules. The marginal rates on the highest incomes did not exceed 2 percent in 1915 and 10 percent in 1918, whereas the average rate in 1917–1918 reached 16 percent for incomes around 153,000 francs and 20 percent for incomes above 553,000 francs (see Table 4-1). If we add the additional burden created by the schedular taxes (which first went into effect in the 1917 tax year), it can be seen that the tax rates considered “reasonable” before the First World War had already been far exceeded.

### 3.2. The Second Birth of the Income Tax (the Law of June 25, 1920)

Despite these significant increases in the tax schedule, however, at the end of the First World War no one really had a sense of what the IGR would look like



in peacetime. Indeed, the tax increases carried out by the wartime “Union Sacrée” governments could be attributed to the exceptional financial burdens of the war, and the affected taxpayers could still hope that the end of hostilities might bring a return to the “reasonable” rates known before the war. In fact, the opposite happened: the law of June 25, 1920, which established a new rate schedule that went into effect from the 1919 tax year (defined in marginal-rate terms) and would serve as the basis for the rate schedules prevailing until 1936, increased the marginal rate on the highest incomes to the unheard-of level of 50 percent (see Table 4-2). One can imagine the shock that a 50 percent tax rate represented for wealthy taxpayers. When a progressive income tax was debated before the First World War, the highest rates discussed had never exceeded 5 percent: the marginal rate on the highest incomes were 5 percent in the Doumet bill (1896), 4 percent in the first Caillaux bill (1900), then 4 percent again in the second Caillaux bill, and the top marginal rate was finally reduced to 2 percent in the bill adopted by the Senate on July 15, 1914. What does a tax that always leaves you with more than 95 percent of your income, no matter what, have in common with one that, at least theoretically, threatens to take half of your income, and even more when the schedular taxes are taken into account? Before the war, of course, critics of the income tax had explained at length that once in place, this “odious machinery” could lead to the worst excesses. Caillaux had answered them by invoking the example of the progressive inheritance tax, the rates of which had barely changed since its creation in 1901, and probably no one in 1914 had suspected that the IGR’s rates would so quickly reach such high levels. That income taxes can take as much as half of one’s income (or even more) has long been a familiar notion, but in the early 1920s it was a totally new idea. Thus, the law of June 25, 1920, can truly be described as the “second birth of the income tax,” especially because subsequent rates, though undergoing significant changes according to the vagaries of politics and parliamentary majorities, would always remain roughly at these “modern” levels and would never again return to the levels considered “reasonable” before the First World War.

The rupture created by the law of June 25, 1920, is all the more remarkable because that law was adopted by the so-called *Bloc National* majority, that is, a majority made up for the most part of the very parliamentary groups which, before the war, had been most fiercely opposed to the creation of an income tax. Indeed, the first postwar legislative elections, held in November 1919, had

resulted in the “Sky Blue Chamber,” named for the color of France’s wartime uniforms, in which the Right held a large majority, whereas the Radicals and Socialists, who had supported the income tax bills before the war, found themselves with several dozen fewer seats than they had held in the Chamber that followed the May 1914 elections. This complete turnaround on the part of the parliamentary groups of the Right was, of course, explained by the disastrous financial situation that the war had left behind. The state had accumulated considerable debts during the war, and notwithstanding the ritual rhetoric about how “Germany Will Pay,” everyone quickly realized that it was essential to find new fiscal resources to cope with the costs of debt and reconstruction, burdens now exacerbated by the generous laws providing for war damages and old-age pensions for veterans that had been passed in 1919 amid the euphoria of victory. In a context where shortages and money-printing had pushed inflation to levels unknown before the war, where workers’ wages still had not regained their 1914 purchasing power, and where several strike waves in the spring of 1920 threatened to paralyze the country, one almost gets the impression that political labels didn’t matter—new fiscal resources had to be found, and it was hard to imagine that recipients of top incomes would be spared. That does not mean, of course, that the increases in IGR rates were what made it possible to pay off the war and restore balanced budgets; when we examine the evolution of the average effective tax rates on the various top-income fractiles in Chapter 5, we will see that the new marginal rates set by the *Bloc National*, as high as they were, applied to far too few taxpayers for the resulting revenues to be of any more than symbolic importance. That explains why fiscal and monetary equilibrium would only be attained in 1926, using tax instruments other than the IGR. But the key point to remember is that in 1920, the Right chose to resort to the kind of symbolic action usually associated with the Left: the *Bloc National* governments felt they had to demand significant sacrifices from recipients of very high incomes, even though they knew very well that this would not be enough to resolve the financial problems. As the irony of history would have it, the *Bloc National* finance minister who pushed through the law of June 25, 1920, was François-Marsal, a banker by trade, whom the Left regularly described as “the man of 27 corporate boards,”<sup>48</sup> and whom few would suspect of having any particular ideological sympathy for the income tax or 50 percent marginal rates. The fact that the Right could find itself in such an unprecedented political situation shows the altogether exceptional nature of both the financial

situation inherited from the war and the political context that led to the definitive abandonment of the tax rates considered “reasonable” before 1914. Although there can never be a completely convincing answer to this question (perhaps without the threat of war the Senate would not have passed the IGR), it seems relatively plausible that, if the country and its public finances had not been plunged into such an exceptionally disastrous state by the violence and the length of hostilities (a condition that was largely impossible to predict before the war), the IGR, once passed, might have continued with the “reasonable” tax rates of 1914 for a long time further, as the IRVM had done between 1872 and 1914 and as the progressive inheritance tax had done from 1901 to 1914.

In addition to the spectacular increase in the top rates of the IGR schedule, the law of June 25, 1920, also contained other important provisions that substantially modified the physiognomy of the income tax system established in 1914–1917. First, although rates were increased on all the schedular taxes, they nevertheless remained at relatively modest levels compared to those of the IGR (the new schedular rates moved up to 6 percent for wages and 8 percent for BIC income).<sup>49</sup> This definitively cemented the principle that the two components of the system created in 1914–1917 were meant to play two quite distinct roles. First, the IGR’s role was to hit top incomes with rates that could reach very high levels, and the role of the schedular taxes was to tax a larger share of the population using far more moderate rates. In addition, the law of June 25, 1920, introduced a system of IGR surtaxes for single, childless taxpayers, as well as married taxpayers with no children after two years of marriage. The rules were fairly severe: under the IGR, all single individuals with no dependent children, as well as divorced individuals without children, had to pay a surtax equal to 25 percent of the amount owed before taking the surtax into account, and all married couples with no child after two years of marriage had to pay a surtax equal to 10 percent of the amount owed before the surtax. According to the jurisprudence of the time, these surtaxes applied even to “priests and individuals condemned to celibacy by illness,” and the only way to escape them (other than marrying and speedily having children) was to be under thirty years old on January 1 of the income year in question, or to have previously had children who were now either adults or deceased. The law of June 26, 1920, actually left some ambiguity around this issue of deceased children, and not until the law of July 13, 1925, was it definitively clarified that married taxpayers with now-deceased children were not subject to the surtax, and that the same was

true for married taxpayers with adult children.<sup>50</sup> The fact that such an issue could have remained unresolved for several years shows how rigorously these surtaxes were designed and enforced.

As with all of the provisions of the law of June 25, 1920, this system of surtaxes went into effect from the 1919 tax year, so in that year the highest marginal IGR rate, for single, childless taxpayers with sufficiently high incomes, reached 62.5 percent, rather than 50.<sup>51</sup> With the notable exception of a tightening of the rules in 1934 and a slight relaxation in 1936, this system of surtaxes remained in effect in that form from the 1919 to the 1938 tax years, before being transformed into a “Family Compensation Tax” (TCF) during the Second World War; traces of it could still be seen after the Second World War in the rules for determining the number of family-quotient shares, as we will see in this chapter. Building on the system for taking the taxpayer’s family situation into account that had been instituted by the law of July 15, 1914 (flat-rate deductions from taxable income and proportional tax reductions for dependents), this system of surtaxes allowed the *Bloc National* at the time to argue that the fiscal sacrifices being asked from one and all were even greater for those who were not contributing to an increase in the national population.<sup>52</sup> This gave a “right-wing” coloration to the Bloc’s tax increases, in that the question of taking taxpayers’ family situation into account in calculating tax was the object of a left–right conflict that remained extremely stable throughout the history of the income tax, with the Right usually trying to ensure that large families and legitimate couples paid much less tax than childless individuals and unmarried couples, and the Left denouncing these attempts as a veiled method of giving undue advantages to high incomes and imposing a return to a kind of “moral order.”

### 3.3. Stabilization in Big Changes (1920–1936)

The 1920–1936 period was a relatively strange one in the history of France’s income tax. On the one hand, the period witnessed extremely large and rapid changes in tax rates on the highest incomes, by magnitudes that are hard to imagine when one is accustomed to the “pacified” income tax we have known since the Second World War, in which reforms and rate changes (both upward and downward) are always very cautious and limited in their immediate effects. Yet, on the other hand, all reforms in this period took place within the framework set by the law of June 25, 1920, which had introduced a general rate structure

TOP INCOMES AND REDISTRIBUTION IN FRANCE

TABLE 4-2  
*The rate schedules of the general income tax (IGR) in effect  
in the 1919–1935 tax years*

Income brackets		Year	Rates (%)
0–6,000	0/25	1919	50
6,000–20,000	1/25	1920	50
20,000–40,000	2/25	1921	50
30,000–40,000	3/25	1922	50
40,000–50,000	4/25	1923	60
50,000–60,000	5/25	1924	72
60,000–70,000	6/25	1925	60
70,000–80,000	7/25	1926	30
80,000–90,000	8/25	1927	30
90,000–100,000	9/25	1928	33.33
100,000–125,000	10/25	1929	33.33
125,000–150,000	11/25	1930	33.33
150,000–175,000	12/25	1931	33.33
175,000–200,000	13/25	1932	36.67
200,000–225,000	14/25	1933	36.67
225,000–250,000	15/25	1934	24
250,000–275,000	16/25	1935	24
275,000–300,000	17/25		
300,000–325,000	18/25		
325,000–350,000	19/25		
350,000–375,000	20/25		
375,000–400,000	21/25		
400,000–450,000	22/25		
450,000–500,000	23/25		
500,000–550,000	24/25		
550,000–	25/25		

*Explanation:* 1919–1935 incomes in French francs were subject to a single rate schedule expressed in marginal-rate terms: the portion of taxable income between 6,000 and 20,000 francs applied for 1/25 of its amount, the portion between 20,000 and 30,000 francs applied for 2/25 of its amount, etc., and the portion above 550,000 francs applied for 25/25 of its amount. The rate that was then applied to the total resulting income was 50 percent in the 1919–1922 tax years, 60 percent in the 1923 tax year, etc. (these rates include the surtaxes in effect in the 1923–1925 and 1932–1933 tax years, shown in Table 4–6 (the increases in the 6,000-franc standard deduction are shown in Appendix C, Table C-1).

that would continue without interruption until the law of December 31, 1936, passed by the Popular Front. In a sense, the 1920–1936 period can be described as one in which different governments accepted certain common rules of the game—namely, the basic framework defined by the law of June 25, 1920—but in which, within this framework, each government maximally exploited the remaining margins to maneuver according to its own temperament, and above all, according to the chaotic trajectory of the state of public finances.

The law of June 25, 1920, had the peculiarity of defining the overall structure of tax brackets separately from the tax rates applied (see Table 4-2). From the 1919 tax year to the 1935 tax year, the same system continued in effect: the idea was to add together  $0/25$  of the portion of income between 1 and 6,000 francs,  $1/25$  of the portion of income between 6,000 and 20,000 francs,  $2/25$  of the portion of income between 20,000 and 40,000 francs, and so on, and  $25/25$  of the portion of income above 550,000 francs, etcetera, and then to apply “the” rate (initially set at 50 percent) to the resulting income. By definition, this system is exactly equivalent to a “classic” marginal-rate-based schedule (which is how it has been formulated since 1945) in which the marginal rate is 0 percent for the 0–6,000 bracket, 2 percent for the 6,000–20,000 bracket, 4 percent for the 20,000–40,000 bracket, and so forth, and 50 percent for the bracket above 550,000 francs. But from a political point of view, the key difference is that once future governments agree to stay within this predefined framework, their freedom of maneuver—already narrower with marginal-rate-based schedules than with average-rate-based schedules—is found to be drastically narrower still: the tax is progressive, but now there is only a single rate to set, and a government that wants to adjust the tax burden (whether upward or downward) finds itself forced to change this single rate, adjusting the burden by exactly the same proportions for all income groups, from the lowest to the highest. As it happens, no government until the Popular Front would end up challenging this “straightjacket” bequeathed by the *Bloc National*. From the 1919 tax year to the 1935 tax year, the only changes to the tax brackets were increases in the standard deduction.<sup>53</sup>

On the other hand, as shown by the chronology described in Table 4-2, the governments of 1920–1936 did not refrain from making maximal use of the only margin of maneuver preserved by the law of June 25, 1920, namely, the single tax rate, which was also the marginal rate for the highest incomes, initially set at 50 percent. This rate at first would remain unchanged for four years: from the 1919 tax year to the 1922 tax year, the rate would remain stable at 50 percent.

Then the law of March 22, 1924, provided for the establishment of a *double décime*, that is, a general surtax equal to 20 percent of the tax owed before taking the surtax into account, applied to both the IGR and the tax owed on the schedular taxes, and applicable to all taxpayers. Thus, although the “official” rate of the IGR was still 50 percent, the effective rate actually rose to 60 percent starting from the 1923 tax year.<sup>54</sup> This “exceptional surtax” was actually in effect for three years, from the 1923 tax year to the 1925 tax year. In addition, for the 1924 tax year a new 20 percent surtax, established by the law of December 4, 1925—the so-called “Loucheur law,” from the name of the finance minister who introduced it—came on top of the *double décime*, bringing the IGR rate up to 72 percent.<sup>55</sup> Thus, for single taxpayers hit by the 25 percent surtax established by the law of June 25, 1920, which continued to apply on top of all the other surtaxes, the marginal rate for the highest incomes reached 75 percent for the 1923 and 1925 tax years, and 90 percent for the 1924 tax year.<sup>56</sup> Thus, in less than ten years, the top marginal rate of the income tax had risen from 2 percent (in the 1915 tax year) to 90 percent (in the 1924 tax year), that is, from a trivial level to the highest level ever reached in the entire history of the twentieth-century French income tax!<sup>57</sup> As with the law of June 25, 1920, it is rather striking to note that these surtaxes were passed not by governments of the Left, but by governments of the Right and center-right. The *double décime* was passed by the “Sky Blue Chamber” in March 1924, two months before the May 1924 legislative elections in which voters, tired of inflation and the *Bloc National’s* inability to improve the financial situation, gave a majority to the *Cartel des Gauches* (that is, the coalition of Radicals and Socialists). To be sure, the deputies of the “Sky Blue Chamber” were never enthusiastic about voting these tax-hike measures: throughout the 1919–1925 legislature, the *Bloc National* governments had to confront the reluctance of their parliamentary majority, some of whose members had never totally given up on the idea of abolishing the income tax and going back to the indicators-based system of the “four old ladies.” Yet the fact remains that it was the right-wing governments installed by the 1919 election that proposed and adopted the IGR’s transformation into a tax hitting top incomes at extremely high rates.<sup>58</sup>

When the *Cartel des Gauches* took power in June 1924, it thus found itself in a paradoxical situation: the monetary and budget situations still had not been stabilized, yet IGR rates had already reached such levels that they could hardly be increased further (without altering the entire rate structure to hit a



broader layer of high incomes, which was not done), especially since the Socialists and Radicals had been unable to refrain from denunciations of “the policy of the *double décime*” in the 1924 electoral campaign. In fact, the Herriot cabinet, in office from June 1924 to April 1925, carried out no increase in IGR rates; they merely applied the rate schedule and the *double décime* inherited from the *Bloc National*. The law of December 4, 1925, was voted after Herriot’s fall, at a time when the *Cartel des Gauches* majority had practically ceased to exist and when the situation was heading toward a return to power of Right-led cabinets.<sup>59</sup> The additional 20 percent surtax established by the law of December 4, 1925, which would bring the top marginal rate to its maximum historical level, was probably the most desperate attempt ever undertaken by a French government to “get money into the coffers” as fast as possible using the tool of income taxes. Confronted with a large quantity of Treasury bonds with payment deadlines coming due in early December 1925, the government indeed had an immediate need for reserves, and it decided on the establishment of a system of retroactive surtaxes payable immediately. IGR tax assessments for the 1924 tax year had been sent out several months earlier, so over the course of December 1925 affected taxpayers received additional tax assessments for their 1924 incomes, which they were required to pay by the end of the month. Except for the one-time levy on 1946 incomes established by the law of January 7, 1948, which, strictly speaking, was actually a “compulsory loan” rather than a surtax, we find no other episode in the history of the French income tax in which such a rushed procedure was used. There have been relatively frequent instances in which rate-schedule changes or surtaxes on a given year’s tax bill were passed over the course of the following year, but such votes usually took place in the spring or summer of the following year (for example, in June 1920 for the 1919 tax year, or in April 1924 for the 1923 tax year, or again in August 1981 for the 1980 tax year), allowing the surtaxes to be incorporated into the initial tax assessments, which were usually sent out to affected taxpayers in September. This unique procedure shows the altogether exceptional nature of the financial situation confronting governments of the period.<sup>60</sup>

In 1925–1926, a degree of consensus began to emerge around the fact that all these IGR surtaxes on very high incomes were not procuring enough revenue to restore fiscal and monetary equilibrium. Even the Socialist Party seemed to think income tax rates could be raised no further, and that increases in indirect taxes now had to be considered.<sup>61</sup> It fell to Raymond Poincaré—who had been



president of the Council of Ministers when the *double décime* was passed in March 1924 and was recalled to power in July 1926 to head a new cabinet of national union to rectify what seemed to be a desperate financial situation—to carry out a U-turn: the budget law that he immediately passed on August 3, 1926, abolished the *double décime* and lowered the IGR rate from 50 percent to 30 percent. This measure, which went into effect starting with the 1926 tax year, represents the largest cut in the entire history of the French income tax: the general IGR tax rate fell from 60 percent (including the *double décime*) in the 1925 tax year to 30 percent in the 1926 tax year. But most importantly, the law of August 3, 1926, also adopted a whole series of very large increases in both the schedular taxes and indirect taxes, and the revenues these increases would bring in far exceeded those lost from the IGR, as well as those that had been gained through the tax increases undertaken since 1920; thus these taxes would make it possible to restore the fiscal situation.<sup>62</sup> But as Alfred Sauvy noted (“the fruit was ripe, it had only to be plucked”), the success of the Poincaré stabilization is explained at least as much by the action (or inaction) of previous governments as by the measures taken in 1926. The austerity carried out since 1920 finally bore fruit; above all, the inflation and depreciation of the franc during the First World War and the 1920s finally managed to reduce the real value of the debt enough so that the *coup de grâce* could be struck. In a sense, the succession of governments down to 1926 that chose to crank up the printing presses to finance public expenditures that they could not cover through the taxes they imposed had allowed the value of the debt to be gradually eroded and the war’s accounts finally to be closed.<sup>63</sup> Also, it was probably easier for a government of the Right presided by Poincaré to acknowledge officially that the franc would never recover its prewar value, and that the “sacred promise” made to those who had lent to the state to finance the war by subscribing in massive numbers to the “National Defense Bonds” and other loans issued during the war and in the early 1920s would in reality never be respected. Everyone (or almost everyone) had probably known for some time that savers would never be repaid except in funny money, but if a government of the Left had tried to challenge the myth of a return to the prewar Gold Franc—a myth that had been highly tenacious in the rhetoric of politicians of all stripes until 1926—the Right probably would not have been able to restrain itself from denouncing such a shameful policy that had been imposed by the enemies of capital and of savers, and the Left probably would have had a great deal of trouble imposing such a

policy on public opinion, which was ill-prepared for such a shock. Once that problem was settled, the political conflict over the income tax, from 1926 through the 1930s, assumed a more classical configuration: the Right took it for granted that the rates in effect between 1920 and 1926 had been an aberration and that the more moderate rates Poincaré introduced should be kept (or reduced even further, circumstances permitting), whereas the Socialists, and to a lesser degree the Radicals, denounced the fiscal choices embodied by the law of August 3, 1926, and agitated for an increase in the IGR on recipients of very large incomes. The Right, campaigning under the banner of Poincaré and the restoration of stability, won the legislative elections of April 1928, allowing Poincaré to stay in power and to crown his accomplishment with the monetary law of June 1928, which set the new official value of the franc.

For a brief period, from the legal stabilization of 1928 to the start of the world economic crisis in 1930–1931, a succession of right-wing and center-right governments were able to carry out what Tardieu, president of the Council in 1929–1930, called a “policy of prosperity,” with budgets passed before year-end and large-scale tax relief. The budget law of December 31, 1928, contained a relatively large increase in the IGR standard deduction (from 7,000 to 10,000 francs) and in deductions for family dependents; in the budget law of December 29, 1929, Tardieu then passed another increase in these deductions and in the tax reductions for family dependents, as well as a reduction in the schedular tax rates, especially for “small” shopkeepers and industrialists.<sup>64</sup> However, after the Radicals reiterated their demand for greater tax fairness at the Angers party congress in November 1928, while simultaneously announcing their departure from the cabinet of national union, Poincaré had to agree to include a slight increase in the IGR rate in the law of December 31, 1928, to make up for the increases in the standard exemption and the deductions: the IGR rate rose from 30 percent in the 1926–1927 tax years to 33.33 percent (one-third) in the 1928–1931 tax years (see Table 4-2). But the general mood in the late 1920s did incline toward tax relief and the “policy of prosperity,” and this largesse went far beyond the narrow framework of the income tax: it was in the same context that Poincaré passed the law on social insurance of April 5, 1928, a few weeks before elections, a singular contrast with the *double décime* he had passed two months before the 1924 elections. It was also in this context that the big public-sector pay increases discussed in Chapter 3 were adopted. In the late 1920s, the feeling was that the chaotic period bequeathed by the war was well and truly

over. In 1929, gross domestic product exceeded its 1913 level by nearly 30 percent,<sup>65</sup> and the 1930s could be serenely looked forward to as a time when political life would no longer be dominated by fiscal consolidation plans.

This period of optimism was short-lived: after a few final tax cuts were passed in the spring of 1930,<sup>66</sup> the world economic crisis that descended on France in 1930–1931 put an end to the policy of tax relief. The elections of May 1932, held in a badly deteriorating economic climate, naturally led to a swing of the political pendulum and a victory for the Left, which allowed the Radical party to retake control of the Council presidency that it had given up in 1925–1926. But as had been the case in the legislature of 1924–1928, the left-wing majority produced by the 1932 elections lasted only two years: Daladier resigned the day after the violent riots of February 6, 1934, which had been provoked by far-right groups outside the Chamber of Deputies. And from that date on, the government was led by the Right or center-right (Doumergue in 1934, then Flandin and Laval in 1935–1936), in a new series of so-called national union cabinets, with the participation of the Radicals. It is true that Socialists and Radicals had as much trouble agreeing on a program of fiscal consolidation in 1932–1933 as they had had in 1924–1925. One of the main points of friction concerned plans for “one-time levies” and “exceptional contributions” to be taken out of public workers’ wages, which the Socialists, who refused as in 1924 to enter the government, wanted to limit to the highest wage levels within the public sector. Immediately after the elections, Herriot passed the budget law of July 15, 1932, which included a complete reworking of the IGR, eliminating the rate schedule established by the *Bloc National* in 1920 and replacing it with a schedule defined in average-rate terms, one very similar to that which the Popular Front would ultimately adopt in 1936 and which likely would have significantly increased the amount of tax demanded from high-income earners. But the Herriot cabinet fell in December 1932, and the law never actually went into effect: the Daladier cabinet that followed replaced it with the law of February 28, 1933, which kept existing law and merely added an exceptional surtax equal to 10 percent of the IGR bill owed before the surtax (the Chamber had initially planned on a 20 percent surtax, but the Senate ultimately managed to impose a surtax limited to 10 percent); this surtax would remain in effect for two years. Thus, the tax brackets from the schedule established in 1920 continued to apply in the 1932 and 1933 tax years, but with a tax rate of 36.67 percent.<sup>67</sup> Generally speaking, the IGR tax rates hikes passed by the governments of the

1930s were much more modest than those of the first half of the 1920s; the general feeling was that the economic crisis and collapse in business profits had caused a significant decline in top incomes, so it was pointless to pretend that major new tax receipts could be found there.

After February 6, 1934, the Doumergue cabinet could even afford to undertake a tax reform of the sort that would appeal to the rightmost portions of its parliamentary majority. The law of July 6, 1934, which was supplemented by the decree of July 20, 1934, would go into effect only with the 1934 tax year; it started by eliminating the exceptional 10 percent surtax put in place by the left, and then lowered the general IGR rate from 33.33 percent to 24 percent. This 24 percent rate was the lowest top marginal rate since the 1918 tax year (see Tables 4-1 and 4-2). Moreover, the Doumergue cabinet established an automatic link between the IGR rate and the schedular tax rates to make it impossible for future governments to increase the IGR on top incomes without also increasing the level of schedular taxes, and the latter would have to be done in the same proportions as the former.<sup>68</sup> This provision was already breached in 1935, and it would be even more so in 1936 under the Popular Front, but in July 1934 it looked like a strong measure aimed against the Left. Indeed, the issue of the relative tax burden of the IGR and the schedular taxes was of high political salience throughout the interwar years: the Left agitated for cuts to the schedular taxes, especially the schedular tax on wages, and for increases in the IGR; the Right responded that a large share of the population must be hit if one wanted to obtain enough tax receipts to cover public expenditures, which the Left, moreover, had a tendency to try to inflate. By imposing this automatic link between rates on all taxes, Doumergue wanted to considerably limit the margin to maneuver for future Left governments (assuming such governments did not repeal the provision). In fact, this logic, based on the idea of lowering the rates and broadening the base, lay at the foundation of the Doumergue reform. The budget was not in great shape, and to make up for the cut in the IGR rate to 24 percent, the law of July 6, 1934, included a whole series of measures aiming to increase the volume of taxable incomes—for example, limiting the deductibility of social-insurance contributions from taxable income, as well as establishing a flat-rate deduction for work expenses equal to 10 percent of wages and other compensation. This deduction, still in effect today, was initially designed with the idea of limiting the excessive deductions for work expenses that workers were suspected of taking.<sup>69</sup>

Most importantly, the law of July 6, 1934, eliminated the tax reductions for family dependents received by households subject to the IGR, so the 1933 tax year was the last time these deductions applied.<sup>70</sup> But to show that it bore no ill-will to large families wealthy enough to owe tax under the IGR, Doumergue significantly increased the flat-rate deductions for family dependents taken into account in calculating the IGR; and above all, he significantly increased the rate of the surtax for childless taxpayers that the *Bloc National* had created in 1920, which had remained in effect and unchanged from the 1919 tax year to the 1933 tax year. Thus the surtax rate on single and divorced individuals (to which the category of childless widows and widowers was now added) rose from 25 percent to 40 percent, and the rate for married couples without children after two years of marriage rose from 10 percent to 20 percent. Extending the surtax's applicability to childless widows and widowers, whom the law of June 25, 1920—passed just after the bloodletting of the First World War—had thought it best not to torment any further, resulted in a significant increase in the number of taxpayers hit by the surtax. These measures represented a methodical attack on the childless, especially unmarried, childless individuals, and two years later the Popular Front decided to soften these measures that had been synonymous with “moral order.”

However, the tax cuts granted to wealthy families by the Doumergue reform would not last long. The economic situation, which had improved slightly in 1933, deteriorated again in 1934–1935, and Laval managed to get Parliament to pass the law of June 7, 1935, granting him full powers to push through measures to ensure economic and financial recovery in the form of decree-laws. In the summer of 1935, Laval thus brought to a climax the deflationary strategy that every government had pursued since the start of the crisis in 1930–1931, the crowning jewel being his decree-law of July 16, 1935, which instituted a flat 10 percent reduction in all public expenditures, including spending on personnel (but with the amount reduced to 5 percent for the lowest-wage government workers). Given the extremely brutal nature of such a policy, and coming after several waves of budget cuts, it is not hard to understand why Pierre Laval's government felt obliged to include some one-time increases in the IGR on top earners in its decree-laws, though no one suspected it of having any more sympathy for the IGR or high marginal rates than the *Bloc National* governments had had. Thus, the decree-laws of July 16 and July 26, 1935, established a one-time increase in IGR tax, based on a 25 percent increase in the tax rate on

incomes between 80,000 and 10,000 francs, and a 50 percent increase for incomes above 100,000 francs.<sup>71</sup> This one-time additional levy applied fully for the 1935 tax year, but it also applied at partial levels (12.5 percent and 25 percent instead of 25 percent and 50 percent) in the 1934 tax year, as provided for in the decree-laws. As a result, the 24 percent top marginal rate (not counting the extra levies for childless taxpayers) laid out in the Doumergue reform never actually went into effect: the rate was 30 percent in the 1934 tax year, then 36 percent in the 1935 tax year.<sup>72</sup>

### 3.4. The Popular Front Income Tax

The income tax reform put in place by the Popular Front in the budget law of December 31, 1936, which went into effect with the 1936 tax year, represented a major break vis-à-vis the practices of the previous governments. The reform was highly expected, since in both 1924 and 1932 the Socialists had refused to join cabinets led by the Radicals, and because it was the first time in the history of the Third Republic that the Socialists headed a government. The day after the April–May 1936 legislative elections, which saw the Socialist Party (known as the SFIO) surpass the Radical Party against all expectations, the SFIO found itself at the helm of state, with Léon Blum heading the Council of Ministers and Vincent Auriol at the Finance Ministry. What would the Socialists do with this instrument designed to “tax the rich”?

The reform undertaken by the Popular Front repealed the rate schedule established by the *Bloc National* in the law of June 25, 1920, and replaced it with a schedule expressed in average-rate terms (see Table 4-3). It was a relatively ambitious reform, for several reasons. First, in its form: the marginal-rate-based schedule that the *Bloc National* had introduced in 1920 had been in place for more than fifteen years, and no government had dared to challenge it. Although an average-rate-based schedule had been in effect for the 1917–1918 tax year, it was already a distant memory; most importantly, the rates established by the Popular Front were of an altogether different magnitude. The ambition of the new schedule lay, above all, in what it allowed the government to achieve. Expressing tax rates in average-rate terms allowed it to significantly increase the amount of tax demanded from very high-income earners, without having to post excessively high marginal tax rates. Indeed, the highest rate specified in the Popular Front’s rate schedule (40 percent) remained far below the historical

maximum levels witnessed in the 1923–1925 tax years, when top marginal rates were 60 percent and 72 percent (see Table 4-2).<sup>73</sup> But the key difference was that these were now average rates, not marginal rates, so the Popular Front's 40 percent tax rate meant that taxpayers in the highest bracket would actually pay 40 percent of their taxable income under the IGR,<sup>74</sup> whereas the top marginal rates in the earlier period applied to the uppermost portion of income only, so that the average tax rate was in reality far lower. In particular, compared to the schedules that had been in effect since the time of the Poincaré stabilization, when top marginal rates had gravitated around 30 percent (reaching a maximum of 36.67 percent in 1932–1933, and an "official" minimum of 24 percent in 1934–1935)—meaning that average effective tax rates on top incomes were actually far lower (except for infinite incomes)—the 40 percent average rate instituted by the Popular Front represented a significant increase in the IGR tax demanded from the highest incomes. Also, and most importantly, abandoning the straightjacket imposed by the law of June 25, 1920, allowed the Popular Front to increase the tax burden on very high incomes without having to do the same for taxpayers with incomes slightly above the IGR's taxable-income threshold, something that was by definition impossible to do under the schedule that the *Bloc National* had adopted. In Chapter 5 we will return to the specific income fractiles targeted by the Popular Front's tax reform.

Also, had the Senate not eliminated a key part of the bill, the law of December 31, 1936, would, in theory, have resulted in a significantly larger increase in the amount of tax demanded of very high-income earners than what was actually put in place. The Socialists had in fact intended to prohibit the deduction of the previous year's IGR payment from the current year's taxable income. This provision, which dated back to the law of July 15, 1914, considerably reduced the amount of tax owed on high incomes, much more so than did slight reductions in tax rates. For example, in the hypothetical case of a wealthy taxpayer whose income tax payment on his 1935 income represented one-third of his 1936 income, the 40 percent average tax rate set by the Popular Front would actually apply to only two-thirds of his 1936 income, and his average effective tax rate, expressed as a percentage of his income before deduction of the previous year's IGR payment, thus would have been only about 26.7 percent,<sup>75</sup> rather than the 40 percent that the Socialists initially envisaged. In addition, this strange system had the effect of inducing totally artificial fluctuations in the amount of tax actually owed by wealthy taxpayers: if the tax owed on a



TABLE 4-3

*The general income tax (IGR) rate schedule in effect for the 1936-1941 tax years*

Income brackets	Average rate (%)	% increase per 1,000F
0-10,000	0	
10,000-20,000	1	
20,000-80,000	1-4	0.05
80,000-180,000	4-13	0.09
180,000-280,000	13-18	0.05
280,000-430,000	18-24	0.04
430,000-630,000	24-30	0.03
630,000-930,000	30-36	0.02
930,000-1,330,000	36-40	0.01
1,330,000-	40	

*Explanation:* Incomes in French francs from the years 1936-1941 were subject to a rate schedule expressed in terms of average rates: the average rate was 1 percent for taxpayers with taxable total incomes between 10,000 and 20,000 francs, then rose from 1 percent to 4 percent between 20,000 and 80,000 francs, with a 0.05 percent increase per 1,000-franc bracket, then from 4 percent to 13 percent between 80,000 and 180,000 francs, with a 0.09 percent increase per 1,000-franc bracket, etc. (the average rate applied to taxable income net of the 10,000-franc standard exemption).

given year's income represented a large proportion of taxable income, it would lead to a large deduction from the next year's income and thus a relatively low effective tax rate in that year, which would then result in a small deduction and thus a high effective tax rate the year after that, and then a relatively low average effective tax rate the year after *that*, and so on.<sup>76</sup> These strange outcomes were not actually in anyone's interest, and while some deputies opposed to the IGR defended the provision in the name of theoretical principles (its elimination would result in a "tax on taxes"), in reality its sole purpose was to lighten the tax burden paid by high-income earners. The provision was not ultimately eliminated until the Liberation, and the memory of it is now so remote that it would never occur to anyone in late twentieth-century France to demand the ability to deduct his or her 1997 tax payment from his or her 1998 taxable income. The position taken on this issue by Allix and Lecerclé, two renowned jurists very close to the Radical Party and the authors of the leading interwar study of the income tax, seems particularly representative of the reactions elicited at the time by this issue of deductions for the previous year's IGR payment: Allix and



Lecerclé acknowledged that the provision was quite unsatisfactory from a technical standpoint, especially given the artificial fluctuations it caused from one year to the next, but they observed that it was “the only way of making tolerable the tax rates currently in effect,” concluding that it certainly should not be eliminated.<sup>77</sup> The Senate, as well as some Radicals in the Chamber of Deputies, took the same position during the 1936 budget debate, insisting that eliminating the deduction of the previous year’s IGR payment, combined with the new average-rate-based tax schedule, would cause a genuine tax shock for very high-income earners. Indeed, had the deduction of the previous year’s IGR payment been adopted, the Popular Front’s tax rate schedule would have resulted in far higher effective tax rates on recipients of very high incomes than anything they had seen since the income tax’s creation, even during the “dark years” of 1923–1925. In addition to maintaining the deduction of the previous year’s IGR payment, the Senate also managed to include a “maximum effective tax rate” in the law of December 31, 1936, according to which the IGR owed by a taxpayer, expressed as a percentage of “gross” income (that is, before deducting the previous year’s IGR payment) could never exceed 30 percent. In reality, the impact of this provision was practically nil, since it was nearly impossible for the Popular Front’s 40 percent average tax rate on taxable income (after deducting the previous year’s IGR) to result in a tax liability above 30 percent of “gross” income, except in the case of a taxpayer whose income had increased enormously from one year to the next and who thus had a very low IGR from the previous year to deduct, which was extremely rare.<sup>78</sup>

The Popular Front’s reform is especially interesting because it contained the main elements that the Socialists had been agitating for since the early 1920s, so it can be seen as a rather precise expression of the Socialists’ vision for the progressive income tax in the interwar period. Already in 1924–1925, during the *Cartel des Gauches* period, Socialist deputies had repeatedly proposed eliminating the previous year’s IGR deduction, but their proposal, as in 1936, ran into opposition from the Senate, as well as from some Radical deputies. The idea of using a tax schedule defined in average-rate terms to better target the income groups intended to bear the burden of taxation had also long been among the Socialists’ policies. In December 1928, Vincent Auriol had argued on the Chamber floor for a reform of the IGR in which the 30 percent marginal rate then in effect for the highest incomes would be turned into a 30 percent average rate, and he had explained at length how that would make it possible to grant significant tax relief

to the lowest incomes.<sup>79</sup> Already in July 1932, the Herriot cabinet, clearly influenced by Socialist ideas, had held a vote on an average-rate-based schedule with an average rate of 40 percent on top incomes, but it never went into effect.<sup>80</sup> Each time an average-rate-based schedule was proposed in the interwar era, its critics argued that it would grant governments overly broad margins to maneuver that they would be able use to impose a veritable “tyranny of the majority,” and that what the Socialists actually had in mind was the creation of a “class tax” in which a tiny group of taxpayers would pay for everyone else. Here again, the position on this issue taken by Allix and Lecerclé, who were ardent defenders of the progressive income tax, seems fairly representative of the wariness the technique inspired from interwar Radical and “centrist” circles: according to Allix and Lecerclé, the problem with schedules defined in average-rate terms was that they could easily lead to “abuse in applying progressivity to high incomes,” whereas “the technique of uniform tax rates with fixed brackets,” that is, the marginal-rate-based schedule in effect from 1919 to 1935, “ensures that tax increases and decreases affect all levels.”<sup>81</sup> But the important point is that on this issue, unlike the issue of deducting the prior year’s IGR payment, the Socialists in 1936 managed to impose their views.

The income tax reform instituted by the law of December 31, 1936, was not limited to revamping the IGR schedule: the Popular Front also went after the system of flat-rate deductions for family dependents introduced by the Senate in 1914 and softened the surtaxes on childless taxpayers, which were introduced by the *Bloc National* in 1920 and recently strengthened by Doumergue in 1934. Since the 1915 tax year, the deductions for family dependents that taxpayers could apply to their taxable income had been completely “flat-rate,” in the sense that their amounts were strictly the same for all taxpayers with a given family situation, whatever their income level. The law of December 31, 1936, specified that these flat-rate deductions would now fully apply only to taxpayers with incomes below 75,000 francs, and that their amounts would be reduced by 20 percent for incomes between 75,000 and 150,000 francs, by 40 percent for incomes between 150,000 and 300,000 francs, by 40 percent for incomes between 300,000 and 600,000 francs, and by 80 percent for incomes above 600,000 francs. This “deduction reduction” had only a symbolic impact on effective tax rates for very high incomes,<sup>82</sup> but it was a clear indication of the Popular Front’s vision of family policy: priority in tax relief should go to “modest” families, and having children should not entitle wealthy taxpayers to

the same deductions. In addition, the law of December 31, 1936, significantly increased the amount of deductions from the third dependent child onward,<sup>83</sup> so that the new system increased deductions for large families with incomes below 75,000 francs, and reduced deductions for all families with incomes above that level. The Popular Front also reduced the surtax rates on childless taxpayers: surtaxes on single, divorced, and widowed individuals, initially set at 25 percent by the *Bloc National* and increased to 40 percent by Doumergue, were lowered to 30 percent, and the surtax rates on married couples without children after two years of marriage, initially set at 10 percent by the *Bloc National* and increased to 20 percent by Doumergue, were cut to 15 percent. Finally, the surtaxes, which until that point had applied irrespective of income, were completely eliminated for "female taxpayers whose incomes do not exceed 75,000 francs," that is, for example, single, childless women teachers. It may be pointed out, however, that apart from this relatively specific exemption, the principle of the surtax itself was not challenged by the Popular Front, and the rates it put into effect remained significantly above those initially set by the *Bloc National*.

As with the legislatures of 1924–1928 and 1932–1936, it took only two years after the 1936 election for the resulting left-wing majority to become a center-right majority: Blum resigned in June 1937 (after the Senate refused to grant him plenary powers "to bring about financial recovery"), and the succession of cabinets that followed, with the exception of a fleeting Blum cabinet in March 1938, were all led by Radicals or the center-right (Chautemps in 1937, Daladier in 1938–1939, then Reynaud in 1940). The Popular Front coalition was only a distant memory when Paul Reynaud, the finance minister in the Daladier cabinet, issued his famous decree-laws in November 1938 burying the 40-hour workweek and permitting additional working time. But the important point for our purposes is that the income tax reform introduced by the law of December 31, 1936, would not be challenged until the Vichy regime in 1942. The Popular Front's average-rate-based tax schedule was in effect for six years, from the 1936 tax year to the 1941 tax year, and the only changes made to it over that period took the form of temporary surtaxes that came on top of the basic schedule, without undermining its essentials (see Table 4-3). The worsening of international tensions and the imperatives arising from remilitarization, all occurring in a particularly depressed economic climate, ensured that all successive governments felt the necessity for these temporary surtaxes. Chautemps obtained

the plenary powers that the Senate had denied Blum (law of June 30, 1937), and he immediately introduced a temporary surtax equal to 20 percent of the IGR owed before taking the surtax into account (decree-law of July 8, 1927). This 20 percent surtax hit all taxpayers with incomes above 20,000 francs, and it applied retroactively to the 1936 tax year, on top of the new schedule that had been introduced by the law of December 31, 1936. In April 1938, less than a month after the Anschluss, and after Blum once again ran into resistance from the Senate, Daladier, too, obtained plenary powers (law of April 13 1938), and the decree-law of May 2, 1938, instituted a “temporary national contribution” of 8 percent, to be applied to all taxes and all taxpayers. In the particular case of the IGR, this 8 percent surtax applied to the 1937 tax year, on top of the 20 percent surtax instituted by Chautemps, which remained in effect. Thus, in the 1937 tax year, the 40 percent average tax rate set by the Popular Front for the highest incomes rose to nearly 52 percent.<sup>84</sup> The day after the Munich accords, plenary powers were again granted to Daladier (law of October 4, 1938), and the decree-law of November 12, 1938, established a new system of temporary surtaxes that went into effect starting with the 1938 tax year: the 20 percent surtax and the 8 percent “temporary national contribution” were both eliminated, and they were replaced by a 30 percent “extraordinary national contribution.” The budget law of December 31, 1938, then raised the “extraordinary national contribution” rate from 30 percent to 33.33 percent (one-third), and it was this 33.33 percent surtax rate that was ultimately in effect in the 1938–1939 tax years, so that the 40 percent top average rate specified by the Popular Front exceeded 53 percent for those two years.<sup>85</sup> In the end, by the eve of the war, tax rates on very high incomes had reached extremely high levels, and no additional increase took place in 1939.

### 3.5. The Income Tax under Vichy

In contrast to what might be imagined, the Vichy regime did not challenge the income tax system established in 1914–1917. The IGR and the schedular taxes continued in effect as usual during the Second World War, and the law of October 24, 1942, even increased the progressivity of the IGR rate schedule (in appearance, at least). The lack of any fundamental reform in 1940–1944 is probably explained by the fact that the system established in 1914–1917 had already become part of the culture: the idea of a return to the “four old ladies,”

which had been widespread on the Right half of the parliamentary benches in the early 1920s, had practically disappeared from political rhetoric by the late 1930s. By the early 1940s, IGR tax rates on very high incomes had been at very high levels for more than twenty years, and responsibility for the IGR's transformation into a tax designed to "tax the rich" had been taken by the "Sky Blue Chamber" and the governments of the *Bloc National*. Thus, the margin of maneuver for Maréchal Pétain and his governments was probably very narrow: it is not hard to imagine public opinion having a very hard time accepting any attempt to significantly lighten the tax burden on high incomes in an economic context marked by a collapse in production, shortages, and requisitions by the German occupiers. It is also possible that the Right in power under Vichy was not the Right that harbored the greatest hostility to the income tax or the idea of "taxing the rich," especially if the "rich" in question were "capitalists" and "foreigners."

In any event, the fact is that the IGR and its top rates not only went unchallenged, but the Vichy regime initially implemented the Popular Front rate schedule without batting an eyelash: in the 1940 and 1941 tax years, the average-rate-based schedule established by the law of December 31, 1936, continued in effect (see Table 4-3), despite having been the object of so much hostility from the Right just a few years earlier. The 33.33 percent "temporary national contribution" created by Daladier and Reynaud in 1938 was also kept, and the law of February 23, 1942, even raised the rate to 50 percent, the highest rate ever reached by an exceptional surtax in the history of the French income tax. The 40 percent top average rate established by the Popular Front thus rose to 53.2 percent in the 1938–1940 tax years and to 60 percent in the 1941 tax year,<sup>86</sup> the highest tax rate ever demanded of top incomes since the start of the income tax. Only with the law of October 24, 1942, did a new IGR schedule replace the Popular Front's schedule (see Table 4-4).

The idea of the new tax schedule, which was in effect in the 1942–1944 tax years, was that in exchange for the definitive elimination of the *Contribution Nationale Extraordinaire* (CNE), the top rates of the schedule were significantly increased (the CNE was, in a sense, "incorporated" into the schedule): the top marginal rate, applicable to the portion of income above 400,000 francs, was set at 70 percent, that is, a level almost equivalent to the historical peak reached in the 1924 tax year (72 percent). But only in appearance was there an increase in progressivity, since the new schedule was defined in marginal-rate terms, so that

INCOME TAX LEGISLATION FROM 1914 TO 1998

TABLE 4-4

*The general income tax (IGR) schedule in effect for the 1942-1944 tax years*

Income brackets	Marginal rate (%)
0-10,000	0.0
10,000-20,000	1.4
20,000-30,000	2.8
30,000-40,000	4.2
40,000-50,000	5.6
50,000-60,000	7.0
60,000-70,000	9.8
70,000-80,000	12.6
80,000-90,000	16.8
90,000-10,0000	21.0
100,000-120,000	24.5
120,000-140,000	28.0
140,000-160,000	31.5
160,000-180,000	35.0
180,000-200,000	38.5
200,000-225,000	42.0
225,000-250,000	45.5
250,000-275,000	49.0
275,000-300,000	52.5
300,000-325,000	56.0
325,000-350,000	59.5
350,000-375,000	63.0
375,000-400,000	66.5
400,000-	70.0

*Explanation:* Incomes in French francs earned in 1942-1944 were subject to a tax schedule expressed in marginal-rate terms: the portion of income between 10,000 and 20,000 francs was subject to a marginal rate of 1.4 percent, the portion between 20,000 and 30,000 francs to a marginal rate of 2.8 percent, etc. (the increase in the standard exemption to 20,000 francs [see Appendix C, Table C-1] resulted in the elimination of the 1.4 percent bracket).

the 70 percent rate actually applied to only a fraction of the wealthiest taxpayers' incomes. In fact, even for the highest incomes this 70 percent top marginal rate represented a slight reduction in the tax burden relative to the 60 percent top average rate (CNE included) that was in effect for the 1941 tax year. The Vichy regime did not merely return to a marginal-rate-based schedule: the law of October 24, 1942, adopted the same mode of presentation for the schedule as that used by the *Bloc National*, in which the tax brackets were defined separately from the single tax rate. According to the terms of the law of October 24, 1942, the portion of income between 10,000 and 20,000 francs counted at a rate of 2 / 100, the portion between 20,000 and 30,000 counted at a rate of 4 / 100 . . . the portion between 375,000 and 400,000 francs counted for 95 / 100, and the portion above 400,000 francs counted for 100 / 100 (that is, for all of it). The resulting income was added up and a single 70 percent tax rate was applied, so that the marginal rates corresponding to the various income brackets were equal to those shown in Table 4-4. The standard deduction was lifted from 10,000 to 20,000 francs starting with the 1943 tax year (law of January 30, 1944), but rates for all other brackets remained unchanged. Like the law of June 25, 1920, the law of October 24, 1942, thus adopted a form for the standard tax schedule whose purpose was to limit future governments' margin to maneuver. For example, if a future government enjoying a return to peace and a normal economic situation decided to lower the 70 percent rate, it would be forced to lower the IGR rate by the same proportion for all taxpayers, whatever their income level (unless, of course, the government decided to repeal the law of October 24, 1942, and establish a new schedule). Thus it can be seen that, despite maintaining high tax rates on top incomes in the short term, the Vichy regime's reform of the IGR schedule did indeed represent a U-turn with respect to the reform carried out a few years earlier by the Popular Front.

As might be expected, the "National Revolution" also set out to write its well-known preference for large families and women as homemakers into the income tax laws. The "reduction of deductions" instituted by the Popular Front was immediately abolished: starting with the 1940 tax year, all taxpayers were once again entitled to the same flat-rate deductions for family dependents, whatever their income level (law of January 13, 1941). Thus the Popular Front's desire to reserve the full benefit of family-dependent deductions for families of modest means remained in effect for only four years, from the 1936 tax year to



the 1939 tax year. But all in all, this measure was relatively modest: Vichy merely carried out a return to the system in place before the Popular Front; in particular, it did not attempt to institute a family-quotient mechanism. Moreover, from the point of view of taking taxpayers' family situation into account, the main innovation of the Second World War years, namely, the "Family Compensation Tax" (TCF), which was in effect from the 1939 to 1944 tax years, was not a creation of Vichy, despite what might be expected. The TCF had been instituted on the eve of the war by the decree-law of July 29, 1939, as part of the "Family Code" adopted by the Daladier government and its finance minister Paul Reynaud. The principle of the TCF was to eliminate the IGR surtaxes on childless taxpayers introduced by the *Bloc National*, which were thus last in force in the 1938 tax year, and replace them with a tax that was calculated separately but fulfilled the same role. Like the surtaxes created in 1920, the TCF applied only to taxpayers with incomes high enough for them to be subject to the IGR; it was calculated on the basis of taxable income declared under the IGR, and it hit the same two categories of taxpayer: single and divorced individuals and childless widows, on the one hand, and married couples without children after two years of marriage on the other hand. "Single females with incomes not in excess of 75,000 francs," who had been exempted from the surtax by the Popular Front, were placed back into the category of single and divorced individuals and childless widows. Under the decree-law of July 29, 1939, the TCF rate structure, defined in marginal-rate terms, had marginal tax rates ranging from 3 percent to 20 percent for single, divorced, and childless widows, and from 3 percent to 14 percent for married couples without children after two years of marriage.<sup>87</sup> These schedules thus constituted a significant additional tax increase for childless individuals: for taxpayers sufficiently wealthy to be affected by the 40 percent top average tax rate instituted by the Popular Front, for example, the 30 percent surtax rate on childless singles that had been in effect until 1938 had represented a tax increase equal to 12 percent of taxable income,<sup>88</sup> far below the level implied by the 20 percent top marginal tax rate of the TCF. In addition to its politically more "visible" character, the advantage of the TCF in the eyes of its promoters was that it allowed the general IGR tax schedule to be changed completely independent of the extra tax demanded from those not contributing to the growth of the national population—something that had been much more difficult to achieve under the previous system. For example, it would now be possible to lower the IGR's rate schedule



while raising the TCF's. Yet the Vichy regime did not make use of these new margins to maneuver left to it by the late Third Republic: in the 1939–1944 tax years, the TCF rate structure set by the decree-law of July 29, 1939, continued in effect without modification.

The example of the TCF is interesting because it illustrates how a tax policy that, in the late twentieth century, looks like an archetype of the impulse to repression and “moral order” generally associated with the Vichy regime, was merely the implementation of decisions taken under the Third Republic and, as we will see, continued to be implemented in the early years of the Fourth Republic, in a slightly different form. The surtaxes on childless taxpayers had been adopted just after the First World War; they had been in effect for the entire interwar period, and the decree-law of July 29, 1939, that replaced them with the TCF contained other “repressive” tax measures of the same type as the TCF.<sup>89</sup> This notion of continuity between the family policy of the Third Republic, that of Vichy, and that of the Fourth Republic should not be pushed too far, however. For in addition to the obvious fact that populationist themes were ubiquitous throughout France's twentieth century, asserting a thesis of complete continuity would amount to forgetting the extreme violence of the “National Revolution's” propaganda against the childless woman, as well as the more specific measures taken by Vichy in favor of large and legitimate families—such as the new divorce legislation, or the priority given to fathers in handing out promotions in certain sections of the public service.<sup>90</sup> As for income tax legislation, it might also be pointed out that Vichy's margin to maneuver was very sharply limited by the disastrous economic and financial situation, so it is hard to say what the regime would have done with the income tax in the event of a return to a “normal” economic situation. For example, establishing the family-quotient system would have inevitably resulted in very large tax cuts for wealthy families, something for which the Vichy government was undoubtedly unwilling to take responsibility in a time of war, when the overwhelming majority of the population was suffering from shortages and declines in purchasing power. As for the tax rates on childless taxpayers, they could hardly have been increased further, given the unwillingness to lower the already high level of the top rates in the general IGR schedule. For example, in the 1942–1944 tax years, single, childless taxpayers who were sufficiently wealthy were subject to both the 70 percent top marginal rate of the IGR and the 20 percent top marginal rate of the TCF, a total marginal rate of 90 percent, not even counting the

schedular taxes. Just as the *Cartel des Gauches*' desire to "tax the rich" ran up against the fact that the *Bloc National* governments had already done the work for them, the Vichy regime's desire to "tax childless individuals" ran up against the fact that the rates already established by the Third Republic could not be significantly increased any further.

#### 4. 1945–1998: A "Pacified" Income Tax

##### 4.1. The Law of December 31, 1945: The New Essentials

As in many other domains, when it came to the income tax, decisions taken at the time of the Liberation had a decisive impact on future trajectories. To be sure, the 1948 and 1959 tax reforms—which, unlike the law of December 31, 1945, were presented as radical transformations of the whole income-tax system created in 1914–1917—resulted in changes to the official title of the income tax. But the important fact that will be stressed here is that, on the three key points that still constitute the essentials of France's progressive income tax today (the family quotient, the general form of the rate structure, and the absence of a deduction for the previous year's tax payment), the reforms of 1948 and 1959 merely ratified the choices that had already been made by the budget law of December 31, 1945. This foundational law, whose appearance was deceptively modest, was adopted by the first Constituent Assembly less than three months after the October 1945 elections—the first legislative elections since 1936—and a few weeks before General De Gaulle's January 1946 departure from the presidency of the provisional government.

##### 4.1.1. The Family Quotient

First and foremost, the law of December 31, 1945, eliminated the system of flat-rate deductions for family dependents established by the law of July 15, 1914 (and in effect for the 1915–1944 tax years) and replaced it with the family-quotient mechanism. Thus, the family quotient was first implemented in the 1945 tax year, and it has remained in effect every year since then. Despite a great many reforms and controversies, whose histories we will recount in this section, the system's basic rules have remained unchanged in their broad outlines since the foundational law of December 31, 1945. The principle of the family quotient is still that each tax unit is attributed a certain number of family-quotient shares

according to its family situation; the rate schedule is then applied to its taxable income divided by the number of family-quotient shares (“income per share”), and the resulting tax is then multiplied by the number of family-quotient shares. Given the progressivity of the rate schedule, these operations—dividing the income and then multiplying by the tax—by definition lead to a lower tax the higher the number of shares: because the average tax rate is a rising function of taxable income, dividing income by the number of shares reduces the average tax rate actually applied. The characteristic feature of this system is thus that two tax units with the same “income per share” are subjected to the same average tax rate: a tax unit with one family-quotient share and an income of 100,000 francs is subject to the same average tax rate as a tax unit with two family-quotient shares and an income of 200,000 francs, which, in turn, is subject to the same average tax rate as a tax unit with four family-quotient shares and an income of 400,000 francs, and so on. Compared to the system of flat-rate deductions from taxable income that had been in effect in the 1915–1944 tax years, the family quotient is more advantageous for families overall, and especially so for wealthy families, which is why it is also far more costly to the public budget.

The family quotient had actually been proposed by the Senate in 1914, but its high cost ultimately earned it rejection and replacement with the system of flat-rate deductions. This did not fail to elicit the anger of the era’s family associations and populationist movements.<sup>91</sup> The family-quotient system’s adoption in 1945 reflected the priority given to families and birthrates by the politicians of the Liberation in the wake of the 1940 defeat, a national priority explicitly expressed in the preamble to the finance bill that would become the law of December 31, 1945.<sup>92</sup> The fact that all other Western countries stayed with a system of flat-rate deductions from taxable income (France is the only country that adopted the family quotient) marvelously illustrates the strength and specificity of French attitudes toward the birthrate and the specter of demographic decline. It is particularly striking to note that the reform was adopted in 1945 by the first Constituent Assembly—that is, the most left-wing chamber ever elected in the history of the Republic.<sup>93</sup> Especially when we recall that it was the right-wing “Sky Blue Chamber,” which in 1920 had the sad privilege of adopting dizzying increases in top IGR rates, this episode shows how the weight of historical circumstances can sometimes give rise to reforms that flagrantly contradict the usual priorities proclaimed by the Left and Right. In the parliamentary de-

bates of December 1945, no one dared publicly oppose the family-quotient system proposed by the provisional government of General DeGaulle and his finance minister René Pleven.<sup>94</sup> But this superficial consensus would not last long: the Left never truly accepted the family quotient system, and from almost the moment the system was adopted, it never ceased to denounce the excessive tax reductions granted to wealthy families under the system. In March 1947, the CGT and PCF published income tax reform plans whose main proposals targeted the freshly adopted family-quotient system. The PCF accepted the family-quotient principle, but proposed considerably reducing the number of shares granted to large families (each child would entitle a family to 0.25 shares rather than 0.5 shares), which in practice would permit very large reductions in the tax relief granted to wealthy families.<sup>95</sup> The CGT plan was even more radical: it proposed the total elimination of the family quotient and its replacement with a system of flat-rate tax reductions per dependent child, that is, a system in which the tax would first be calculated without taking family situation into account, and then the family would be entitled to a tax reduction for each child, whose amount in francs would be the same for everyone, whatever the parents' income level.<sup>96</sup> These plans were never put into effect, but they illustrate how the method for accounting for family situation never ceased to be the subject of political conflict throughout the history of the French income tax, even in the immediate postwar period. The CGT plan, had it gone into effect, would have led to a significant increase in tax rates on wealthy families. Its critics forcefully denounced the fact that this flat-rate tax reduction per dependent child would have amounted to a meaningless sum for taxpayers with high incomes, and consequently an incentive for such taxpayers not to contribute to the growth of the national population—to which the CGT replied that all children have the same needs, and that, therefore, “there is no reason family dependent allowances should be progressive as a function of income.”

This idea of flat-rate tax reductions per dependent child, supported by the CGT in 1947, is especially interesting because, although it was never implemented in France, it most closely approximates an “egalitarian” ideal of family allocations (each child entitles the family to an allocation of the same size, whatever the parents' income level)<sup>97</sup> and it served as the implicit ideal on the Left throughout the twentieth century. Indeed, the system of flat-rate reductions proposed by the CGT in 1947 represented a challenge not only to the family quotient adopted in 1945, but also to the system of flat-rate deductions

from taxable income adopted by the Senate in 1914, a system that already possessed some of the “inegalitarian” features of the family quotient: since the marginal tax rate was, generally speaking, a rising function of the parents’ income, deducting a flat sum from taxable income for each child led to a tax reduction that got bigger the higher the parents’ income.<sup>98</sup> It was precisely to put an end to this undesirable consequence of the flat-rate deduction system that the Popular Front in 1936 had decided that deductions for family dependents would henceforth be lower for wealthy taxpayers than for other taxpayers; that way, assuming the amount of the deductions declined at the same pace as the increase in the marginal tax rate, which the law of December 31, 1936, roughly accomplished, the government of Léon Blum hoped to ensure that the amount of tax reduction actually obtained for each dependent child would be approximately the same for all children, whatever the parents’ income level.

Exactly the same objective would be found again in the reform of the family quotient instituted a few months after the May 1981 elections by the Socialist government headed by Pierre Mauroy. It was a reform that for many years had appeared in the programs the Left had been preparing in expectation of its return to power, and that represented the most profound challenge to the system established by the law of December 31, 1945. The law of December 30, 1981, which went into effect starting with the 1981 tax year, created a mechanism that amounted to a “cap on the effects of the family quotient,” in which the tax reduction obtained through the family-quotient system could in no case exceed a certain amount, initially set at a maximum of 7,500 francs’ worth of tax reduction per half-share of family quotient. Beyond this threshold—that is, for families with incomes high enough for a strict application of the family quotient to result in a tax reduction above this threshold—the tax reduction was frozen at that level, and it thus became “flat-rate,” that is, it no longer depended on the parents’ income, just as in the system the CGT had proposed in 1947. This capping mechanism was never subsequently challenged, and has thus been in effect every year since the 1981 tax year. In 1997, a few weeks after his arrival at the head of a new Socialist government, Lionel Jospin announced his intention to strip wealthy families of the family-allocation benefit, but he clarified that he was prepared to abandon this plan in exchange for a new overhaul of the tax advantages these same wealthy families obtained through the family-quotient system. In the end, that is what was done: the law of December 30, 1998, which went into effect starting with the 1998 tax year, furthered the work of 1981 by

sharply lowering the maximum level of tax reduction, a level that had been indexed to inflation between 1981 and 1998. To be sure, even after the 1998 reduction, the caps were set at levels high enough for the family-quotient system to continue to apply fully for the overwhelming majority of families.<sup>99</sup> But the family quotient's effects become strongly "inegalitarian" only at very high income levels: by transforming the family quotient into a system of flat-rate tax reductions for high incomes, the Socialist governments of the 1980s and 1990s ultimately managed to overturn the most blatantly inegalitarian consequences of the system established by the law of December 31, 1945.

It may also be noted that there was a great similarity between the reform instituted by the Popular Front in 1936 and that adopted by the Socialist governments of the 1980s and 1990s, a similarity that does not appear to have been emphasized by the actors themselves: in both cases, the Socialists sought to move closer to the "egalitarian" ideal of flat-rate reductions, but without daring to mount a radical challenge to the existing system—no doubt for fear that the Right would seize the opportunity to convince the country of the Left's contempt for the family and the birth rate. These two episodes, more than a half-century apart, illustrate the strikingly unchanging nature of the structure of political conflict over the income tax and the manner of taking the taxpayer's family situation into account.

After the law of December 31, 1945, political conflicts surrounding the family quotient, apart from these challenges to the principle of the family quotient itself, above all concerned the rules for determining the number of shares as a function of the taxpayer's family situation.<sup>100</sup> Under the law of December 31, 1945, single individuals were entitled to one family-quotient share, married couples to two shares, then each dependent child entitled them to one additional half-share: a married couple with one child was entitled to 2.5 shares, a married couple with two children was entitled to three shares, a married couple with three children to 3.5 shares, and so on. Compared to the system in place in the late twentieth century, the key difference is that the law of December 31, 1945, did not provide for an additional half-share for large families: each child counted for one half-share, whatever the child's birth order. A "large family bonus" was proposed countless times by deputies of the right, and by the future president René Coty in December 1945,<sup>101</sup> but in the end it was only instituted in the late 1970s during the presidency of Valéry Giscard-d'Estaing: the Barre government granted an additional half-share for the fifth dependent child in

the 1979 tax year (law of January 18, 1980), then an additional half-share for the third dependent child starting with the 1980 tax year (law of December 13, 1980). During the first cohabitation term under President Mitterrand, the Chirac government, which had thought it best not to challenge the family-quotient cap instituted by the Socialists in 1981, decided to catch up by granting an additional half-share for all children starting from the third, rather than to the third child only (law of December 30, 1986). Thus, since the 1986 tax year, a married couple with three children has been entitled to four family-quotient shares, a married couple with four children to five shares, a married couple with five children to six shares, and so on. Compared to the situation bequeathed by the law of December 31, 1945, the 1980s and 1990s thus offer the striking contrast of a family quotient whose effects are magnified by the “large-family bonus” instituted by the right, and reduced by the cap instituted by the Left.

The rules for determining the number of family-quotient shares granted to childless and unmarried taxpayers have also elicited political conflicts, as well as major reforms. First, it should be pointed out that traces of the “Family Compensation Tax” (TCF) that had been in effect in the 1939–1944 tax years were preserved by the legislators of 1945. In fact, although the law of December 31, 1945, had officially abolished the TCF, it actually replaced it with a mechanism in which married couples without dependent children after three years of marriage were entitled to 1.5 family-quotient shares, rather than two shares. In the 1945–1949 tax years, married couples without dependent children after three years of marriage were thus entitled to only 1.5 family-quotient shares; this “repressive” mechanism was then abolished by the law of May 24, 1951 (which went into effect starting with the 1950 tax year), and since the 1950 tax year married couples without dependent children have always been entitled to two family-quotient shares, whatever the date of their marriage. This “repressive” provision of the law of December 31, 1945, was a direct heir to the surtaxes on taxpayers without dependent children after two years of marriage instituted by the *Bloc National* in 1920, the only difference being that the *Bloc National* had hit couples without dependent children after two years of marriage, a time interval that reappeared in the TCF, whereas the deputies of the first Constituent Assembly increased the grace period to three years! It is also rather striking to note that at the time of the Liberation, this provision enjoyed a very wide degree of consensus, extending far beyond the natalist and populationist right. For example, it was taken up by the Communists in their March 1947 reform



bill, which, while proposing an overall reduction in the number of family-quotient shares, kept the idea of a smaller number of shares for married couples without dependent children after three years of marriage.<sup>102</sup> As a general matter, although the Left voiced reservations about measures allowing wealthy families to enjoy overly large tax reductions, at the time it saw no problem with childless taxpayers being subject to extra taxation, especially if they were well off. However, the relatively “electoralist” political circumstances surrounding the elimination of this provision suggests that this “repressive” measure was not very popular. The budget law of May 24, 1951, was adopted by a transitional cabinet presided by the radical Henri Queuille that included all the heavyweights from the governing coalition, notably including Guy Mollet and Jules Moch for the SFIO and Georges Bidault and Maurice Schumann for the MRP. The law was passed less than a month before the June 1951 legislative elections, which were expected to go badly for the parties that had been in power since 1946 (General de Gaulle’s RPF was threatening to surpass the MRP and SFIO, which did end up happening), and the same law included other last-minute tax cuts, including an increase in the thresholds for all tax brackets.<sup>103</sup>

In fact, vestiges of this provision never completely disappeared from the rules for determining the number of family-quotient shares. The law of December 31, 1945, had actually granted two family-quotient shares to married couples who, while having no dependent children after three years of marriage, had previously had children now adult or deceased, “provided that at least one of them reached at least the age of 16” (in other words, children who died before reaching the age of sixteen didn’t count). This provision was simply taken from the July 29, 1939, decree instituting the TCF, and out of concern for symmetry, and perhaps also out of consideration for those who had lost both their spouse and their children during the war, the law of December 31, 1945, also instituted a similar provision for single, divorced, or widowed taxpayers without dependent children: the latter were ordinarily entitled to only one family-quotient share, but the number was increased to 1.5 for those with now-adult or deceased children, “on condition that at least one of them reached the age of 16.” This provision has never been challenged, and it remained in effect in the late twentieth century, including the sordid clause concerning children who reached the age of sixteen. However, the practical consequences of this provision have changed profoundly since 1945, especially because of the aging of the population. In the late twentieth century, there was a very large number of



elderly individuals living alone, without dependent children, and as long as they had children who were now either adults or deceased (“on condition that at least one of them reached the age of 16”), which in practice was the case for the overwhelming majority of them, they all received 1.5 family-quotient shares rather than just one. Along with a very large number of modest retirees, this category of elderly taxpayers also included a nontrivial number of relatively well-off taxpayers,<sup>104</sup> and it was the Left that decided to institute a special cap on their family quotient: since the 1997 tax year, the reduction in taxes obtained via the half-share granted to single, divorced, or widowed taxpayers who have no dependent children but have had children can no longer exceed a threshold that is set significantly lower than the general threshold that applies to half-shares corresponding to actual dependent children (law of December 30, 1997).<sup>105</sup>

Another provision of the law of December 31, 1945, that would greatly pre-occupy later legislators concerned dependent children of unmarried taxpayers. Generally speaking, one of the central objectives of legislators in 1945 had been to ensure that legitimate couples were advantaged, or at a minimum never disadvantaged, relative to unmarried couples. Under the previous system, there had actually been some circumstances in which cohabitation could be more tax-advantageous than marriage: in the 1915–1944 tax years, the amount of the standard exemption enjoyed by all taxpayers had in fact always been greater than the amount of additional deductions enjoyed by married couples,<sup>106</sup> so that a relatively “egalitarian” couple whose two members both brought home significant incomes might find it in their interest to live in cohabitation, so as to benefit twice from the standard exemption. For example, in the 1944 tax year, the standard exemption was 20,000 francs and the additional deduction for married couples was 7,000 francs, so a married couple with two 15,000-franc wage incomes would have been subject to the IGR (30,000 francs of total income, versus only 27,000 francs in deductions), whereas two cohabitating individuals each with a 15,000-franc wage income would have both benefited from the standard exemption of 20,000 francs and thus would not have been taxable under the IGR. Of course, this situation was less common than the many “inegalitarian” couples in which the wife’s income was relatively low; in these cases it was always more advantageous to marry so as to benefit from the deduction reserved for married couples. But the mere fact that cohabitation could in some cases be advantaged by the state was denounced countless times

during the interwar period, and in principle the adoption of the family quotient was finally supposed to put an end to this “immoral” situation, in the words of the preamble to the law of December 31, 1945.<sup>107</sup> Indeed, the very principle of the family quotient, and of dividing taxable income by the number of shares, in principle ensured that married couples could never be disadvantaged relative to cohabitating individuals, and in particular that situations in which cohabitation made it possible to receive two standard exemptions and thus escape the IGR could no longer happen. At worst—that is, in the case of “egalitarian” married couples each of whose members contributed exactly the same income—dividing total income by two and then multiplying the tax by two yielded no advantage relative to the separate taxation that applied in cases of cohabitation. But in all other cases—in other words, as soon as the couple became slightly “inegalitarian”—marriage became strictly more advantageous than cohabitation, a situation that still prevails today.

Unfortunately, another provision inserted by legislators in 1945, which concerned dependent children of unmarried couples, introduced a flaw in this mechanism. Out of consideration for the young parents who, due to the war, were now single parents, the law of December 31, 1945, granted a full share of family quotient (rather than a half-share) for the first dependent child of single individuals, so that single, divorced, or widowed taxpayers with a dependent child were entitled to two family-quotient shares (rather than 1.5 shares).<sup>108</sup> The practical consequence was that it could now become advantageous, for example, for a couple with two dependent children to live in unmarried cohabitation in order to benefit twice from this provision: two cohabitating individuals, by each declaring one of their two children as being their actual dependent, could each obtain two family-quotient shares, whereas they would have obtained only three if they had been married. As in the previous period, this tax advantage for cohabitation could affect only relatively “egalitarian” couples; if the wife did not work, it was always more advantageous to be married and to divide the husband’s income by the largest possible number of shares. Yet the legislators of 1945, who probably did not foresee the future importance of two-earner couples or of unmarried births among them, had thereby created new specific situations in which cohabitation could prove more advantageous than marriage in tax terms. Unsurprisingly, the right tried to reverse this “immoral” provision on multiple occasions. In the end, it was the first cohabitation government under Chirac that seized the opportunity, which the family-quotient

cap instituted by the Left in 1981 had provided, to establish an additional cap applicable solely to this share granted for the first dependent child of unmarried taxpayers: since the 1986 tax year, the tax reduction obtained through this share cannot exceed a specific threshold set at a level significantly below the threshold that applies to other dependent children.<sup>109</sup> The final blow was landed in 1995 with the “Courson amendment” (taken from the name of the UDF deputy who proposed this new provision), which has been in effect since the 1995 tax year, and requires single, divorced, or widowed taxpayers to prove that they are raising their child alone in order to benefit from a full share for their first dependent child (law of December 30, 1995). The hunt for “fake single parents” and “real cohabitators” immediately resulted in a significant decline in the number of taxpayers receiving this full share.<sup>110</sup>

This rich and eventful history, in which the Right and Left each, in turn, expressed their vision of the role of the family, and of which family situations justified the state’s favor or disfavor, and whose “modern” bases were laid by the law of December 31, 1945, testifies to the vociferousness of French feelings on the subject of childbirth and family. Most of these episodes have been forgotten, but even a cursory scan of parliamentary and press debates from the period immediately makes it clear that these measures were objects of passionate conflict and debate in their time. And this story is far from over: for example, the “civil solidarity pact” (PACS) law, adopted by the National Assembly in October 1999, allowed partners linked by a PACS to benefit from the joint taxation system, which, until then, had been reserved for married couples. This was a “revolutionary” provision about which much ink has already been spilled. But this rich and eventful history also raises the question of the real or supposed impact these decisions have had on childbirth and family structures: To what extent have the various provisions instituted since 1914 affected the number of children per tax unit, the rate of women’s labor force participation, the number of marriages, of cohabitations, of individuals living alone, etcetera?

Unfortunately, no comprehensive study answering this question in a satisfactory way exists. The rare French studies of family policy and its impact on family behavior have mainly focused on family allocations and their impact, and have not sought to take the evolution of advantages granted to families through the income tax into account.<sup>111</sup> It is true that these tax advantages by definition affect only the best-off fraction of the population, which limits the likely impact of the eventful history of the income tax’s “family” dimension on

birth rates and family structures at the national level since 1914. Nevertheless, the evolution of family structure among top-income earners is in itself a fascinating question, especially since the constant changes in the tax provisions that affect them might make it possible to pinpoint any impact of financial incentives on family behavior in a less unsatisfactory way than for the rest of the population. Most importantly, the available data are exceptionally rich: the statistical tables compiled from tax-return tabulations by the tax administration each year since the 1915 tax year make it possible to follow on an annual basis, and for a large number of income brackets (especially for very high incomes), the long-term evolution of the number of single individuals, married couples, large families, and so forth. Of course, as is always the case with administrative sources, the statistical categories used in these tables are entirely dependent on the family situations used in each period's legislation, so certain kinds of information can suddenly disappear from the tables at the moment the laws stopped stigmatizing the categories in question. For example, married couples without children after two years of marriage appear in the statistics for the 1919 tax year; they then become married couples without children after three years of marriage, starting from the 1945 tax year; and they definitively disappear from the statistics with the 1950 tax year. But simply having such rich statistical information about categories like these over relatively long periods already constitutes a kind of advantage, which would amply justify a systematic statistical analysis of the family aspects of this source.<sup>112</sup>

But such a study would require extremely meticulous work, taking into account all tax rules that depend on the taxpayer's family situation and the precise dates of the various reforms, as well as fine-grained comparisons of changes in birth rates and family structures for the various fractiles of the income distribution. In particular, merely observing a temporal correspondence between the adoption of the family quotient in 1945 and the recovery of the French birth rate after the Second World War (the "baby boom") is obviously completely insufficient to arrive at any precise conclusions regarding the existence, and especially the magnitude, of a causal link between financial incentives and demographic behavior. The evolution of the pro- or anti-natalist character of the income tax over the twentieth century is actually far less unambiguous than is sometimes thought. It is true that the establishment of the family quotient in 1945 meant that tax advantages for families were more generous in the second half of the century overall, but the fact that the system of flat-rate deductions in

effect in the 1915–1944 tax years was reinforced during the 1915–1933 tax years by a system of proportional tax reductions for dependents, as well as by a system of surtaxes on childless taxpayers during the 1919–1938 tax years, which was then replaced by the “Family Compensation Tax” in the 1939–1944 tax years, would also have to be taken into account. The same is true for the last two decades of the century, which witnessed both the establishment of a cap on the family quotient and the growth of extra half-shares for large families, so that the net effect on incentives to have children depends in subtle ways on the level of income and the number of children in the families in question. Such a demographic study would far exceed the scope of this book, and we have not sought to write such a history of family structure among top-income earners here. In particular, the average tax rates on the various top-income fractiles that we will analyze in Chapter 5 have all been calculated on the basis of “average” family situations, and thus they do not permit a study of the evolution of tax disparities between different family configurations.<sup>113</sup>

#### 4.1.2. The General Form of the Rate Schedule

The legacy of the law of December 31, 1945, is not limited to the family quotient, though that is probably its most visible element. With more than half a century of hindsight, we may also note the decisive influence that the law of December 31, 1945, had on the overall form of the progressive income tax rate schedule. Table 4-5, in which we have reproduced every income-tax-rate schedule in effect since 1945, shows the very high degree of stability in their overall form, especially compared to the chaotic evolution that characterized the schedules of the 1915–1944 period (see Tables 4.1, 4.2, 4.3, and 4.4).

This stability can first of all be seen in the technique used: in addition to using the family-quotient technique, all schedules since the Liberation have been defined in marginal-rate terms, so today we have practically forgotten that it is also possible to define schedules in average-rate terms, and that the latter technique was used in France in the 1917–1918 and 1936–1941 tax years. But this stability is seen above all in the number of tax brackets and the corresponding rate levels, starting with the top rate. From 1945 to 1998—in other words, for more than half a century—the top marginal rate of the income tax schedule has always been around 55–65 percent (see Table 4-5). So as not to appear to be treating childless single people too well (they had already benefited from the elimination of the “Family Compensation Tax”), the law of

TABLE 4-5  
*The income tax rate schedules in effect in the 1945-1998 tax years*

1945		1946		1947		1948	
Income brackets	Rate (%)	Income brackets	Rate (%)	Income brackets	Rate (%)	Income brackets	Rate (%)
0-40,000	0	0-40,000	0	0-10,000	0	0-120,000	0
40,000-100,000	12	40,000-200,000	12	100,000-200,000	12	120,000-200,000	10
100,000-300,000	30	200,000-500,000	30	200,000-500,000	24	200,000-300,000	15
300,000-500,000	45	500,000-1,000,000	45	500,000-1,000,000	36	300,000-500,000	20
500,000-	60	1,000,000-	60	1,000,000-2,000,000	48	500,000-800,000	25
				2,000,000-	60	800,000-1,200,000	30
						1,200,000-2,000,000	40
						2,000,000-3,000,000	50
						3,000,000-	60
1949		1950		1951-1952		1953-1959	
0-120,000	0	0-140,000	0	0-180,000	0	0-220,000	0
120,000-250,000	10	140,000-300,000	10	180,000-350,000	10	220,000-350,000	10
250,000-500,000	15	300,000-500,000	15	350,000-600,000	15	350,000-600,000	15
500,000-800,000	25	500,000-750,000	20	600,000-900,000	20	600,000-900,000	20
800,000-1,200,000	30	750,000-1,200,000	30	900,000-1,500,000	30	900,000-1,500,000	30
1,200,000-2,000,000	40	1,200,000-1,500,000	40	1,500,000-3,000,000	40	1,500,000-3,000,000	40
2,000,000-3,000,000	50	1,500,000-5,000,000	50	3,000,000-6,000,000	50	3,000,000-6,000,000	50
3,000,000-	60	5,000,000-	60	6,000,000-	60	6,000,000-	60

(continued)

TABLE 4-5  
(continued)

1960		1961		1962		1963	
Income brackets	Rate (%)	Income brackets	Rate (%)	Income brackets	Rate (%)	Income brackets	Rate (%)
2,300-3,750	10	2,300-4,000	10	2,400-4,000	10	2,400-4,000	10
3,750-6,500	15	4,000-6,750	15	4,000-6,750	15	4,000-6,750	15
6,500-9,750	25	6,750-10,000	25	6,750-10,000	25	6,750-10,000	25
9,750-16,250	30	10,000-16,250	30	10,000-16,250	30	10,000-16,250	30
16,250-32,000	40	16,250-32,000	40	16,250-32,000	40	16,250-32,000	40
32,000-64,000	50	32,000-64,000	50	32,000-64,000	50	32,000-64,000	50
64,000-	60	64,000-	60	64,000-	60	64,000-	61.5
1964		1965		1966		1967-1968	
0-2,400	0	0-2,500	0	0-2,500	0	0-2,500	0
2,400-4,400	10	2,500-4,500	10	2,500-4,500	10	2,500-4,500	10
4,400-7,350	15	4,500-7,600	15	4,500-7,600	15	4,500-7,600	15
7,350-10,850	25	7,600-11,250	25	7,600-11,250	25	7,600-11,250	25
10,850-17,500	30	11,250-18,000	30	11,250-18,000	30	11,250-18,000	30
17,500-35,000	40	18,000-36,000	40	18,000-36,000	40	18,000-36,000	40
35,000-70,000	50	36,000-72,000	50	36,000-72,000	55	36,000-72,000	50
70,000-	60	72,000-	60	72,000-	65	72,000-	60

1969		1970		1971		1972	
0-2,700	0	0-2,900	0	0-3,100	0	0-3,300	0
2,700-4,800	10	2,900-5,100	10	3,100-5,400	10	3,300-5,750	10
4,800-8,100	15	5,100-8,500	15	5,400-8,950	15	5,750-9,500	15
8,100-12,000	25	8,500-12,600	25	8,950-13,250	25	9,500-14,050	25
12,000-19,100	30	12,600-20,050	30	13,250-21,050	30	14,050-22,000	30
19,100-38,200	40	20,050-40,100	40	21,050-42,100	40	22,000-43,500	40
38,200-76,400	50	40,100-80,200	50	42,100-84,200	50	43,500-86,500	50
76,400-	60	80,200-	60	84,200-	60	86,500-	60
1973		1974		1975		1976	
0-4,950	0	0-5,500	0	0-6,125	0	0-6,725	0
4,950-5,200	5	5,500-5,825	5	6,125-6,425	5	6,725-7,050	5
5,200-6,250	10	5,825-7,000	10	6,425-7,700	10	7,050-8,450	10
6,250-9,900	15	7,000-11,100	15	7,700-12,225	15	8,450-13,400	15
9,900-14,900	20	11,100-15,050	20	12,225-16,575	20	13,400-17,575	20
14,900-22,000	30	15,050-19,000	25	16,575-20,900	25	17,575-22,150	25
22,000-46,325	40	19,000-24,450	30	20,900-25,250	30	22,150-26,775	30
46,325-92,125	50	24,450-26,475	35	25,250-29,125	35	26,775-30,875	35
92,125-	60	26,475-45,825	40	29,125-50,400	40	30,875-53,425	40
		45,825-64,900	45	50,400-71,375	45	53,425-73,525	45
		64,900-84,000	50	71,375-92,400	50	73,525-95,175	50
		84,000-10,3150	55	92,400-113,450	55	95,175-113,450	55
		10,3150-	60	113,450-	60	113,450-	60

(continued)



TABLE 4-5  
(continued)

1977		1978		1979		1980	
Income brackets	Rate (%)	Income brackets	Rate (%)	Income brackets	Rate (%)	Income brackets	Rate (%)
0-7,250	0	0-7,925	0	0-8,725	0	0-9,890	0
7,250-7,600	5	7,925-8,300	5	8,725-9,125	5	9,890-10,340	5
7,600-9,100	10	8,300-9,925	10	9,125-10,825	10	10,340-12,270	10
9,100-14,400	15	9,925-15,700	15	10,825-17,125	15	12,270-19,410	15
14,400-18,900	20	15,700-20,625	20	17,125-22,275	20	19,410-24,950	20
18,900-23,800	25	20,625-25,925	25	22,275-28,000	25	24,950-31,360	25
23,800-28,775	30	25,925-31,350	30	28,000-33,875	30	31,360-37,970	30
28,755-33,200	35	31,350-36,175	35	33,875-39,075	35	37,970-43,770	35
33,200-57,425	40	36,175-62,600	40	39,075-65,125	40	43,770-72,940	40
57,425-79,025	45	62,600-86,125	45	65,125-89,575	45	72,940-100,320	45
79,025-100,900	50	86,125-105,950	50	89,575-105,950	50	100,320-118,660	50
100,900-119,100	55	105,950-125,050	55	105,950-125,050	55	118,660-135,000	55
119,100-	60	125,050-	60	125,050-	60	135,000-	60
1981		1982		1983		1984	
0-11,230	0	0-12,620	0	0-13,770	0	0-14,820	0
11,230-11,740	5	12,620-13,190	5	13,770-14,390	5	14,820-15,490	5
11,740-13,930	10	13,190-15,640	10	14,390-17,070	10	15,490-18,370	10
13,930-22,030	15	15,640-24,740	15	17,070-26,990	15	18,370-29,050	15

22,030-28,320	20	24,740-31,810	20	26,990-34,700	20	29,050-37,340	20
28,320-35,590	25	31,810-39,970	25	34,700-43,610	25	37,340-46,920	25
35,590-43,060	30	39,970-48,370	30	43,610-52,760	30	46,920-56,770	30
43,060-49,680	35	48,370-55,790	35	52,760-60,870	35	56,770-65,500	35
49,680-82,790	40	55,790-92,970	40	60,870-101,430	40	65,500-109,140	40
82,790-113,860	45	92,970-127,860	45	101,430-139,500	45	109,140-150,100	45
113,860-134,680	50	127,860-151,250	50	139,500-165,010	50	150,100-177,550	50
134,680-153,200	55	151,250-172,040	55	165,010-187,700	55	177,550-201,970	55
153,200-	60	172,040-195,000	60	187,700-212,750	60	201,970-228,920	60
		195,000-	65	212,750-	65	228,920-	65

1985		1986		1987		1988	
0-15,650	0	0-16,030	0	0-16,560	0	0-17,000	0
15,650-16,360	5	16,030-16,760	5	16,560-17,320	5	17,000-17,780	5
16,360-19,400	10	16,760-19,870	10	17,320-20,530	9.6	17,780-21,070	9.6
19,400-30,680	15	19,870-31,420	15	20,530-32,460	14.4	21,070-33,310	14.4
30,680-39,440	20	31,420-40,390	20	32,460-41,730	19.2	33,310-42,820	19.2
39,440-49,550	25	40,390-50,740	25	41,730-52,410	24	42,820-53,770	24
49,550-59,950	30	50,740-61,390	30	52,410-63,420	28.8	53,770-65,070	28.8
59,950-69,170	35	61,390-70,830	35	63,420-73,170	33.6	65,070-75,070	33.6
69,170-115,250	40	70,830-118,020	40	73,170-121,910	38.4	75,070-125,080	38.4
115,250-158,510	45	118,020-162,310	45	121,910-167,670	43.2	125,080-172,030	43.2
158,510-187,490	50	162,310-191,990	50	167,670-198,330	49	172,030-203,490	49
187,490-213,280	55	191,990-218,400	55	198,330-225,610	53.9	203,490-231,480	53.9
213,280-241,740	60	218,400-	58	225,610-	56.8	231,480-	56.8
241,740-	65						

(continued)

TABLE 4-5  
(continued)

1989		1990		1991		1992	
Income brackets	Rate (%)	Income brackets	Rate (%)	Income brackets	Rate (%)	Income brackets	Rate (%)
0-17,570	0	0-18,140	0	0-18,690	0	0-19,220	0
17,570-18,370	5	18,140-18,960	5	18,690-19,530	5	19,220-20,080	5
18,370-21,770	9.6	18,960-22,470	9.6	19,530-23,150	9.6	20,080-23,800	9.6
21,770-34,410	14.4	22,470-35,520	14.4	23,150-36,590	14.4	23,800-37,620	14.4
34,410-44,240	19.2	35,520-45,660	19.2	36,590-47,030	19.2	37,620-48,350	19.2
44,240-55,540	24	45,660-57,320	24	47,030-59,040	24	48,350-60,690	24
55,540-67,220	28.8	57,320-69,370	28.8	59,040-71,450	28.8	60,690-73,450	28.8
67,220-77,550	33.6	69,370-80,030	33.6	71,450-82,430	33.6	73,450-84,740	33.6
77,550-129,210	38.4	80,030-133,340	38.4	82,430-137,340	38.4	84,740-141,190	38.4
129,210-117,710	43.2	133,340-183,400	43.2	137,340-188,900	43.2	141,190-194,190	43.2
177,710-210,210	49	183,400-216,940	49	188,900-223,450	49	194,190-229,710	49
210,210-239,120	53.9	216,940-246,770	53.9	223,450-254,170	53.9	229,710-261,290	53.9
239,120-	56.8	246,770-	56.8	254,170-	56.8	261,290-	56.8
1993		1994		1995		1996	
0-21,900	0	0-22,210	0	0-22,610	0	0-25,610	0
21,900-47,900	12	22,210-48,570	12	22,610-49,440	12	25,610-50,380	10.5
47,900-84,300	25	48,570-85,480	25	49,440-87,020	25	50,380-88,670	24
84,300-136,500	35	85,480-138,410	35	87,020-140,900	35	88,670-143,580	33

136,500–222,100	45	138,410–225,210	45	140,900–229,260	45	143,580–233,620	43
222,100–273,900	50	225,210–277,730	50	229,260–282,730	50	233,620–288,100	48
273,900–	56.8	277,730–	56.8	282,730–	56.8	288,100–	54
<b>1997</b>		<b>1998</b>					
0–25,890	0	0–26,100	0				
25,890–50,930	10.5	26,100–51,340	10.5				
50,930–89,650	24	51,340–90,370	24				
89,650–145,160	33	90,370–146,320	33				
145,160–236,190	43	146,320–238,080	43				
236,190–291,270	48	238,080–293,600	48				
291,270–	54	293,600–	54				

*Explanation:* Incomes in the 1945–1998 tax years were subject to tax schedules expressed in marginal-rate terms, and following the family-quotient system. In the 1945 tax year, the portion of taxable income per share below 40,000 francs was subject to a 0 percent marginal rate, the portion between 40,000 and 100,000 francs to a 12 percent marginal rate, the portion between 100,000 and 300,000 francs to a 30 percent marginal rate, the portion between 300,000 and 500,000 francs to a 45 percent marginal rate, and the portion above 500,000 francs to a 60 percent marginal rate.

*Notes:*

(i) These are the tax schedules of the *impôt général sur le revenu* (IGR, or general income tax) in the 1945–1947 tax years; the *surtaxe progressive* of the *impôt sur le revenu des personnes physiques* (IRPP, or progressive surtax of the tax on the incomes of natural persons) for the 1948–1958 tax years; and then simply the IRPP in the 1959–1998 tax years. All schedules are expressed in current francs (in old francs for 1945–1959, and in new francs for 1960–1998).

(ii) In the 1945–1958 tax years, the top marginal rates of 50 percent (45 percent in 1945–1946, 48 percent in 1947) and 60 percent were actually 55 percent (48.75 percent in 1945–1946, 54 percent in 1947) and 70 percent for taxpayers with only one family-quotient share.

(iii) In the 1959–1971 tax years, all marginal rates in the schedule were actually 5 percentage points higher (3 percentage points in 1970–1971) than the rates shown in this table, but all taxpayers received a tax reduction equal to 5 percent (3 percent in 1970–1971) of the amount of their wages and retirement pensions.

December 31, 1945, had applied a higher top marginal rate (70 percent instead of 60 percent) to taxpayers with only one family-quotient share, and this system was only eliminated by the law of December 28, 1959: thus from the 1945 tax year to the 1958 tax year, the top marginal rate of the schedule was 70 percent for taxpayers with only one family-quotient share, and 60 percent for all others. To compensate for the elimination of the “proportional tax,” the same law of December 28, 1959, set slightly higher tax rates on self-employment income than on wages and retirement pensions: in the 1959–1969 tax years, all marginal rates were five percentage points higher than the rates shown in Table 4-5 (the top rate was thus 65 percent rather than 60 percent<sup>114</sup>), but all taxpayers enjoyed a tax reduction equal to 5 percent of the amount of their wages and retirement pensions, so that the rate schedules actually applied to wage incomes (that is, to the overwhelming majority of incomes) were indeed as shown in Table 4-5. This “surtax” on nonwage income was reduced from 5 percent to 3 percent in 1970–1971, and the system was definitively abolished starting from the 1972 tax year. Later, we will return to this inequality in treatment between wage and nonwage income, an issue that was at the center of the 1948 and 1959 tax reforms. For the moment, we will simply note that these little oddities do not change the key point, namely, that the top marginal rate of the income tax schedule was always around 55–65 percent (a minimum of 54 percent, a maximum of 70 percent) through the entire 1945–1998 period. Compared to the 1915–1944 period, when the top marginal rate rose over just a few years from an absolute low of 2 percent in 1915 to an absolute maximum of 72 percent in 1924 (without even taking into account the surtaxes on childless taxpayers), before being cut in half by Poincaré in 1926 and then fluctuating endlessly between the high point of 72 percent reached in 1924 and a new low of 24 percent in 1934, the income tax of the 1945–1998 period does indeed appear to be a “pacified” income tax: since 1945, the income tax appears to have been seen as a tool allowing the highest incomes to be hit with marginal rates on the order of 55–65 percent, neither more nor less.

Also, the post-1945 stability in the rate schedule’s overall structure goes well beyond the issue of the top marginal rate. While schedules in the 1915–1944 period generally had several dozen tax brackets that followed wildly fluctuating modalities (see Tables 4-1 to 4-4), the schedules of the 1945–1998 period are all characterized by a limited number of tax brackets (see Table 4-5). The legislators of 1945 had been very insistent on this goal of “simplifying” the rate schedule, and

in fact for the 1945 tax year the law of December 31, 1945, instituted a five-bracket schedule with marginal rates of 0 percent, 12 percent, 30 percent, 45 percent, and 60 percent, versus nearly twenty-five brackets in the schedule used in the 1944 tax year. The number of brackets increased slightly in the following years, and the lower-level rates were altered slightly, but the overall structure of the rate schedule would remain relatively simple—in this respect following the spirit (if not the letter) of the schedule adopted by the first Constituent Assembly in 1945. In particular, for more than twenty years, from the 1949 tax year to the 1972 tax year, an eight-bracket schedule was in effect, with rates at 0 percent, 10 percent, 15 percent, 25 percent, 30 percent, 40 percent, 50 percent, and 60 percent (see Table 4-5).<sup>115</sup> The number of brackets rose to 12 in the 1974–1992 tax years (and even 13 in the 1982–1985 tax years), notably after the first Chirac government’s decision in 1974 to create intermediate brackets at 35 percent, 45 percent, and 55 percent (law of December 30, 1974). But the goal of this purely technical reform was simply to “smooth out” the marginal-rate profile, and it had hardly any impact on the overall form of the schedule or on the effective tax rates. The same was true of the reform undertaken by the Balladur Government in 1993, whose objective, by contrast, was to “simplify” the rate structure, by reducing the number of brackets (law of December 29, 1993). Ultimately, since the 1993 tax year the end result has been a seven-bracket schedule, with marginal rates that are practically identical to those adopted in 1945 by the first Constituent Assembly (see Table 4-5). Let us also make clear that the modesty of the reforms of the rate schedule that have been undertaken since 1945, which essentially have been limited to relatively technical adjustments (creating intermediate brackets, eliminating intermediate brackets, etc.), and have never taken the form of the broad overhauls instituted by the *Bloc National*, the Popular Front, or the Vichy government, is not due to postwar governments joining hands in self-imposed respect for a schedule with fixed brackets and a single rate, like that established by the *Bloc National*, a system that compels governments to raise or lower the tax burden on all taxpayers by the same proportions, whatever their income level. Postwar governments never completely deprived themselves of the freedom of maneuver to increase the thresholds for some brackets without increasing all of them, or to modify certain rates without modifying all of them: it was simply that these adjustments were all of very limited magnitude.<sup>116</sup> Since 1945, governments seem to have lost the taste for grand reforms of the rate schedule.

Nevertheless, it must be made clear that the tax-rate schedules reproduced in Table 4-5 do not take into account the many “exceptional surtaxes” that dot the history of the income tax, and to which postwar governments frequently resorted in order to vary the effective tax burden on very high incomes in accordance with the needs of the political-financial moment, just as their predecessors in the interwar era had done, and this began with the 1946–1947 tax years. To be sure, the governments of the Liberation held far narrower margins to maneuver than their predecessors of the early 1920s had held: whereas the latter had been able to undertake dizzying increases in the rates applied to very high incomes, which allowed them to show public opinion that wealthy taxpayers would not be spared from the burdens of the war and reconstruction, in 1945 the levels that tax rates on the highest incomes had reached did not allow this kind of policy to be undertaken. This comparison between the two postwar eras was often found in the speeches of politicians at the time.<sup>117</sup> Also, it is certain that the politicians of 1945 were aware of the collapse in capital incomes that had taken place during the crisis of the 1930s and the Second World War years, and thus they were aware of the limited volume of tax receipts that could be obtained from increases in tax rates on very high incomes (at least in the short term). However, it’s harder to find specific allusions to this issue, since this era was not in the habit of wallowing in pity for the sad lot of the rich capitalists, who were suspected of collaboration, or at a minimum of cowardice, vis-à-vis the Vichy regime.<sup>118</sup> This intellectual and political context also explains why it was totally unthinkable for a head of government at the time of the Liberation to play Poincaré or Doumergue by lowering the top rates on the highest incomes to 25 percent or 30 percent, and why governments in the immediate postwar era, confronted by a financial situation just as disastrous as that faced by their predecessors of the 1920s, could not help but resort to “exceptional surtaxes” on top of the rate schedules shown in Table 4-5.

The apogee of “income tax fever” was reached in 1947–1948, after the Communists’ departure from the government in May 1947 and the great strikes of November-December of the same year, at a moment when, for the fourth year in a row, annual inflation exceeded 50 percent and when governments sought by all means available to reduce the supply of money in circulation and reestablish budgetary equilibrium. After several months of hard negotiations, the president of the Council, Robert Schumann (MRP), and his Radical finance minister, René Mayer, passed the law of January 7, 1948, establishing an “exceptional levy

for the struggle against inflation.” This represented the central element of the anti-inflation “Mayer Plan” presented at the end of 1947, which took the form of an IGR surtax that reached rates of 40 percent for taxpayers whose taxable income in 1946 was above 3 million francs.<sup>119</sup> This surtax was applied retroactively to the amount of IGR tax owed on 1946 incomes, so that the best-off taxpayers faced a top marginal rate on their 1946 incomes of 84 percent, and even 98 percent for taxpayers with only one family-quotient share, and that is not even taking the schedular taxes into account.<sup>120</sup> But an important difference vis-à-vis the “exceptional surtaxes” that had been established in the past, and in particular the retroactive surtax instituted by the law of December 3, 1925, is that the “exceptional levy against inflation” in the January 7, 1948, law was presented as a “compulsory loan” rather than a surtax. The law of January 7, 1948, gave all taxpayers who wished to do so the ability to escape this surtax by underwriting a loan that paid 3 percent and was redeemable over ten years for a sum at least equal to the amount of the surtax. By contrast, the *double décime* (20 percent IGR surtax) adopted a few months later by the government headed by Radical Henri Queuille (law of September 24, 1948), and in effect only for the 1947 tax year, was a genuine, nonreimbursable income surtax. The situation was calmer after 1948, but the technique of “exceptional surtaxes” was never truly abandoned, and use of it was made, notably, in the wake of the events of May 1968 and the elections of May 1981, as we will see in section 4.3 of this chapter. Nevertheless, these exceptional surtaxes, however significant they may have been, by definition could alter the weight of the tax burden only at the margins, and only on a purely temporary basis, and therefore they should not overshadow the influence that the law of December 31, 1945, had on the overall form of the rate schedules that have been in effect since 1945.

#### 4.1.3. Nondeduction of the Previous Year’s Tax Payment

In addition to the establishment of the family quotient and a new general form for the rate schedule, the third important decision taken by the first Constituent Assembly concerned a challenge to the deduction from taxable income of the IGR payment made on the previous year’s income: namely, the law of December 31, 1945, provided that, in calculating 1945 taxable income, taxpayers would be entitled to deduct only half of the IGR owed on the taxation of 1944 incomes (rather than all of it). Despite its technical trappings, this measure actually represented a major rupture: challenging the full deduction of the



previous year's tax, which had already been the object of several fruitless efforts in the interwar period, notably in the era of the *Cartel des Gauches* and Popular Front, finally made it possible to envision top income tax rates applying fully to the incomes in question. And as we will see in Chapter 5, this measure had considerable consequences on the effective tax rates for very high-income fractiles, far more important, for example, than the creation of the family quotient or the slight variations in tax rates.

The way this decision was introduced into the law of December 31, 1945, shows that the actors of the period were fully aware of the practical importance of this deceptively technical-seeming measure. Initially, the finance bill introduced by General de Gaulle's finance minister René Pleven did not alter the principle of the full deduction of the previous year's IGR, and the measure was introduced on the proposal of the finance committee's Communist deputies. But the important fact is that the Communist deputies agreed that the rates on the tax schedule initially envisioned by the provisional government would be significantly reduced "in exchange" for the nondeduction of the previous year's IGR. René Pleven initially proposed a rate schedule whose top marginal rate, applied to the portion of income per share above 300,000 francs, would be 70 percent (and even 90 percent for taxpayers with only one family-quotient share), and the Communists agreed to reduce the top marginal rates on the portion of income per share between 300,000 and 500,000 francs to 45 percent and to 60 percent on the portion above 500,000 francs (70 percent for taxpayers with only one family-quotient share) "in exchange" for their amendment. The significance of this maneuver was not lost on the right, which tried in vain on the floor to reverse this agreement between the government and the Communists in the finance committee.<sup>121</sup> This episode demonstrates that all of the actors involved, starting with the Communists, were perfectly aware of the fact that elimination of the previous year's IGR was worth a significant reduction in the rate schedule. The fact that René Pleven initially envisioned reducing the threshold for the 70 percent top marginal rate to 300,000 francs versus 400,000 francs in the 1944 tax (see Table 4-4), despite very high inflation, also shows that the provisional government wanted to prevent the adoption of the family quotient from resulting in too large a reduction in the IGR demanded of wealthy taxpayers relative to the situation under Vichy.

In the end, according to the terms of the compromise agreed with the Communist deputies, who had initially defended a complete elimination of the

previous year's IGR deduction, the law of December 31, 1945, preserved taxpayers' ability to deduct half of the IGR payment owed on their 1944 incomes for the 1945 tax year. But the key fact is that, for the first time, the principal of full deduction established by the law of July 15, 1914, which had been in effect every year during the 1915–1944 tax years, was undermined, and it could hardly be doubted that this wedge opened up by the Communists in December 1945 was not about to be reclosed. In fact, less than a year later, the law of December 23, 1946, adopted by the first National Assembly of the Fourth Republic a few weeks after its election (November 1946), established that in the 1946 tax year, taxpayers would not be able to deduct the slightest fraction of the IGR paid on 1945 incomes. Then, the previous-year IGR deduction made a timid reappearance in the 1947 tax year: the law of May 13, 1948, established that taxpayers could deduct one quarter of the IGR paid on 1946 incomes from their 1947 taxable income. But it was clear that a page in the history of the income tax had already been turned, and it fell to the tax-reform decree of December 9, 1948, to make the new regime official: the decree of December 9, 1948, in replacing the IGR with the “progressive surtax,” and the schedular taxes with the “proportional tax,” established that taxpayers could in no case deduct the slightest fraction of the “progressive surtax” owed on the previous year's income from the taxable income that served as the basis for calculating a given year's “progressive surtax”—all starting with the 1948 tax year. Thus, from the 1948 tax year onward, the previous year's progressive tax has not been deductible from taxable income, and the very idea of such a deduction has never been debated since.

It must be clarified, however, that the laws of December 31, 1945, December 23, 1946, and May 13, 1948, did not challenge taxpayers' right to deduct the amount of schedular taxes owed on the previous year's income from this year's taxable income, and that the 1948 tax reform merely translated this new regime into the language of the new taxes; the decree of December 9, 1948, eliminated only the deductibility of the previous year's progressive surtax, but preserved taxpayers' ability to deduct the amount of the “proportional tax” owed on the previous year's income from their current year's taxable income.<sup>122</sup> This system came to an end only with the 1959 tax year,<sup>123</sup> and even then not entirely: the law of December 28, 1959, created a “complementary tax” to make up for the elimination of the “proportional tax,” which was deductible from taxable income under the same circumstances as with the defunct “proportional

tax,” and which in reality definitively disappeared only from the 1970 tax year onward, so that it is only since the 1970 tax year that taxpayers have not been allowed to deduct any tax from their taxable income. This laborious history illustrates the great inertia that sometimes characterizes tax legislation. But when it comes to the practical import of these apparently highly technical rules, the real rupture came in the years 1945–1948 and, more specifically, with the law of December 31, 1945: the rates on the schedular taxes, “proportional tax,” and “complementary tax” have always remained at relatively modest levels, and the ability to deduct these taxes from taxable income has been of only very limited practical importance, on a wholly different scale from the very large tax reductions for wealthy taxpayers made possible before 1945 by the full deduction of the previous year’s IGR payment.<sup>124</sup>

#### 4.2. The Reforms of 1948 and 1959: The Question of Wages

The tax reforms of 1948 and 1959 were both presented as complete overhauls of the system bequeathed by the reform of 1914–1917. But a change in the official name of a tax does not mean that its reality has changed, so we ought to be specific. The decree of December 9, 1948, which went into effect from the 1948 tax year, eliminated the general income tax established by the law of July 15, 1914, and the schedular taxes established by the law of July 31, 1917. It replaced them with a supposedly single “tax on the income of natural persons” (IRPP), which actually broke down into a “proportional tax,” which was very similar to the old schedular taxes, and a “progressive surtax,” which was very similar to the old IGR. Likewise, the law of December 28, 1959, which went into effect from the 1959 tax year, and which claimed finally to be instituting a “single” IRPP by abolishing the “proportional tax” and leaving only the “progressive surtax,” was actually a much more abrupt shift than it seemed to be: the “proportional tax” was in fact replaced by a “complementary tax” and by a 5 percent surtax that took more than ten years to disappear completely, so it is only since the 1972 tax year that the income tax has been genuinely a “single” tax. As we saw earlier, the properly progressive portion of the income tax (IGR until the 1947 tax year, “progressive surtax” of the IRPP for the 1948–1958 tax years, and simply the IRPP since the 1959 tax year) was, in reality, practically unaffected by the 1948 and 1959 reforms. The most important decisions had already been made by the law of December 31, 1945, and most taxpayers were able to shift from the IGR

to the progressive surtax of the IRPP and then to the IRPP *tout court* without even realizing it. In fact, aside from the entirely formal issue of the change in the official name of the income tax, the real issue in the 1948 and 1959 reforms was the liquidation of the schedular taxes bequeathed by the law of July 31, 1917, a process that, notably, raised the question of wage taxation. Despite its relatively technical nature and its limited importance for the evolution of the progressive income tax strictly speaking, this episode merits some elaboration, as it represents invaluable testimony as to how the notion of the “high-wage wage earner” and the distinction between wage earners and the self-employed were perceived in France over the twentieth century.

To understand the origins of this “wages question,” it is essential to rewind to the reform of 1914–1917. In the framework of the general income tax, there was no “wages question”: all of a tax unit’s incomes, of whatever kind, were added up, and to calculate the tax it was enough to know the sum of all of these incomes, as well as the family situation of the tax unit. It is true that wages had enjoyed a 10 percent flat-rate deduction for work expenses since the 1934 tax year, but that did not really represent an advantage. The self-employed could also deduct all work expenses from their net profits subject to the IGR, and the 10 percent flat-rate deduction for wage earners that Doumergue had created was offset by an increase in the documentation required from those who intended to deduct work expenses greater than that amount. Thus, the general income tax was “neutral,” as any global income tax must be (in principle): whether large incomes took the form of high wages, high profits, or high dividends, they were all taxed the same.

That was not the case with the schedular taxes. From the beginning, these taxes were characterized by a system of advantages for workers, and these advantages persisted throughout the interwar period. For one thing, the tax rates of the schedular wage tax were always lower than those of the schedular taxes on self-employed workers’ mixed incomes, which were in turn lower than the rates of the schedular tax on capital incomes.<sup>125</sup> But more importantly, whereas the other categories of income, notably including industrial and commercial profits (BIC), were taxable from the first franc onward under the corresponding schedular tax, wages enjoyed a significant exemption at the base, so that only wages above a certain threshold were taxable under the schedular wage tax.<sup>126</sup> Throughout the interwar period, the level of this exemption was such that the share of wages actually subject to the schedular wage tax was usually around

10–15 percent, and only in exceptional circumstances did this percentage exceed 20 percent.<sup>127</sup> In other words, for the most part, only the best-paid 10 percent of workers had to pay the schedular wage tax, and at rates that were significantly lower than those on the self-employed. In the eyes of the small artisans, small shopkeepers, and various “small employers” who found themselves confronted by the taxman from their very first franc’s worth of profits, even if they earned miserable profits, the injustice was all the more flagrant because, according to the terms of the law of July 31, 1917, all “industrial or commercial” firms, from the smallest artisan business to the largest publicly traded corporation, were subject to the same “schedular tax on industrial and commercial profits.”<sup>128</sup> The “small employers” thus found themselves placed within the same tax regime as the biggest capitalist firms, and thus within the “capital” clan, as opposed to workers, who all enjoyed a system of advantages meant for the “labor” clan, even if they were the salaried directors of the big capitalist firms in question, and this was the case however high their wage might be.

To be sure, in anticipation of the vociferous protest that this stark division of the world into “wages” and “profits” would surely provoke, the law of July 31, 1917, had provided for a system of exceptions for “independent workers working alone at home, without companions or apprentices,” as well as for “the widow who carries on, with the aid of a single worker or a single apprentice, the occupation previously carried out by her husband,” who, unlike all other recipients of BIC, enjoyed an exemption at the base, starting from the 1917 tax year, in such a way that artisans earning very small profits and belonging to these two categories were totally exempted from the schedular tax on BIC. But, besides the fact that the exemption at the base provided for this system in the 1917 law was half the size of that for workers, a gap that would later grow,<sup>129</sup> the system covered only a tiny share of the universe of “small employers,” and it did not change the fact that the rates for BIC income were structurally higher than those for wages. In particular, this system of exceptions did not change the fact that a “small employer” could find himself having to pay a significantly higher schedular tax than the sales director of a large firm with three or four times more revenue. It also must be noted that, while the rates of the schedular taxes never reached the dizzying levels of the top rates on the IGR, the issues at stake were far from being purely symbolic. For example, in the early 1920s, an artisan earning profits around two–three times the average income of the period had to pay an amount equivalent to one month’s profit under the schedular tax on

BIC income; at the same time, a salaried manager with an annual wage exactly equal to the profits earned by the artisan in question could be totally exempt from the schedular tax on wages.<sup>130</sup>

“Small employers” laid political responsibility for this flagrant injustice at the door of the parties of the Left (Socialists and Communists), especially since the latter tended to view the advantages given to workers by the law of July 31, 1917, as being insufficient, and often went so far as to demand the complete elimination of the schedular wage tax. This demand, which at the time was one of the favorite refrains of the PCF and the CGT,<sup>131</sup> was, of course, accompanied by sympathetic rhetoric for the small self-employed worker, and by repeated promises to impose the additional tax burden solely on large profits. But these promises were not enough to convince the “small employers,” who suspected the “Marxists” of seeking the death of small independent producers, and feared that once workers were completely exempt from schedular taxation, it would be highly surprising if the state were also able to afford sparing the overwhelming majority of the self-employed. For the same reasons, artisans and shopkeepers cast a jaundiced eye on the propaganda activities of the unions and the “Marxist” parties, who, in expectation of a hypothetical elimination of the wage tax, often encouraged wage earners not to pay the schedular tax and to return the corresponding tax assessments to the tax collector.<sup>132</sup>

The Right, which, as we have seen, often clashed with the Left on the question of the relative weights of the schedular taxes and the IGR, had a field day defending the “small employers” and denouncing the inconsistency of claiming to want to develop a modern tax system while also demanding that the principal source of household incomes be spared. It was ultimately the *Bloc National* and the “Sky-Blue Chamber” that gave the “small employers” the law of June 30, 1923, establishing the so-called *artisans et assimilé* regime: the two categories specified in the 1917 system of exceptions—to which were now added all artisans “using no other aid than that of their wife, their father, mother, children or grandchildren, living at home with them, or an apprentice less than sixteen years old, or a companion,” as well as “fisherman and mariners owning only one boat” and “drivers owning one or two vehicles that they drive and manage themselves”—were all transferred from the BIC schedule to the wages schedule, so these categories now enjoyed the same exemptions and the same tax rates as workers, starting from the 1923 tax year. It is worth noting the great difficulty that legislators encountered in 1923 in defining the precise boundaries

of this universe of “small employers”—just as the statisticians of the SGF had the greatest difficulty establishing the contours of the vast “isolated workers” category used in the period’s censuses,<sup>133</sup> the deputies did not quite know how to go about naming these social categories to whom they wished to grant the same tax advantages as workers. According to Steven Zdatny, this law of June 30, 1923, played a key role in the occupational and political structuring of the artisan milieu, and in fact this *artisans et assimilés* category lay at the origin of the use of the word “artisan” to refer to the nebulous universe of small independent producers: thus from 1923 onward, artisans possessed an “official” term to demarcate themselves from “big employers.”<sup>134</sup>

In practice, the categories established by the law of June 30, 1923, were fairly restrictive. As soon as an artisan employed a single worker, and this worker was neither a member of his family living with him, an apprentice younger than the age of sixteen, or a “companion,” the artisan found himself taxed under the schedular tax on BIC profits, and thus on the same footing as the biggest publicly-traded corporations. Also, shopkeepers, however “small,” were not covered by the exceptional system under any circumstances. The law of June 30, 1923, was nevertheless a key moment in the history of the schedular tax on industrial and commercial profits: the *artisans et assimilés* mobilized frequently to ensure that the system they were granted in 1923 would not be undermined, and most importantly, it was from that date onward that special regimes within the BIC tax system began to multiply. Poincaré in 1928, then Tardieu in 1929 and 1930, and finally Doumergue in 1934 made sure that small shopkeepers would not be subjected to the BIC tax under the same conditions as big firms, and more generally that all “individuals and partnerships” whose profits did not exceed a certain threshold would enjoy a “special regime” within the BIC tax system.<sup>135</sup> It fell to the Vichy regime to bring this sequence to its culmination. Starting from the 1942 tax year, all “individuals and partnerships,” whatever their level of profit, were subject to the “special regime,” and only *sociétés*, that is, corporations endowed with a legal personality distinct from that of their owners, as opposed to the individual entrepreneurs of proprietorships (“individuals and partnerships”), continued to belong to the “normal regime” of the BIC tax, which resulted in a very sharp drop in the number of taxpayers.<sup>136</sup> All that remained was for the tax-reform decree of December 9, 1948, to “officialize” this new situation, which was done by establishing a strict separation between, on the one hand, a “tax on the income of natural persons” (IRPP), or more



simply “income tax,” and, on the other hand, a “tax on the profits of companies and other legal persons,” or more simply “company tax.” Since that date, this strict separation between taxing natural persons and taxing the incomes of legal persons has been in effect without interruption, and it is now to the point that the income tax and the company tax are seen as totally distinct taxes. But it is important to note that the company tax in reality was merely the continuation of the “normal regime” of the schedular tax on industrial and commercial profits, arriving at the end of a slow and gradual evolution that allowed all individual entrepreneurs to exit the clan of “capital.”

At the end of the Second World War, then, one might have thought that the “wages question” had finally been resolved. To be sure, the “special regime” established in the late 1920s was far less advantageous than the *artisans et assimilés* regime, because unlike the latter, small shopkeepers and other “individuals and partnerships” taxable under the “special regime” of the BIC tax were never able to enjoy the exemptions and the tax rates of the schedular tax on wages. Nevertheless, the inequality of treatment between wage and nonwage incomes had been sharply reduced, and the serious social tensions this inequality provoked seemed to have been pacified. Unfortunately, another set of changes shattered this fragile equilibrium. The purchasing power collapse brought about by the Second World War helped make the schedular wage tax particularly intolerable to workers, especially since inflation and irregular increases in the nominal threshold of taxable income had led to a significant increase in the share of workers who were taxable under the schedular tax, and also because top wage levels had borne the brunt of the compression in the wage hierarchy that had taken place over the course of the war.<sup>137</sup> At the Liberation, the parties of the Left thus agitated for a very large increase in the exemption at the base of the wage tax.<sup>138</sup> This demand was also being made by employers, who since 1940 had had to pay the wage tax in their workers’ names, and who thought, not without reason, that a reduction in this tax might make it easier for them to finance the wage increases being demanded by unions and imposed by successive governments, especially in the Parodi decrees. The exemption at the base was thus raised a number of times over the course of 1945–1948, and what had to happen happened: the exemption had been raised so high that the decree of October 1, 1948, mandated the complete elimination of the schedular wage tax, which therefore was in effect for the last time in September 1948.<sup>139</sup> Here again, the tax-reform decree of December 9, 1948, merely translated this *de facto*



situation into the language of the new taxes: the proportional tax of the IRPP, which was the continuation of the schedular taxes, was levied on all incomes subject to the schedular taxes of 1917, with the exception of wages.<sup>140</sup> In particular, the *artisans et assimilés*, who until 1948 had managed to preserve their “privilege” of enjoying the same tax conditions as workers, found themselves within the universe of the proportional tax. They did enjoy a reduced rate on the bottom portion of their profits,<sup>141</sup> but the fact remained that they had to pay a tax from which all workers were exempted, whatever their wage. As in the interwar period, this inequality of treatment was untenable. Making the situation even more explosive, several measures were taken in the early 1950s to reduce the burden of the progressive surtax for salaried managers and other white-collar workers: the rise in wages risked subjecting more and more workers to the progressive surtax, and governments wanted to make sure that the workers in question did not feel the state was taking away too much of what reconstruction efforts and renewed growth had finally given them, especially since salaried managers and white-collar workers were seen as a social group destined to play a central role in the development and “modernization” of the country.

It was first decided to extend the benefit of the 10 percent flat-rate deduction for work expenses to all workers. When this flat-rate deduction was created in 1934, a “ceiling” had effectively been instituted, in the sense that the 10 percent flat-rate deduction could not exceed a certain amount (beyond this ceiling, workers had to provide proof of their work expenses). Initially the ceiling had been set at an extremely high level (less than 0.1 percent of workers were affected),<sup>142</sup> but inflation and the lack of systematic increases had made it more binding: in the 1950 tax year, nearly 5 percent of workers were “victims” of this ceiling.<sup>143</sup> The law of April 14, 1952, which went into effect from the 1951 tax year, instituted a very significant increase in the ceiling, so that less than 1 percent of workers were affected.<sup>144</sup> But the government, led by the Radical René Mayer, disliked the idea that “super managers” in the top 1 percent of the wage hierarchy would not benefit fully from the 10 percent flat-rate deduction, and less than a year later he completely eliminated the ceiling (law of February 7, 1953). Thus starting from the 1952 tax year, all workers enjoyed the same 10 percent flat-rate deduction, no matter how high their wage level.

The “age of managers” did not end there. The law of April 10, 1954, which went into effect in the 1953 tax year, created an additional 10 percent exemption for workers, and then a year later, the decree of April 30, 1955, which went into

effect in the 1954 tax year, increased the exemption to 15 percent. In other words, to calculate their taxable income subject to the progressive surtax schedule, workers could deduct from their wage not only the 10 percent flat-rate deduction for work expenses, but also this 15 percent flat-rate deduction, so that they were being taxed on only 75 percent of their income.<sup>145</sup> This exemption, which was not capped, was especially attractive for very high-level managers, since it allowed them to escape the top brackets of the progressive surtax schedule (or at least mitigate its effects). The spirit in which this exemption was created by the law of April 10, 1954, was very similar to that surrounding the elimination of the schedular wage tax in 1948: the 10 percent exemption was one of the major provisions of the stimulus plan introduced by Radical finance minister Edgar Faure in February 1954, and his avowed objective was to raise the purchasing power of the “middle and upper” categories of wages, without the need to increase gross wages paid by firms.<sup>146</sup> Likewise, the increase in the exemption rate instituted by the decree of April 30, 1955, also the work of Edgar Faure (who had replaced Pierre Mendès-France at the head of the Council of Ministers in February 1955), was explicitly presented as aiming to raise the purchasing power of high-level wage earners: the SMIG had just been increased, with the idea being to “appease the managers, who were protesting the flattening of the hierarchy that had resulted from the increase in low wages.”<sup>147</sup>

It was in precisely this context that the Poujadist movement developed: on July 22, 1953, Pierre Poujade, the owner of a stationery store in Saint-Céré, in the Lot region, first mobilized the artisans and shopkeepers of his small town against the agents of the tax authority, before founding the “Union of Defense of Shopkeepers and Artisans” (UDCA) in November 1953. The peak of the Poujadist agitation came in 1954–1955, with several “commando operations” to aid small shopkeepers or artisans who were pushed into bankruptcy by the voracious taxman. The UDCA decreed a “tax strike” in January 1955, and the Poujadist movement achieved its great electoral breakthrough in the January 1956 legislative elections. Historians have often cited the importance of the end of inflation (even turning to deflation over the course of 1953)—something that was hardly reassuring for members of occupations whose incomes depended directly on the level of retail prices—to explain why anti-tax protests by artisans and shopkeepers reached such heights at that moment.<sup>148</sup> This explanation contains some truth, no doubt, but it seems important to add that the Poujadist

movement grew at the very moment when the inequality of treatment between wage earners and the self-employed was reaching its highest level of the century. "Small employers" could not tolerate having to pay a proportional tax from which all workers were exempt, and they saw in the recent measures taken to help white-collar professionals, especially the *cadres parisiens* so often attacked by Poujade, as proof that the "modernizing" central government and its "heartless technocrats," whatever their political labels, were indifferent to the fortunes of small independent producers.<sup>149</sup>

In the late 1950s, it seemed obvious that this unequal treatment could not last forever. Pierre Mendès-France tried to calm the Poujadists' fury by raising the threshold to qualify for the reduced proportional-tax rate for *artisans and assimilés* (law of August 14, 1954), and Edgar Faure had included in his decree of April 30, 1955, a significant reduction in this lower rate to "offset" the increase in the rate of exemption for workers.<sup>150</sup> But these pacifying measures did not change the fact that the "small employers" had to pay a tax from which salaried white-collar professionals were exempt, and once it became difficult to envision subjecting workers to the proportional tax, the simplest way of solving the problem was to eliminate the tax. That was the object of the 1959 tax reform, orchestrated by General de Gaulle's very young secretary of state for finance, Valéry Giscard-d'Estaing: the law of December 28, 1959, abolished the proportional tax, keeping only the progressive surtax. By definition, this reform was good news for all recipients of incomes hit by the proportional tax, that is, all self-employed workers and owners of real estate or investment wealth, not just the "small employers." Meanwhile, eliminating the proportional tax gave workers no benefit at all, since they were already exempt from it. The parties of the Left were very strongly hostile to the reform; it was proof that the Gaullist regime put the interests of the "capitalists" before those of the "workers." To "preserve a degree of equilibrium between the tax relief granted to the various categories of taxpayers," Valéry Giscard-d'Estaing accompanied his reform with several offsetting measures.<sup>151</sup> First, the law of December 28, 1959, created a "complementary tax" that hit the same incomes as the proportional tax, but at only half the rate.<sup>152</sup> But most importantly, this complementary tax was explicitly presented as temporary, its objective being to prevent wealth owners and the self-employed from benefiting from the tax relief too much and too fast. Its elimination took longer than expected and was done in steps, with several successive rate cuts over the course of the 1960s. But the important point is that

ultimately it disappeared: the complementary tax was levied for the last time in the 1969 tax year, thus achieving the planned objective of the 1959 reform 10 years later. In the same spirit, the law of December 28, 1959, determined that all rates of the progressive-surtax schedule would be raised by 5 percent for all nonwage incomes (see Table 4-5). Again, this was about showing that although nonwage incomes had benefited from the elimination of the proportional tax, and despite the fact that they were the undisputed winners from the 1959 reform, they would still continue to pay a bit more than workers. And as with the complementary tax, this was purely a temporary measure, which would ultimately disappear. Since the 1972 tax year, all incomes have been subject to the same rates and the same schedule of what is, at last, a “single” IRPP, and nonwage incomes are no longer subject to any additional “surtax.”<sup>153</sup>

The third compensatory measure established by the 1959 reform is the only one whose vestiges are still visible in tax law: to make sure workers did not feel that they had been totally forgotten by the reform, the law of December 28, 1959, lifted the flat-rate exemption created in 1954–1955 from 15 percent to 19 percent in the 1959 tax year, and then to 20 percent from the 1960 tax year, a rate that has remained in effect since then. The 20 percent exemption enjoyed by workers in the late twentieth century thus has distant historical origins: it is the direct heir to the unequal treatment between wage and nonwage incomes instituted by the law of July 31, 1917. With the 20 percent exemption, the unequal treatment assumed a form that was less massive and, above all, less visible (all incomes were subject to the standard rate schedule, and the self-employed paid no additional tax), yet it did not disappear. All wage earners, from the humblest to the highest-paid, could deduct this exemption from their taxable income, while the self-employed, however “small,” were not allowed to do so. The “wages question” did not end there, however. Valéry Giscard-d’Estaing had more in mind, and as soon as he was elected president, he passed the law of December 27, 1974, that established an exemption, similar to the 20 percent exemption heretofore reserved for wage earners only, for all nonwage workers belonging to an “authorized management center.”<sup>154</sup> The 1970s also featured the return of caps for “super managers”: the law of December 27, 1973, which went into effect with the 1973 tax year, established that the 20 percent exemption could no longer exceed a certain amount, and the law of December 29, 1978, did the same with the 10 percent flat-rate deduction for work expenses (this measure went into effect with the 1979 tax year). In both cases, the ceiling

was set at an extremely high level, so that less than 0.1 percent of wage earners were affected.<sup>155</sup> These caps have been regularly increased by all subsequent governments, and in the late 1990s they correspond to an annual wage of around 800,000 francs,<sup>156</sup> which means that just over 0.1 percent of wage earners are unable to fully benefit from the 10 percent flat-rate deduction for work expenses and from the 20 percent exemption.<sup>157</sup> For the self-employed, the cap on the 20 percent exemption was lower than that for wage earners until 1995, when the Juppé government decided to complete the work undertaken under Valéry Giscard-d'Estaing: since the 1996 tax year, self-employed workers belonging to an "authorized management center" have enjoyed the same 20 percent exemption (with the same cap) as wage earners (law of December 30, 1996), so there is no longer any inequality of treatment between wage earners and self-employed workers.<sup>158</sup>

We should underscore the distance that has been traveled: in the 1917 tax year, all wage earners, including the highest-paid, benefited from a system of tax advantages relative to the self-employed, relative even to the most impoverished self-employed workers, who, with very few exceptions, were treated the same as the biggest publicly listed corporations; at the very end of the century, wage earners and self-employed workers were subject to the same tax conditions, and the only categories of "workers" disadvantaged by the law were those with earned incomes above a certain threshold, whether these "workers" were wage earners or self-employed. The tax legislation of the early years of the century, or at least its "schedular" component, expressed a heavily "dichotomous" vision of social inequality, grounded in the notion of an irreducible opposition between wage earners, who are necessarily "small," and the self-employed, who are necessarily "big." Tax legislation at the end of the century expresses a relatively "neutral" vision of social inequality, grounded in the idea that both the wage-earning workforce and the self-employed workforce are made up of the "big" and the "small," and that discrimination based on status rather than income is quite difficult to justify. The history of this transition is particularly interesting for our inquiry, because it confirms what we said in Chapter 3 about social representations of inequality and the slow emergence of the notion of the "high-wage wage earner."<sup>159</sup>

First and foremost, the history of this shift confirms that the weight of ideology cannot be ignored; the "wages question" was, throughout the century,

the object of extremely sharp political conflict, and to a large extent it lay at the root of the very strong partisan divides pitting the self-employed against wage earners. From the *Bloc National* in 1923 to the Juppé government in 1996, and passing through the reform orchestrated by Valéry Giscard-d'Estaing in 1959, it was always governments of the Right that honored the tax demands of the self-employed, and such episodes contributed decisively to the forging of a political identity among those social categories. Conversely, the attitude of the left-wing parties (Socialists and Communists) in this affair largely explains the chronic distrust they always inspired in the self-employed, and especially the "small employers": to the latter, tax law was the domain *par excellence* where the "Marxist" parties could express their ideological preference for wage earners and their lack of consideration for small independent producers, who, according to the purest socialist canons, were destined either to become wage earners themselves or to join the camp of "big capital."

Indeed, with the hindsight we possess at the end of the century, it must be acknowledged that some of the positions advanced by the left-wing parties on this "wages question" in the twentieth century are hard to explain except by a sort of ideological dogmatism. In and of itself, there is certainly nothing far-fetched about the idea of hitting "capitalists" harder than "workers." But the whole question is how far such unequal treatment should go, and above all, how to translate the somewhat abstract categories of "worker" and "capitalist" into concrete social reality: Did the sales director of a large enterprise, the engineer, the senior civil servant, etcetera—categories of "high-wage workers" which, as we saw in Chapter 3, were not absent from the interwar social landscape—really deserve, as "workers," favorable tax treatment relative to small artisans and small shopkeepers, as "employers"? Likewise, the argument that unequal treatment between wage earners and the self-employed would merely "offset" the greater opportunities for fraud enjoyed by the self-employed, an argument used throughout the century by defenders of a separate regime for wage earners, cannot justify anything and everything. On the one hand, such "offsetting" measures are hardly useful in combatting fraudulent practices; on the contrary, it can help legitimate them.<sup>160</sup> On the other hand, while it is incontestable that fraud has always been more widespread among the self-employed than among wage earners (on average), the few serious studies on this question suggest that the overall magnitude of the phenomenon is far less massive than is

sometimes imagined, and that a great many self-employed workers honestly declare the profits that the law requires them to declare.<sup>161</sup> In any event, as long as an artisan respects the law, the fraud argument cannot easily justify requiring him to pay a higher tax (in absolute value!) than a corporate manager with three or four times his income, as was the case under the interwar schedular-tax system. By the same token, the fraud argument cannot justify small self-employed workers being subject to a tax from which all wage earners, including those living on astronomical wages, are completely exempt, as was the case after the elimination of the schedular wage tax, which was something that the “Marxist” parties had demanded in the interwar era—at a time when only the highest-paid 10 percent of wage earners had to pay the tax—and which they ultimately obtained in 1948.

However, while the doctrinal rigidity of the “Marxist” parties was no doubt of some importance, the history of this transition also confirms that the shift cannot be reduced to a question of political and ideological cleavages. First, let us note that when the Popular Front came to power, its most extremist slogans were quickly forgotten: the government of Léon Blum refrained from eliminating the schedular wage tax. Likewise, the Socialist governments of the 1980s and 1990s refrained from questioning the equalization of tax conditions between wage earners and the self-employed that previous governments had established, which suggests that, inflammatory political rhetoric aside, there was a degree of consensus around this evolution.<sup>162</sup> It must also be remembered that the schedular taxes that gave birth to the “wages question” had been conceived by Caillaux in the early part of the century, and that they had been adopted by Radical and “centrist” parliamentary majorities, whose strictly “Marxist” components were very much in the minority. In the parliamentary debates of 1907–1908, when there was an issue of setting the level of the taxable-income thresholds under the general income tax and the schedular wage tax, the main concern of Caillaux and his supporters was to prevent too many wage earners from being subject to tax, and in particular to prevent “workers from being put in contact with the tax collector.”<sup>163</sup> This fear of workers’ reactions to the fisc also explains why the law of July 31, 1917, established that under the schedular wage tax, wage earners would not have to declare their wages: the employers would do it for them, and workers would be called upon only at the moment of tax payment. This system was replaced by the withholding tax in 1939–1940, that



is, a system in which employers themselves took responsibility to calculate and pay the amount of schedular tax owed by their workers, so that the workers would no longer be called upon by the fisc at all.<sup>164</sup>

In reality, there was a very broad consensus in the early part of the century that wage earners should be taxed only with extreme caution, and we believe that—along with the influence of Marxism and the fear that the “Marxist” parties would seize on the issue to mobilize workers—this consensus can be explained by a relatively accurate perception that there was a yawning gulf between very large capital incomes and the incomes of wage earners (including the “high-wage workers”). In other words, it was “objectively” more justifiable to offer wage earners, even the highest-paid wage earners, favorable tax treatment in an era when the gap between the average income and that of the “200 families” (fractile P99.99–100), as well as the gap between the incomes of the “200 families” (fractile P99.99–100) and the various high-wage fractiles, was about five times greater than it is at the end of the century. Of course, this yawning gulf cannot justify “high-wage workers” enjoying a system of advantages relative to small artisans. But it does make it possible to understand why this tendency to simplify reality and oppose the “labor” clan to the “capital” clan was so widespread in the early part of the century. Because the border between “big” nonwage workers and “capitalists” has always been extremely porous,<sup>165</sup> it was always tempting to put all self-employed workers in the same camp as the capitalists (forgetting in the meantime that there were also a very large number of “small” self-employed workers), and it makes sense that this temptation was especially strong in an era when the gap between the most prosperous owners of the means of production and the rest of the population was so manifestly wide. Likewise, we believe that the transition from a nearly “dichotomous” vision of inequality to a relatively “neutral” vision is explained not only by the decline of Marxism, or by the fact that tax law’s troubled confrontation with concrete reality led to the most blatant “mistakes” of 1914–1917 (such as conflating the smallest artisan firms with the biggest public companies within the same tax regime) to be corrected, but also by the fact that reality itself changed. In a world where very large capital incomes were far less elevated than in the past, it became less and less justified to let “high-wage workers” enjoy an exceptional tax regime. This interpretation, grounded in the notion that the history of income tax legislation was deeply marked by the collapse of large fortunes



after the two world wars, appears entirely consistent with the evolution of the tax treatment of capital income, as we will see later in this chapter, and above all with the evolution of the hierarchical position of the income fractiles hit by the top brackets of the progressive income tax schedule, as we will see in Chapter 5.

#### 4.3. May 1968 and May 1981: The Last “Exceptional Surtaxes”?

In addition to the “wages question,” the history of the income tax since 1945 was also marked by a series of “exceptional surtaxes” instituted in the wake of the events of May 1968 and the elections of May 1981. These “exceptional surtaxes” of 1968 and 1981 are especially interesting because the use of this political-fiscal technique had become considerably rarer since the interwar period, and because these spectacular surtaxes seemed to have disappeared completely from the imagination of politicians and public opinion by the end of the century. Table 4-6, where we have shown all of the “exceptional surtaxes” applied between the 1915 tax year and the 1998 tax year—with the exception of the rare surtax taking the form of “compulsory loans” rather than surtaxes in the strict sense<sup>166</sup>—makes it clear that, between the turmoil of the 1947–1948 years and the May 1968 events, the only government to make use of this technique was the government headed by Guy Mollet (law of June 30, 1956). It must be made clear that the *décime* (10 percent surtax) instituted by the law of June 30, 1956, did not have the “exceptional” character that governments usually wish to give surtaxes. The *décime* was in effect intended to provide durable financing for the “national old-age fund,” whose establishment had for many years been bumping up against the issue of financing, and which was supposed to establish a minimum benefit for all elderly individuals whose pension was below a certain threshold.<sup>167</sup> In fact, this “exceptional” surtax, which affected the large majority of taxpayers,<sup>168</sup> and whose rate was relatively moderate, actually took 10 years to disappear: the *décime* was in effect for the 1955–1960 tax years before being replaced by a *demi-décime* (5 percent surtax) in the 1961–1965 tax years (see Table 4-6). From the point of view of both its tax base and its purpose, as well as its rate and longevity, this surtax more resembled a general rise in the rate structure than a true “exceptional surtax.”

The surtax established by the corrective budget law of July 31, 1968, and applicable to the 1967 income tax, took place in an altogether more “exceptional” context: the stated objective of the Couve de Murville government was to deal

with the economic slowdown and budget problems brought about by the May events, while avoiding taking back from modest and “average” wage earners what the Grenelle accords had just given them. That is why this exceptional surtax focused on very high incomes, with a surtax rate reaching 25 percent for the highest incomes (see Table 4-6). Without losing sight of the proportions involved, this episode can be compared with the law of June 25, 1920, adopted by the “Sky Blue Chamber” nearly a half-century earlier: the Gaullist government in July 1968 held the overwhelming majority given him by the scheduled legislative elections that had taken place in June, but he felt compelled to respond to the popular aspirations for greater social justice that had been expressed in May, and he thus chose to demand a significant effort of taxation from recipients of very high incomes, even though this kind of symbolic measure was hardly like him. In 1969, Jacques Chirac, the young secretary of state for finance in Gen. de Gaulle’s last government, continued to deplore “the troublesome budgetary consequences of the May–June 1968 events,” “which unfortunately have forced us to postpone our great effort at income-tax relief.”<sup>169</sup> Indeed, although the “exceptional surtax” instituted in July 1968 was applied at its full rate for only one year (the 1967 tax year), it continued to apply at a reduced rate in the 1968–1971 tax years, and it was only with the 1972 tax year that the fiscal aspect of the May 1968 turmoil definitively came to a close (see Table 4-6).<sup>170</sup>

The political circumstances surrounding the exceptional surtaxes that were in effect in the 1980–1984 tax years were altogether different. The May 1981 elections had elected a Socialist president and then a Socialist parliamentary majority, and the idea of demanding an “additional effort” from recipients of high incomes constituted an essential part of the new government’s political identity. Indeed, within a few weeks the new Assembly passed the corrective budget law of August 3, 1981, of which the provision most laden with symbolism was the establishment of a 25 percent surtax applied to taxpayers whose liability under the 1980 income tax had been above 100,000 francs. This exceptional surtax was in effect for only one year, but it was replaced in the 1981–1984 tax years by other surtaxes of the same nature, though at lower rates (see Table 4-6). Moreover, in addition to these exceptional surtaxes, the new government instituted structural measures aiming to permanently increase the weight of income tax owed by wealthy taxpayers, with, on the one hand, the creation by the law of December 30, 1981, of a mechanism for capping the effects of the

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TABLE 4-6  
*The “exceptional surtaxes” in the history of the income tax (1915–1998)*

Tax years	Date of the law	Modalities of the surtax
1923–1925	L.3/22/1924	<i>double décime</i> (20 percent surtax) (applied to all taxpayers)
1924	L.12/4/1925	additional 20 percent surtax (applied to all taxpayers)
1932–1933	L.2/28/1933	10 percent surtax (applied to all taxpayers)
1934–1935	D.7/16–26/1935	“exceptional surtax”: marginal rates on incomes between 80,000 and 100,000 francs raised by 25 percent, and marginal rates on incomes above 100,000 francs raised by 50 percent (surtax applied to 1934 incomes at half its rate, and at its full rate for 1935 incomes)
1936–1937	D.7/8/1937	20 percent surtax, applied to all taxpayers whose income is above 20,000 francs
1937	D.5/2/1938	additional 8 percent surtax, applied to all taxpayers
1938–1940	D.11/12/1938	33.33 percent (one third), applied to all taxpayers
1941	L.2/23/1942	50 percent surtax, applied to all taxpayers
1947	L.9/24/1948	<i>double décime</i> (20 percent surtax), applied to all taxpayers whose income exceeds the taxable threshold by more than 50,000 francs
1955–1960	L.6/30/1956	<i>décime</i> (10 percent surtax) applied to all taxpayers whose income is above 600,000 francs (6,000 new francs)
1961–1965	L.12/23/1960	<i>demi-décime</i> (5 percent surtax) applied to all taxpayers whose income is above 6,000 francs (1961), 8,000 francs (1962), 36,000 francs (1963), 45,000 francs (1964), and 50,000 francs (1965)
1967	L.7/31/1968	10 percent surtax for taxpayers whose tax liability is between 5,000 and 10,000 francs, 20 percent for taxpayers whose tax liability is between 10,000 and 20,000 francs, and 25 percent for taxpayers whose tax liability is above 20,000 francs

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Tax years	Date of the law	Modalities of the surtax
1968	L.12/27/1968	surtax applied to all taxpayers whose tax liability is above 6,000 francs, at rates ranging up to 15 percent for those whose tax is above 140,000 francs
1969	L.12/24/1969	surtax applied to all taxpayers whose tax liability is above 7,000 francs, at rates ranging up to 7.5 percent for those whose tax is above 14,000 francs
1970	L.12/21/1970	surtax applied to all taxpayers whose tax is above 10,000 francs, at rates ranging up to 3 percent for those whose tax is above 20,000 francs
1971	L.12/29/1971	surtax applied to all taxpayers whose tax liability is above 15,000 francs, at rates ranging up to 2 percent for those whose tax is above 20,000 francs
1980	L.8/3/1981	25 percent surtax applied to taxpayers whose tax liability is above 100,000 francs (surtax applied to the portion of tax above 100,000 francs)
1981	L.12/30/1981	10 percent surtax applied to taxpayers whose tax liability is above 25,000 francs (surtax is applied to the portion of tax above 15,000 francs)
1982	L.12/29/1982	7 percent surtax applied to taxpayers whose tax liability is above 28,000 francs (surtax is applied to the portion of tax above 28,000 francs)
1983	L.12/29/1983	5 percent surtax for taxpayers whose tax liability is between 20,000 and 30,000 francs and 8 percent for taxpayers whose tax liability is above 30,000 francs
1984	L.12/29/1984	3 percent surtax applied to taxpayers whose tax liability is above 32,080 francs

*Explanation:* The law of March 22, 1924, instituted a 20 percent surtax, which applied to all taxpayers in the 1923–1925 tax years.

*Note:* This list contains all exceptional surtaxes, except for surtaxes that took the form of compulsory and redeemable loans (compulsory and redeemable loans of this kind were in effect in the 1946, 1973, 1975, and 1981 tax years; see Chapter 4, section 4.3).

family quotient, which we have already discussed earlier, and, on the other hand, the creation by the law of December 29, 1982, of a 65 percent tax bracket, which was in effect starting from the 1982 tax year (see Table 4-5).<sup>171</sup>

As with the tax increases of 1936, these 1981 tax increases merit particular attention, and in Chapter 5 we will analyze the specific hierarchical position of the top-income fractiles from which the Socialists of 1936 and 1981 chose to demand an “additional effort.” For the moment, let us simply note that, at least from a formal point of view, the Socialists of 1981 were far more modest than those of 1936: whereas the Popular Front had launched a general overhaul of the income tax schedule, the Mauroy government resorted to the “exceptional surtax” technique, and merely added a modest additional 65 percent bracket to the permanent income tax schedule (the top rate of the schedule rose from 60 percent in the 1981 tax year to 65 percent in the 1982 tax year), while leaving unchanged all of the other brackets bequeathed by previous governments. Without any doubt, this refusal to undertake an ambitious transformation of the rate structure was an expression of the very broad consensus around the general form of the income tax schedule since 1945, a consensus that had not existed in the interwar era.

An additional point of interest of the 1981 episode is that these tax increases were the century’s last.<sup>172</sup> In the 1984 tax year, the Fabius government decided to bring the top surtax rate to 3 percent (see Table 4-6), and to create a system of tax discounts for all taxpayers with incomes below a certain threshold (law of December 29, 1984).<sup>173</sup> The “exceptional surtaxes” were then definitively abolished by the law of December 30, 1985, which also took the opportunity to raise the rate of the tax discounts and extend their field of application.<sup>174</sup> The 1986 change of government led to an expansion of these tax relief measures: the rates and the field of application of the tax discounts were again increased, and most importantly, the Chirac government eliminated the 65 percent bracket created by the Socialists and lowered the rate on the 60 percent bracket, so that the top marginal income tax rate fell from 65 percent in the 1985 tax year to 58 percent in the 1986 tax year (see Table 4-5). In order to avoid giving the impression that high-income taxpayers were the big winners of the Right’s return to power, the Chirac government also decided to include in the December 30, 1986, law a provision aiming to take a significant number of “modest” taxpayers out of the income tax base: thus starting from the 1986 tax year, all taxpayers

could benefit from the “discount,” which had been created in 1981 and which until 1986 applied solely to single individuals.<sup>175</sup> The law of December 30, 1987, then resulted in a new round of tax relief. All of the rates were lowered, including the top marginal rate, which fell from 58 percent in the 1986 tax year to 56.8 percent in the 1987 tax year (see Table 4-5).

The situation remained there throughout the whole 1988–1993 legislature. The Socialist governments of those five years were content to apply the new tax rates, in particular the 56.8 percent top marginal rate that the Chirac government had left them. The March 1993 legislative elections and the arrival of the Balladur government led to a new round of reductions in the income tax schedule, which were obtained by reducing the number of brackets and incorporating the tax discounts into the rate schedule, so that the discounts were applied for the last time in the 1992 tax year.<sup>176</sup> The 56.8 percent rate was not affected by the law of December 30, 1993, however; having been burned by the experience of the first cohabitation government, Edouard Balladur decided not to lower the marginal rate on the highest incomes, so the top marginal rate of 56.8 percent continued to apply from the 1987 tax year to the 1995 tax year (see Table 4-5). The Juppé government was more enterprising: it decided to reduce all the rates of the tax schedule, including the top rate, which fell from 56.8 percent in the 1995 tax year to 54 percent in the 1996 tax year (law of December 30, 1996). The Juppé income tax reduction plan would continue for five years and lead to a top marginal rate of 45 percent, but the Left’s return to power in 1997 put an end to those plans, although the new Socialist government, like its 1988 predecessor, refrained from repealing the rate reduction adopted by the previous government. In the 1997–1998 tax years, the Jospin government was content to apply the rates that Juppé had left behind, and that went for the 54 percent top marginal rate in particular, which has therefore been in effect without interruption since the 1996 tax year (see Table 4-5).

This political configuration, in which governments of the Right cut income taxes as soon as they have the opportunity, and governments of the Left take care to change nothing and leave tax rates as they found them when coming into office, is the clearest possible expression of the overall atmosphere surrounding the income tax in France in the late twentieth century: while too large a reduction would probably go over badly, the most widespread view was that the income tax may only be reformed downward, and that the tax burden

has reached such a level that an increase in tax rates simply could be envisioned. In particular, the idea of raising the top marginal rate of the tax schedule, or of instituting “exceptional surtaxes” on the highest incomes, as was done by the Socialist government of 1981–1982, appeared totally far-fetched in the eyes of most observers in the late 1990s. In 1998–1999, the Socialists openly discussed the idea of launching a reduction in top income tax rates, and it is not out of the question that in the very early years of the twenty-first century we will witness the first example in history of a left-wing government choosing to reduce the taxes owed by recipients of the highest incomes.<sup>177</sup>

To put this late-century intellectual conjuncture in perspective, it seems useful to recall in summary form how the top marginal rates of the progressive income tax have evolved since the law of July 15, 1914. We have thus shown in Figure 4-1 the evolution of the top marginal rates in effect from the 1915 tax year to the 1998 tax year, which we have calculated by taking into account not only the top rates on the schedule, but also the “exceptional surtaxes,” the surtaxes applied to single individuals, to childless taxpayers, and so on.<sup>178</sup> Figure 4-1 thus makes it clear that, contrary to a widespread idea, the 54 percent top marginal rate that had been in effect since the 1996 tax year was, in reality, one of the lowest in France in the twentieth century: if we except the years 1915–1918 and 1926–1935, the top marginal income tax rate has always been above 54 percent.<sup>179</sup> In particular, over the course of the *Trente Glorieuses*, the top marginal rate generally equaled or exceeded 70 percent (see Figure 4-1). Let us add that tax-reduction mechanisms linked to specific expenditures (tax reductions for real estate investment, for investments in the overseas territories and departments, tax reductions for employing a worker at home, etc.) began to appear in tax legislation during the 1980s and multiplied in the 1990s, which means it got easier to relax the stringency of the top rates of the marginal income tax.<sup>180</sup> Before attempting to understand the origins and consequences of this intellectual conjuncture and the perception of an “excessive tax burden” that prevailed in the twentieth century’s final years, a phenomenon that goes far beyond the case of France, we must move past these general observations and examine the evolution of the average tax rates paid by the various top-income fractiles over the century, which we will do in Chapter 5, as well as place the French experience in perspective vis-à-vis experiences abroad, which we will do in Chapter 7.

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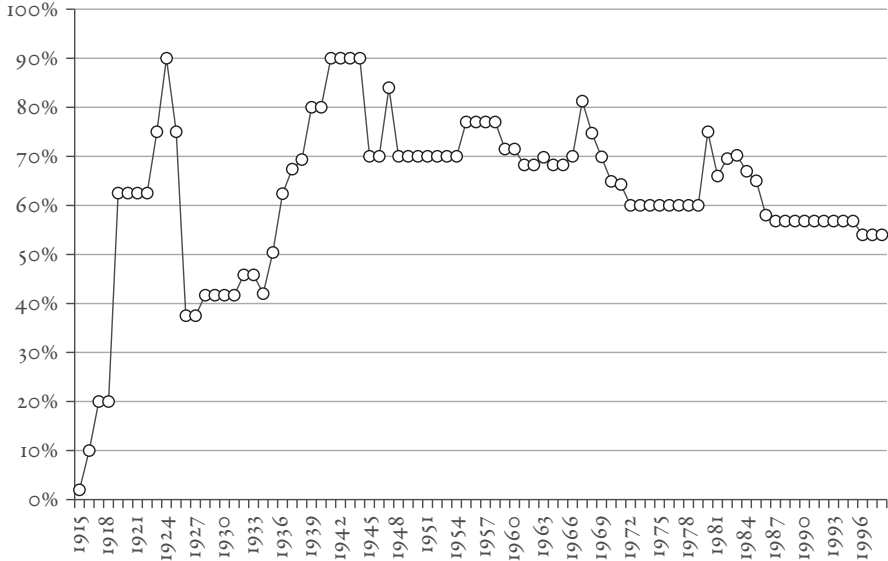


FIGURE 4-1. The top marginal rate of the income tax from 1915 to 1998

Source: Column (12) of Table A-2 (Appendix A)

### 4.4. The Secession of Capital Incomes: Returning to a “Multiple” Tax System

This account of the evolution of income tax legislation would be highly incomplete if we did not mention the fact that a growing fraction of capital income found itself gradually outside the field of the progressive income tax. This legislative evolution is of key importance for the study of top incomes declared under the income tax and the adjustments that should be applied to them, and it is also highly revealing of how perceptions of capital income and its contribution to income inequality evolved over the course of the twentieth century.

Initially, the base of the progressive income tax included all investment income. The IGR passed in 1909 by the Chamber of Deputies and in 1914 by the Senate had in effect adopted the tax base of the IRVM, which, as we have seen, was defined in an extremely broad way (dividends paid to shareholders, interest paid to bondholders, “incomes of any kind” paid to owners of investment securities, etc.),<sup>181</sup> while adding all interest on the public debt (state annuities,



treasury bonds, etc.)—which had been exempt from the IRVM but which Joseph Caillaux had managed to include in the IGR base after a long and tumultuous debate—as well as all investment incomes that were not derived from investment securities strictly speaking, that is, all of the incomes subject to the schedular tax on creditor incomes, deposits, and collateral. All of these investment incomes were subject to the progressive income tax schedule, under standard rules, with no particular exemptions or deductions. The only significant exemption concerned capital gains, which in France have never been subject to the progressive income tax schedule, and to which we will return in Chapter 6, section 13.<sup>182</sup>

This situation would not last long. Less than 10 years after the vote on the law of July 15, 1914, the law of March 13, 1924, established that interest on Treasury bonds and National Defense bonds with maturities of one year or less would now be exempt from the income tax, a measure that went into effect starting with the 1923 tax year. To be sure, the political-economic circumstances surrounding this decision were of an altogether exceptional nature: the state was desperately trying to settle its accounts from the war, its credit was in a pitiful state, and it seemed necessary to offer a system of tax advantages for savers that would allow it to satisfy its urgent needs for liquidity. But, as Allix and Lecerclé immediately wrote, “a wedge was opened.”<sup>183</sup> Indeed, in the years that followed, exemptions multiplied: the 1925 perpetual 4 percent gold annuities that were issued in exchange for national defense bonds, the 50 percent redemption bonuses on 5 percent 1924 ten-year Treasury bonds, National Defense Bonds with maturities of two years or less, the special bonds issued on behalf of the *Caisse des Pensions*, and so forth, were gradually exempted from the income tax in the 1920s and 1930s. The list lengthened further as the Second World War approached and during the war years: bonds of the *Caisse Autonome de la Défense Nationale* with maturities of eighteen months or less were exempted from tax starting with the 1938 tax year, then armament bonds with maturities of two years or less starting from the 1939 tax year, Treasury bonds and National Defense Bonds with maturities of three years or less starting from the 1940 tax year, 3 percent 1942 annuities granted to holders of 4 percent 1925 perpetual annuities starting from the 1943 tax year, Liberation bonds with maturities of five years or less starting from the 1945 tax year, and so on. Postwar governments made their own contribution to the trend: Treasury bonds with maturities of five years or less were exempted from tax starting from the 1948 tax year, as were holdings of the 1952 3.5 percent loan starting from the 1952 tax

year, securities issued by the *Caisse Autonome de la Reconstruction* starting from the 1954 tax year, and so forth. Ultimately, by the late 1950s, the overwhelming majority of short-term public debt, as well as a significant fraction of long-term public debt, found itself totally exempted from tax.

The apex of this legislative trend was undoubtedly the law of November 29, 1965, which instituted the so-called optional exonerating levy (*prélèvement libératoire*) (so named because it allowed one to exempt oneself from the burden of the standard tax system). Since the 1965 tax year, all bonds and notes, and more generally all investment securities paying fixed incomes, whether issued by the state, private enterprises, local governments, etcetera, can enjoy complete exemption from the progressive income tax, as long as the holders of these securities agree to subject the corresponding incomes to an optional levy, which has always taken the form of a proportional tax levied at the source, like the IRVM. The rate of the optional levy has varied in different periods and for different categories of securities, but it has generally been between 15 percent and 25 percent for most securities, which means that it has always been in the interest of taxpayers wealthy enough to be in the relatively high brackets of the progressive-income tax schedule to opt for this exceptional system. In that case, the corresponding incomes (mainly interest) are not added to taxpayers' other incomes, and are not subject to the progressive income tax schedule, and do not even appear on the tax return.<sup>184</sup> Let us add that the creation of the optional levy did not put an end to the earlier practices, as there are still a number of government loans (like the 1952 Pinay loan) that are totally exempted from tax, and therefore subject neither to the progressive income tax schedule, nor to the optional levy.

Running in parallel to this evolution, the proliferation of savings accounts totally exempted from tax also helped to reduce the volume of investment incomes actually subject to the standard income tax rules. This long list starts with the *Livret A*: the law of April 14, 1952, established that all interest received by holders of *Livret A* accounts issued by the *Caisses d'épargne* would be totally exempted from income tax. Then, measures intended to encourage so-called popular saving proliferated in the 1960s and 1970s. These measures include: interest and bonuses received by holders of "housing savings accounts" (*comptes d'épargne logement*, or CEL), then interest received by holders of "blue accounts" issued by the *Crédit Mutuel*, collective investment products created through "employee participation in the fruits of business expansion" or through an "enterprise savings plan" (*plan d'épargne d'entreprise*, or PEE), interest and

bonuses received by holders of “housing savings plans” (*plans d'épargne logement*, or PEL), interest received by holders of “blue-collar-worker savings accounts,” and so on. These measures benefit from the same system as *Livret A* interest, and thus they are subject neither to the progressive income tax schedule, nor to the option levy, so these incomes are totally ignored by the fisc.<sup>185</sup> The Socialist governments of the 1980s and 1990s also helped to lengthen the list of accounts and savings plans totally exempted from tax, with the creation of “popular savings accounts” (*livrets d'épargne populaire*, or LEP) in 1982 and “industrial-development accounts” (known as CODEVI) in 1983, as well as “popular savings plans” (PEP) in 1989 and “shareholding savings plans” (PEA) in 1992.<sup>186</sup>

Ultimately, by the 1990s, the only investment incomes still fully subject to the progressive income tax schedule were dividends received by share-owning households (provided that these shares are owned “directly,” rather than in a form giving rise to a legal exemption, for example, through a PEA). It is true that this represents an important exception; stocks have always been the favorite investment vehicle of large capital owners, especially because the amounts that can be invested in the various savings plans and accounts that are legally exempt from income tax have always been “capped” (that is, they cannot exceed a certain amount). In fact, the exceptional systems outside the standard rules that have developed since the Second World War were designed to benefit “middling” wealth holdings more than large fortunes, as we will see in Chapter 6, where we will attempt to estimate the magnitude of the biases that these exceptional systems induce for our income-level estimates of the various top-income fractiles, which are based solely on the incomes appearing in tax returns, and which thus ignore both incomes subject to the optional levy and incomes from savings plans and accounts that are completely tax-exempt. Nevertheless, however important dividends may be, the investment incomes subject to the progressive income tax schedule have experienced considerable erosion since the law of July 15, 1914. At the end of a long process that began in 1924, the standard rules have become the exception and the exceptional systems have become the rule.

It must be made clear that dividends, though they never managed to escape the stringency of the progressive schedule, have themselves benefited from an improvement in their tax framework since the law of July 15, 1914. Dividends, like all nonwage incomes, benefited above all from the equalization of tax conditions between wage and nonwage incomes, and from the establishment of

the “single” income tax. Before the 1959 reform, dividends were in effect subject to “double taxation”: first they were subject to a proportional tax levied at the source, starting from the first franc of dividends (the IRVM until 1948, then the proportional tax from 1948 to 1959), and then they were subject to the progressive income tax schedule (the IGR until 1948, then the progressive surtax from 1948 to 1959). Since the 1959 reform, and especially since the complementary tax and the 5 percent surtax definitively ceased to apply (that is, since the 1972 tax year), dividends have been subject solely to the progressive income tax schedule, just like wage incomes. Dividends also benefited from a particular legislative innovation concerning them, the creation of the tax asset, by the law of July 12, 1965. Since January 1, 1966, shareholders have received not only the dividends that firms actually pay out to them, but also a tax asset given to them by the state, which corresponds to the profit tax that the firm had to pay before it paid out the dividends in question, and which shareholders can deduct from their income tax (if the amount of the tax assets exceeds the tax owed, the state refunds the excess to the taxpayer in question). In other words, since the law of July 12, 1965, the profits that firms choose to pay out to their shareholders have been, *de facto*, exempted from the firms’ profit tax.<sup>187</sup> If we add the effects of the 1959 reform to those of the law of July 12, 1965, we thus see that dividends have actually moved from a system of “triple taxation” to a system of single taxation: before the 1959 reform, firms first paid the company profit tax (or the schedular tax on BIC income, before the 1948 reform), and then dividends were subject to both the proportional tax and the progressive surtax on the income tax (or to the IRVM and the IGR, before the 1948 reform); since the 1959 reform and the law of July 12, 1965, dividends have been subject solely to the progressive income tax schedule.<sup>188</sup> Finally, let us mention the fact that in the 1990s, dividends subject to the progressive income tax schedule enjoyed a flat-rate deduction (they were taken into account in calculating taxable income only once they exceeded a certain amount), the size of which is modest, but which did not exist under the IGR.<sup>189</sup>

The investment-income tax regime has thus gone through profound transformations over the course of the twentieth century. In the framework established in 1914–1917, investment incomes were the most heavily taxed incomes; they were all subject to the IGR, and their schedular tax was the heaviest of all the schedular taxes (not to mention the “triple taxation” arising from the schedular tax on BIC incomes). In the late twentieth century, the situation had completely

reversed, and investment incomes had become the category enjoying the most favorable tax system: “triple taxation” and “double taxation” situations disappeared, giving way to the “single” income tax; and above all, a very large share of investment incomes were not even subject to this “single” tax, whether due to the optional levy, or to total exemption, or as a result of the flat-rate deduction. In fact, the importance these exceptional systems have assumed is such that it is probably an exaggeration to speak of a “single” income tax with regard to the system in effect at the end of the century: to a very great extent, the income tax at the end of the century was just as “multiple” as that established in 1914–1917, with the key difference that at the end of the century it was investment incomes rather than wages that enjoyed a system of special advantages.

There is no doubt as to the origins of this spectacular turnabout. The reduction of the investment-income tax burden was a logical reaction on the part of legislators to the crises of the “first twentieth century.” At the beginning of the century, the prosperity of capital owners and the vigor of French saving were so clear that it would not have occurred to anyone to grant privileged tax status to capital income. After the destruction caused by the two world wars, the bankruptcies arising from the crisis of the 1930s, and the obliteration of family fortunes brought about by hyperinflation, the situation changed radically: now it was a matter of reconstructing and “modernizing” the country and its firms, and the most natural way to encourage saving and investment was to reduce taxes on income from saving.

The evolution that led to the creation of the optional levy illustrates this process in an especially clear way. During the parliamentary debates of 1907–1908, voices had been raised in opposition to taxing “French capital,” but Joseph Caillaux and his supporters repeatedly invoked the “unshakable solidity” of French saving and state credit, and their point of view prevailed.<sup>190</sup> After the value of fixed-income investments had been reduced to zero by the wars and hyperinflation, the “solidity” argument carried little weight, and the necessity of reductions in taxes on state borrowing was obvious to all. It is no accident that it was bonds, rather than shares, that were granted, through the option levy, a special regime allowing them to legally escape the progressive income tax schedule: legislators were merely acknowledging the fact that it was holders of fixed-income securities who had suffered the most massive and most irremediable expropriation, and it seemed essential to grant privileged treatment to savers who would still agree to risk lending their money against interest not

indexed to inflation. Likewise, the development of tax-exempt savings plans, accounts, and so on, as well as the creation of the tax asset, reflected a desire on the part of legislators to restore the confidence of savers and investors, which had been badly shaken over the course of 1914–1945.

It can also be observed that real estate incomes experienced a similar legislative evolution: at the beginning of the century, the “solidity” of landowners and the rents they received appeared just as “unshakable” as that of investment-securities holders and their incomes, and thus it was decided that all landed incomes would be subject to the IGR based on their “real” value, not only with respect to the rents actually paid by tenants but also for the “fictive” rents that owners occupying their own dwellings supposedly pay themselves (property owners had to report these “fictive” rents on their tax returns);<sup>191</sup> following the freeze on rents and their decimation by the hyperinflation of the two world wars, legislators then introduced a number of deductions and special regimes to lighten the tax burden on real estate owners and stimulate construction, a development that reached its high point with the law of December 23, 1964, which established that “fictive” rents would now be exempt from tax (since the 1964 tax year, property owners have no longer been required to declare these “fictive” rents).<sup>192</sup>

These legislative developments hold a double interest for our study. On the one hand, they imply that caution is required when comparing capital incomes declared under the income tax in the early 1920s, at a time when all capital incomes were required to appear on tax returns (at least in theory), with capital incomes declared on the income tax in the context of the legislation of the 1990s. In Chapter 6, we will see the extent to which these biases are liable to undermine our conclusions concerning the collapse and nonreconstitution of very high capital incomes and the large fortunes from which they derive. On the other hand, these legislative developments confirm what we said in Chapter 3 regarding the evolution of the way capital incomes were perceived over the course of the twentieth century: the collapse of wealth holdings brought about by the world wars was a phenomenon so massive and visible that its consequences for taxation were impressed upon every successive government.

It must not be inferred, however, that all of these measures lightening the tax burden on capital incomes were fully understood and accepted by public opinion. For example, the creation of the tax asset, which meant that a taxpayer who received enough dividend income might only be required to pay a trivial amount

of income tax (or even receive a check from the state), on the grounds that those dividends had already paid the corporate profit tax, was the object of virulent controversy in the late 1960s and early 1970s, notably when *Le Canard Enchaîné* published Jacques Chaban-Delmas's tax assessments in 1971–1972, which made it clear that the prime minister had heavily benefited from the tax-asset device.<sup>193</sup>

Generally speaking, the arguments invoked in the immediate postwar era to justify the advantages granted to capital income (destruction, inflation, etc.), lost much of their force after 1945, and it is perfectly legitimate to ask whether these advantages still made sense in the France of the late twentieth century. For example, the optional levy system no longer had much justification at a time when inflation had returned to the null level at which it had also stood at the start of the century. And yet, this was the context in which the Socialist governments of the 1980s and 1990s saw fit to lengthen the list of tax-relief measures for investment income: none of the relief measures previously granted were challenged (not even the tax asset, which the Left had vigorously denounced at the time of its adoption), new exemptions were established (creation of the PEP, the PEA, etc.), and rates on the company tax and optional levy were reduced, notably during the 1988–1993 legislature.<sup>194</sup> These measures, widely broadcast by the press at the time, played a decisive role in the strategy of “reconciling the left with the business world,” but it is likely that they also contributed to the disenchantment of a large part of public opinion vis-à-vis the Left, which was judged to be too close to the “financial markets,” and this disenchantment was vigorously expressed in the election debacle of 1993. At the end of the 1990s, the idea that successive governments have gone too far down the path of exempting capital incomes has become increasingly widespread, as witnessed, for example, by the very rapid growth of the “generalized social contribution” (CSG): this proportional tax on all incomes, including capital incomes,<sup>195</sup> a substitute for payroll taxes that weigh solely on wages, is, to be sure, of limited importance relative to the list of relief measures that capital incomes have been granted under the progressive income tax since the Second World War, but it represents a real break relative to prior developments. However, given the general intellectual conjecture surrounding the progressive income tax in the late twentieth century, dominated as it was by the perception of an “excessive tax burden,” as we have mentioned, it seems unlikely that this turn is the harbinger of any imminent reincorporation of capital incomes into the general income tax system.



## Who Paid What?

In this chapter, we present our estimates of the average tax rates on the various top-income fractiles under the income tax between 1915 and 1998, which we obtained by combining the legislative information given in Chapter 4 with the estimates of the levels of the various top-income fractiles that were described in Part One. Our study of income tax legislation has already allowed us to identify several highly revealing shifts in how income inequality was perceived in France over the course of the twentieth century, notably with regard to the dizzying rise in top marginal rates after the First World War, the recurring conflict between wage and nonwage incomes, and the spectacular changes in the treatment of capital income. But to go further in studying perceptions, an understanding of the legislation and the marginal rates of the tax schedule is insufficient. We must also analyze the precise hierarchical position of the “top” income fractiles that successive governments saw fit to require large tax payments from (and inversely, the precise positions of the income fractiles they saw fit to spare), something that only estimates of average tax rates by fractile, and their evolution, can make clear. Likewise, to get a sense of the economic impact of the income tax on capital accumulation and the reconstitution of large wealth holdings in twentieth-century France, a knowledge of the top marginal rates in the successive rate schedules is not enough; it is essential to know the evolution of the average tax rates to which the various top-income fractiles were actually subject.

We will begin by examining what the long-term evolution of concentration in the income tax can teach us about how the notion of “top” incomes changed in France between 1915 and 1998: To what extent were representations and perceptions of inequality truly transformed by the shocks of the “first twentieth century”? (Section 1.) We will then pursue the analysis of this central issue by focusing on those rare tax increases that were fully acknowledged and presented as such, starting with those of 1936 and 1981, as well as the “virtual” tax increases that appeared in Socialist and Communist electoral programs, and we will see



that comparing the “top” income fractiles affected by these different tax increases can give us a better understanding of the vision of income redistribution held by the political movements that chose to institute them (or propose them) (section 2). We will then leave the terrain of perceptions to study the economic impact that the income tax has had on inequality since its creation by the law of July 15, 1914, distinguishing between the immediate impact on current inequality of disposable income and the dynamic impact on future wealth inequality, the role of which there is every reason to believe was decisive (section 3).

### *1. Who Are the Earners of “Top” Incomes? Lessons from Long-Term Changes*

As noted in Chapter 4, the history of the income tax not only allows us to assess the weight of the tax burden actually experienced by various groups; but tax legislation is also an extremely rich source for studying how the issues of inequality and redistribution were perceived in different eras. Indeed, if one examines the long-term evolution of the rate structure and the tax rates on the different top-income fractiles between 1915 and 1998, one observes several significant long-term shifts, and these reveal a great deal about how representations of inequality evolved in France over the course of the twentieth century.

The first big, long-term shift was the spectacular decline in the “top” income levels affected by the top brackets of the rate schedule: after the Second World War, the “top” incomes singled out by the schedules in place became structurally lower than those that legislators in the early part of the century and interwar era had been willing to single out; to us, this seems the best proof that legislators were fully aware of the magnitude of the collapse experienced by very high capital incomes following the crises of the 1914–1945 period (section 1.1). The second important shift has to do with the fact that the income tax, which had long been a tax hitting only a small elite, gradually became a “mass tax”: in particular, the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99), which in practice had been practically exempt from income tax in the interwar era, lost this privileged status after 1945 (section 1.2). However, the scope of these two shifts must be placed in perspective. As we will see, despite this significant trend toward “deconcentration,” the

income tax remained highly concentrated, intended primarily to impose heavy taxation on the upper strata of the top 1 percent of the income hierarchy, not in any substantial way to reduce disparities in living standards between the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99) and the rest of the population; the legitimacy of these disparities was never really called into question (section 1.3). In other words, since the Second World War there has hardly ever been a willingness to single out the very high capital incomes of the “200 families,” but the “middle classes” remained “middle classes,” in the sense that a kind of consensus concerning their social position never ceased to exist.

### 1.1. The Disappearance of Very High Incomes

If we were to limit ourselves to examining the top marginal rate, we would be tempted to conclude that the income tax had hit its stride by the early 1920s: the top marginal rate exceeded 60 percent after the law of June 25, 1920, and afterward it almost always stood between 50 percent and 80 percent (see Chapter 4, Figure 4-1). The problem, of course, is that the level of the top marginal rate, however suggestive it may be, is only a very partial indicator of the true weight of the income tax, because everything depends on the income levels and the number of taxpayers to which that rate, and the lower rates on the schedule, apply. Although the average tax rates on the various fractiles of the income distribution cannot be precisely estimated from the income threshold of the top marginal rate (for that, every bracket of the schedule must be taken into account, which we will do in this chapter), it does merit particular attention: this threshold expresses the image that governments and the political and social forces behind them have held concerning what a “very high” income is, an income so “high” that there is no point in trying set any higher rates on the tax schedule.

As it happens, the *Bloc National* determined that the new 50 percent top rate (62.5 percent including the surtaxes on childless taxpayers) established by the law of June 25, 1920, which went into effect with the 1919 tax year, would hit taxable incomes above 550,000 current francs (see Chapter 4, Table 4-2). This 550,000-franc threshold corresponds to a fiscal income (before any exemptions or deductions) of around 5 million 1998 francs.<sup>1</sup> The income brackets established by the *Bloc National*, and the 550,000 franc threshold in particular, remained in

effect without interruption until 1935; then, in 1936, the Popular Front decided to adopt a new schedule, whose top bracket hit taxable incomes above 1.33 million current francs (see Chapter 4, Table 4-3). Expressed in 1998 francs, this 1.33 million franc threshold corresponded to a fiscal income (before any deductions or exemptions) of nearly 7 million francs.<sup>2</sup>

By comparison, in 1998, the 54 percent top marginal rate applied to taxable incomes above 293,600 francs (see Chapter 2, Table 4-5). Of course, we must account for the fact that this threshold is expressed in terms of “taxable income per family-quotient share,” and that taxpayers in the late twentieth century receive certain exemptions and deductions. But even in the most favorable case, we observe that for single individuals this 293,600 franc per-share taxable income threshold corresponds to a threshold of around 400,000 francs of fiscal income (before any exemptions or deductions), and around 800,000 francs for married couples.<sup>3</sup> Using this 800,000 franc figure—which effectively ignores the fact that the decline in the threshold has been twice as large for single individuals<sup>4</sup>—we thus see that the threshold for the top bracket of the income tax schedule, expressed in constant francs, has fallen more than sixfold since the era of the *Bloc National*, and nearly ninefold since the era of the Popular Front.<sup>5</sup>

It must be remembered that average income per household has almost quintupled since the interwar period: expressed in 1998 francs, average income per household rose from about 25,000–30,000 francs in the interwar era to about 130,000 francs in the 1990s.<sup>6</sup> In other words, to keep a constant ratio between the threshold of the top bracket and the average income of the population, the income tax schedule in the late twentieth century would have to have a tax bracket for incomes above 25 million francs (to get back to the 1920 ratio), which is 30 times the threshold actually in effect, or 35 million francs (to get back to the 1936 ratio), almost 45 times the threshold actually in effect.<sup>7</sup> In the interwar era, the top income tax rate did not begin to apply until one had reached an income of more than 200 times the average;<sup>8</sup> at the end of the century, the top rate applies to incomes around 6 times the average income.<sup>9</sup> These figures are important, for they alone show the extent to which income tax brackets have been transformed since the interwar era, as astronomical incomes have disappeared from the schedules, giving way to “top” incomes that are several dozen times lower (relative to the average income of the time).

The collapse in the real level (in constant francs) of the top-bracket threshold is not a recent phenomenon: it was after World War II—the very

moment when topmost incomes reached their lowest levels of the century—that legislators decided to massively reduce the real level of the top bracket, and this real level has barely increased since then (nominal adjustments since 1945 have merely offset the effects of price increases).<sup>10</sup> Yet while the topmost incomes never managed to make up the ground that they lost (relative to other incomes) in the crisis of the 1930s and the Second World War, they have in fact risen a great deal since 1945 (as much as other incomes have). According to our estimates, in the 1990s the average income declared by the “200 families” (fractile P99.99–100), expressed in 1998 francs, returned almost to its level from the 1920s, and it even exceeded its level from the 1930s (5–6 million francs in the 1930s, 7–8 million francs in the 1990s).<sup>11</sup> With the real level of the top bracket experiencing almost no increase since 1945, the result is that the top bracket has become considerably “popularized,” in the sense that it now applies to significantly broader social strata than in the past. In the interwar era, the top rate of the schedule generally affected only a few hundred taxpayers per year and at all times less than 0.01 percent of the total number of households.<sup>12</sup> Because the topmost incomes had, by 1945, collapsed almost as massively as the threshold of the top bracket, the share of tax units affected by it was barely above 0.01 percent.<sup>13</sup> That percentage then experienced an extremely sharp increase over the second half of the century: in the late 1990s, the top bracket affected around 200,000 tax units, 0.7 percent of the total, a proportion more than 70 times that of the interwar era.<sup>14</sup> In the 1920s and 1930s, the top bracket of the income tax was designed to tax the very high capital incomes of the “200 families” (fractile P99.99–100); in the late twentieth century, the top bracket of the income tax hit the (very) high-level managers and professionals who fell in the lower strata of the top 1 percent of the income hierarchy, and only incidentally the “200 families.”

The significance of this spectacular shift is twofold. The long-term decline in the threshold of the top income tax bracket has, first of all, very real consequences for the progressivity of the tax. By choosing to impose the top rates on significantly lower income levels than in the past, legislators were, in a certain sense, merely acknowledging the fact that very high capital incomes had lost much of their importance, and that it had therefore become necessary to impose heavy taxation on lower income levels than before in order to obtain the desired receipts. Indeed, as we will see, this development contributed to a “de-concentration” of the income tax, which in the late twentieth century relied

much less on the “200 families” (fractile P99.99–100) and much more on the “upper classes” (fractiles P99–99.5, P99.5–99.9, and P99.9–99.99) than it did in the interwar period. This evolution is important, because it confirms the notion advanced in previous chapters<sup>15</sup> that the collapse of very high capital incomes after the crises of 1914–1945 was so massive, it was impossible not to notice it and to draw the necessary conclusions: contemporaries did not quantify income inequality in terms of fractiles (due to a lack of adequate analysis of tax-return statistics), but at the end of the Second World War it seemed obvious to them that simply placing the tax burden on the upper strata of the top 1 percent was no longer possible.

But lowering the threshold of the top income tax bracket also (and perhaps most importantly) had a symbolic dimension: independent of the concrete consequences for the actual tax burdens on various groups, the “displaying” of this or that income level within the texts of laws always amounts to giving the social groups in question a “public” existence and conferring a kind of social representativeness on them. In ceasing to single out the astronomical incomes of the “200 families” and replacing them with the “reasonable” high incomes of upper-level white-collar employees, legislators were not simply recognizing and registering the changes that had taken place in the structure of real incomes, but they were also helping to express and institutionalize a new way of perceiving and representing inequality. The interwar tax schedules offered the spectacle of a highly unequal society, whereas the tax schedules of the latter part of the century seek to show a society in which the most blatant inequalities have definitively disappeared.

This symbolic dimension of tax-rate schedules has always played a large role in political debates. In the early part of the century, opponents of the income tax chastised their adversaries for seeking to excite envy and jealousy by throwing extremely high and (according to them) utterly unrepresentative income levels to the wolves of public opinion. Supporters of the income tax, by contrast, wanted its progressivity to go as far as possible up the income scale of their time. For example, Caillaux, when defending his first income tax bill in 1900, heavily stressed the fact that the 4 percent top rate only really affected incomes above 1 million francs,<sup>16</sup> the equivalent of around 20 million francs in 1998,<sup>17</sup> and this in a society where the average income was almost one-fifth the level of today. These debates were of limited practical importance (the tax owed was extremely low in any case, and actually not much higher for astronomical

incomes than it was for “reasonable” high incomes), but supporters of the income tax could, in this way, show they were indeed aware of the existence of astronomical incomes in French society, and that they were taking due notice of this reality by having it appear in their legislative bills. Advocates of full progressivity temporarily had to accept a compromise (the top bracket in the schedule adopted in the law of July 15, 1914, was at a much more “reasonable” level than in the schedule proposed by Caillaux in 1907), but very high income levels reappeared in the tax schedules after a few years.<sup>18</sup>

Likewise, when the Popular Front in 1936 adopted its tax schedule defined in average-rate terms, one of its central objectives was of a pedagogical nature: to clearly display the amount of tax that the various strata of the income distribution would have to pay, and especially the amount demanded from “very large incomes,” in other words taxable incomes above 1.33 million francs (nearly 7 million francs of fiscal income in 1998 francs). In practice, the progressivity actually achieved for very high incomes was less than what could have been obtained from a less demonstrative system. The average tax rate was frozen at 40 percent for all taxable incomes above 1.33 million francs,<sup>19</sup> whereas a system defined in marginal-rate terms would have allowed the average tax rate to continue rising above 1.33 million francs, even with a much lower threshold for the top marginal rate. But this problem seemed quite small in comparison with the educational and symbolic virtues of the system that was chosen: the Popular Front could, in this way, put the “200 families” on display, like a trophy, all while offering an operational definition of these “200 families” from a tax perspective (that is, households with taxable incomes exceeding 1.33 million francs).<sup>20</sup> Nor did the political movements belonging to the Popular Front refrain from putting the tax brackets and tax liabilities they sought for this group in their handbills and on their posters, and even on the front pages of their newspapers.<sup>21</sup> Income tax schedules, which have always been highly political documents, amply debated in Parliament and in the press, have probably never been disseminated as widely as they were in the Popular Front era.<sup>22</sup>

Of course, this “exhibitionism” was not to the Right’s taste, and it lashed out violently at the “demagogy” of stigmatizing such high and unrepresentative income levels in this way.<sup>23</sup> Indeed, the income-tax reform carried out by the Vichy government in the law of October 24, 1942, consisted precisely of abolishing the average-rate system and sharply lowering the threshold for the top bracket, which suddenly plunged from 1.33 million francs to 400,000 francs.<sup>24</sup>

In practice, this reform had an extremely limited effect on the actual tax burden for the various groups: average tax rates on the various top-income fractiles in the 1942 tax year, the first year the new schedule was in effect, were practically the same as the average rates in the 1941 tax year, the last year that the Popular Front's schedule was in effect.<sup>25</sup> But from a symbolic point of view, the Vichy regime wanted to signal that the "exhibitionism" of the Popular Front was over.

In the same way, the fact that the tax rates in place in the late twentieth century stop rising at relatively modest income levels does not mean that the income tax completely stopped being progressive for top incomes. To be sure, the 54 percent top marginal rate applies to all taxable income above 293,600 francs (in 1998), but only for infinitely high incomes does the effective average tax rate approach 54 percent. As we will see later in this chapter, the average tax rates actually owed by the various fractiles have in fact always been highly differentiated even within the top 1 percent of the income hierarchy, even in the late twentieth century (although this differentiation was even more pronounced in the interwar period). Thus, once again the symbolic dimension is key: astronomical incomes continue to face average tax rates that are significantly higher than those on "reasonable" high incomes, but they stopped appearing in the rate schedules, as if it had become inappropriate, perhaps even indecent, to put the few thousand taxpayers of the upper strata of the top 1 percent "on display."

We might add that this "disappearance of top incomes" from the tax laws also had a counterpart in the statistics produced by the tax administration. The income brackets used in tabulating tax returns and compiling statistical tables were never strictly identical to the brackets in the tax schedule. But they followed the same long-term path. Throughout the interwar era, the highest bracket used by the tax administration in tabulating tax returns focused on taxable incomes above 1 million current francs, a threshold in the same general ballpark as the top brackets used in the tax schedules of the *Bloc National* (550,000 francs) or the Popular Front (1.33 million francs). In practice, that means that the statistical tables published each year by the finance ministry were shining a light on the number and income levels of taxpayers declaring more than 1 million current francs of taxable income, at most 700–800 taxpayers per year in the 1920s and 1930s (less than 0.01 percent of the total number of tax units).<sup>26</sup> Here we can see just how much the "200 families" occupied a place in the interwar social landscape: the top income tax bracket had



been designed especially for them, and the statistics produced by the tax administration made it possible to enumerate them and to track their incomes year by year. Moreover, these statistical tables were used by the political movements of the time, notably the Communist Party, which could thus estimate how much money the state could take in if we finally decided to “tax the rich.”<sup>27</sup>

In the immediate postwar period and the 1950s, the tax administration thought it useful to continue showing very high incomes in its statistical tables, even though the real level of the upper brackets of the tax schedules had already massively collapsed.<sup>28</sup> This was a good habit, but it was lost over time: the highest bracket used in tabulating tax returns covered taxable incomes above 500,000 current francs in the late 1990s.<sup>29</sup> Given inflation and the growth of real incomes (prices multiplied by almost 8 between 1961 and 1998, and nominal incomes multiplied by more than 16)<sup>30</sup> the result was that the “200 families” (fractile P99.99–100) completely disappeared from the statistics: the number of taxpayers declaring taxable incomes above 500,000 current francs was less than 400 in 1961 (fewer than 0.01 percent of the total number of tax units), but it was above 200,000 in the late 1990s (around 0.7 percent of the total number of tax units).<sup>31</sup> Ultimately, then, the statistics produced by the tax administration in the late twentieth century were considerably poorer than those produced in the interwar and immediate postwar periods. The latter had made it possible to see at a glance the great diversity of social groups making up the top 1 percent of the income distribution, whereas the statistics in the 1990s simply inform us that 200,000 tax units had taxable incomes above 500,000 francs, with no further details given. To estimate the level of very high incomes in late twentieth-century France, we had to resort to extrapolation techniques and sources to which access is far more restricted than is the case for these statistical tables.<sup>32</sup>

Of course, this impoverishment of the statistics can probably be explained in part as a process of adapting to social demand: if society (political parties, unions, economists, etc.) had continued to take an interest in very high incomes, the tax administration probably would have continued to show them clearly. Yet the statistics derived from tax-return tabulations, as we noted in the Introduction, have gone practically unused in France since the Second World War, which in itself is extremely revealing. These statistics no longer met the needs of society, which, after the war, wished to represent its inequality by poring over the hierarchy of socioprofessional categories that were invented for



this purpose (*ouvriers, employés, cadres*, etc.), and in this hierarchy, very large capital incomes, which had been obliterated by the crises of the 1914–1945 years, no longer played a role.<sup>33</sup> No one seems to have been upset by this impoverishment of the statistics (the fact that the tax administration had once been able to produce statistics on very high incomes seems to have totally dropped out of the memories of statisticians and society), just as no one seems to have been upset by the fact that the yearly statistics derived from tax-return tabulations have not been published anywhere since the early 1980s (even though they are still public statistics).<sup>34</sup>

But this “statistical disappearance of top incomes,” which mirrors their symbolic eviction from the tax schedules, has also had a significant impact on how representations themselves have evolved: the fact is that it has become extremely difficult to study very high incomes and to reinstate their role in social representations of inequality, even in cases where they have regained their past weight in the actual income distribution. Given its central role in the process of producing statistics and categories, the state cannot play a purely passive role in this. It starts out adapting to changes in social demands, but it ends up amplifying and entrenching those changes. In the late twentieth century, the state appears to have grown so attached to the idea of a society whose past inequalities have now definitively disappeared that it refuses to show very high incomes, as if the mere fact of publicly recognizing their existence runs the risk of restoring their past importance. We may also point out that this denial of inequality also applies to top wages: they no longer appear explicitly in the public statistics, which has prevented us from studying the evolution of the upper strata of the top 1 percent of the wage distribution in an entirely satisfactory way over the whole century.<sup>35</sup> We will revisit this late-century “anti-exhibitionism,” in an even more pronounced form, when we examine the evolution of bequest statistics.<sup>36</sup>

### 1.2. The Integration of the “Middle Classes”

In discussing the evolution of the socioprofessional categories used in French population censuses, we noted that the introduction of the *cadres* category after the Second World War had been accompanied by a disappearance of the *rentiers* category, which expressed in a particularly clear way how the shocks endured by top capital incomes over the 1914–1945 period profoundly transformed

representations of inequality.<sup>37</sup> It is striking to note that the history of the income tax reveals exactly the same kind of shift. Over the course of the twentieth century, the very high incomes in the upper strata of the top 1 percent disappeared from the rate schedules, and at the same time, the “middle classes” (fractile 90–95) and “upper-middle classes” (fractile P95–99) made a noteworthy appearance within the income tax: after 1945, these social groups—which had in practice been practically exempt from tax in the interwar era—were subjected to average tax rates that were no longer trivial. In other words, the shocks of the “first twentieth century” not only led legislators to broaden the base to which the highest rates applied, so as to include a very large share of the households of the top 1 percent (rather than just the “200 families” [fractile P99.99–100]), but also to believe that the lower strata of the top decile, too, needed to contribute to the national effort of solidarity and redistribution represented by the progressive income tax.

First off, let us examine the evolution in the share of households subject to the progressive income tax (see Figure 5-1). In the 1915 tax year, less than 2 percent of households had to declare their incomes and pay the new tax, which testifies to the fact that the progressive income tax conceived before the First World War was intended to hit only a very small minority of taxpayers, and certainly not the “middle classes” (fractile 90–95), of whom Joseph Cailaux himself had said during the parliamentary debates that they had nothing to fear from his reform.<sup>38</sup> Inflation and the growth of nominal incomes caused the share of taxable households to rise very rapidly over the course of the First World War and the early 1920s, and yet it was only after the Second World War that this share persistently exceeded the 20 percent level: in the interwar era, the share of taxable households usually stood at around 10–15 percent (see Figure 5-1). In other words, except for the very first years of the new system, when they were not subject to tax at all, the interwar “middle classes” (fractile 90–95) always stood slightly above the threshold of taxation, which means they were located in the very lowest income tax brackets of the era, and that their average tax rate was close to zero.

In fact, if we now examine our estimates of average tax rates by fractile, we see that throughout the entire interwar era, the average tax rate on the “middle classes” (fractile P90–95) stood at extremely low levels, as did, to a slightly lesser degree, the average tax rate on the “upper-middle classes” (fractile P95–99) (see Figure 5-2). Between 1915 and 1940, the income tax demanded from the “middle

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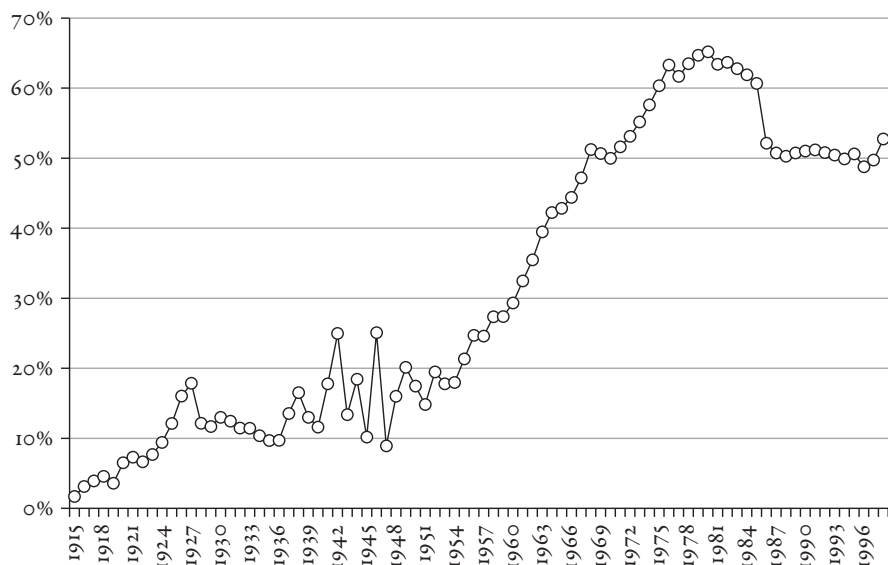


FIGURE 5-1. The share of households subject to the income tax from 1915 to 1998  
*Source:* Column (3) of Table A-2 (Appendix A)

classes” (fractile P90–95) was always below 0.5 percent of their total incomes; the average tax rate then crossed the 0.5 percent threshold in 1941–1944, while remaining below 1 percent.<sup>39</sup> As for the average tax rate on the “upper-middle classes” (fractile P90 5–99), it was always below 1.2 percent throughout the 1915–1940 era, until it moved slightly above that threshold in 1941–1944, while remaining below 2.5 percent.<sup>40</sup> It is worth remembering these orders of magnitude, because they show that it is no exaggeration to say that the “middle classes” (upper or not) were practically exempt from income tax in the 1915–1944 period. We should add that taking into account the schedular taxes, and the schedular tax on wages in particular—which, as we said in Chapter 4, really affected only very high wages, and whose rates were also significantly lower than those of the income tax—would not substantially change this conclusion.<sup>41</sup> We should also make clear that all of the average tax rates by fractile examined here were obtained by taking an average of the rates associated with the different family configurations: the average tax rates actually owed by single individuals within the various fractiles were thus slightly higher, and the

average rates actually owed by families within the same fractiles were slightly lower.<sup>42</sup>

The fact that they were practically exempt from tax did not, of course, free the households of the P90–95 and P95–99 fractiles from having to fill out a tax return and pay a new tax, which in practice was no doubt enough to leave them unhappy. Nevertheless, the effective weight of the tax these households had to pay was “objectively” very small, and in any event was of an entirely different order from the average rates faced by the very high-income fractiles (see Figures 5-2 and 5-3). The contrast between the “middle classes” (upper or not) (fractile P90–95 and P95–99) and the “200 families” (fractile P99.99–100) is particularly striking, and it gives one some idea of the very sharp progressivity of the income tax at the time: in the interwar period, when the average tax rate on the P90–95 fractile was always below 0.5 percent, and never exceeded 1.2 percent for the P95–99 fractile (see Figure 5-2), the average tax rate on the P99.99–100 fractile could exceed 30 percent (see Figure 5-3). In other words, in bad years, the “middle classes” (upper or not) had to pay the tax man not much more than 1/100 of their annual income, while the “200 families” had to pay nearly a third. These figures show the magnitude of the upheavals brought about by the income tax: under the system of the “four old ladies,” average tax rates never exceeded 2–3 percent, even for the highest incomes, and they even tended to decline slightly within the top decile and especially within the top 1 percent.<sup>43</sup> Later, we will revisit the consequences of these upheavals for the accumulation of large fortunes.

It must also be noted that one had to climb very high up in the top 1 percent of the era’s income distribution before the income tax took on some importance: the average tax rate on the P90.9–99.5 fractile was always below 4 percent throughout the interwar era, and the average tax rate on fractile P99.5–99.9 never exceeded 9 percent (see Figure 5-3). That was obviously because the top bracket of the tax schedule was set at an extremely high level; to a very great extent, the interwar income tax was designed to tax the “200 families” and spare the rest of the population, including the overwhelming majority of households in the top 1 percent. And it must be pointed out that this very steep tax progressivity, even within the very high income levels, would have been even steeper if the rate schedules chosen by the successive governments had gone fully into effect.

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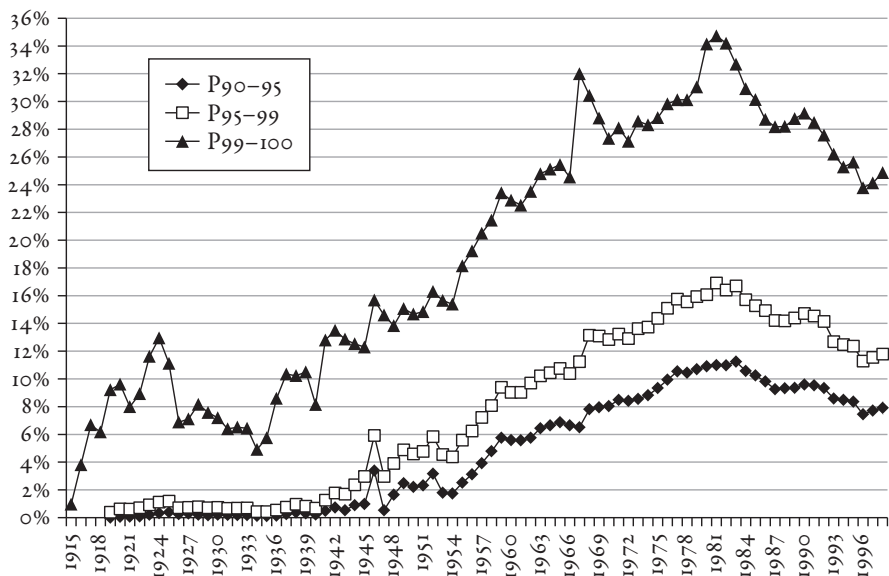


FIGURE 5-2. Average tax rates on the “middle classes” (fractile P90–95), “upper-middle classes” (fractile P95–99), and the top 1 percent (fractile P99–100) from 1915 to 1998

Source: Columns P90–95, P95–99, and P99–100 of Table B-20 (Appendix B)

For example, after the law of June 25, 1920, with the *double décime* and the “Loucheur Law” surtax, the top marginal rate in the 1924 tax year was 72 percent, and that does not even take into account the surtaxes on childless taxpayers.<sup>44</sup> Yet, according to our estimates, which take into account all of the so-called exceptional surtaxes that litter the history of the income tax,<sup>45</sup> the average tax rate on the “200 families” (fractile P99.99–100) was around 31–32 percent in 1924.<sup>46</sup> This is explained in part by the well-known phenomenon resulting from the fact that the top marginal rate applies only to the upper portion of income (rather than to all income), but it is explained to an even greater extent by the fact that taxpayers at the time could deduct their previous year’s tax payment from their taxable income, which was especially advantageous for very high incomes. In fact, if one calculates the average tax rates by dividing the tax owed, not by fiscal income (that is, income before all deductions), as we have done in all our estimates of average tax rates in this chapter, but by taxable income subject to the income tax schedule (that is, by income after deducting work expenses, categorical exemptions, etc., and above all after

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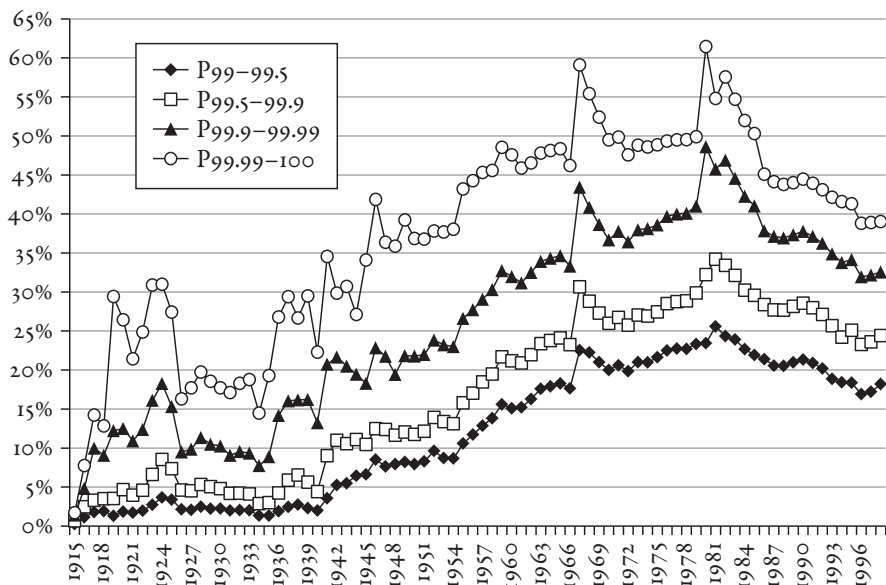


FIGURE 5-3. The average tax rate on the “upper classes” (fractiles P99–99.5, P99.5–99.9, and P99.9–99.99) and on the “200 families” (fractile P99.99–100) from 1915 to 1998  
*Source:* Columns P99–99.5, P99.5–99.9, P99.9–99.99, and P99.99–100 from Table B-20 (Appendix B)

deducting the previous year’s tax payment), it would be seen that the average tax rate on the “200 families” (fractile P99.99–100) was above 55 percent in 1924, rather than around 31–32 percent.<sup>47</sup> Here we see the practical importance of this seemingly technical provision, which allowed earners of very high incomes in the interwar years to reduce their tax bills very significantly.

In any case, given that the interwar “middle classes” (upper or not) (fractiles P90–95 and P95–99) were practically exempted from tax, and that the lower strata of the top 1 percent faced average tax rates of relatively limited size, it is hardly surprising that the overall income tax burden in this period was extremely low. If we take an average of all the tax units of the top 1 percent (fractile P99–100), we see that the resulting average tax rate was generally significantly below 10 percent in 1915–1944 (see Figure 5-2). If we take an average of all the tax units of the top decile (fractile P90–100), we see that the resulting average tax rate was generally significantly below 5 percent over 1915–1944 (see Figure 5-4). And if we take an average for all tax units (taxable and nontaxable)—

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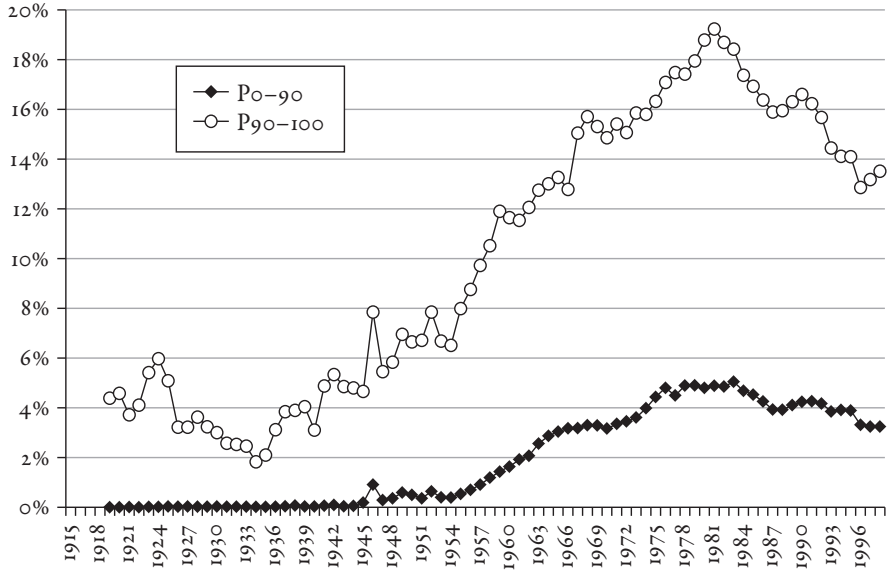


FIGURE 5.4. The average tax rate on the bottom 9 deciles (fractile Po-90) and on the top decile (fractile P90-100) from 1919 to 1998

Source: Columns Po-90 and P90-100 from Table B-20 (Appendix B)

in other words, if we calculate the ratio of total income tax receipts to total income for all tax units (taxable and nontaxable), we see that the resulting average tax rate generally stood between 1 percent and 2 percent over the 1915-1944 period (see Figure 5-5). It is easier to understand why the tax increases adopted in the early 1920s were hardly enough to balance the budget and pay off the war bill: the vertiginous rise in the highest tax rates applied to such a small number of taxpayers that the receipts brought in by the income tax represented barely 2 percent of the total income of the French. This low total return was the automatic result of what we said earlier: while the share of total income going to the top 1 percent (fractile P99-100) was close to 20 percent in the 1920s (versus 7-8 percent in the 1990s),<sup>48</sup> once one takes into account the fact that the average tax rate on the top 1 percent barely reached 10 percent, and that lower-level incomes were practically exempt, it is quite logical that the overall tax rate barely exceeded 2 percent. Here we have a particularly clear illustration of the “tyranny of numbers”: it is hard for a tax to bring in substantial

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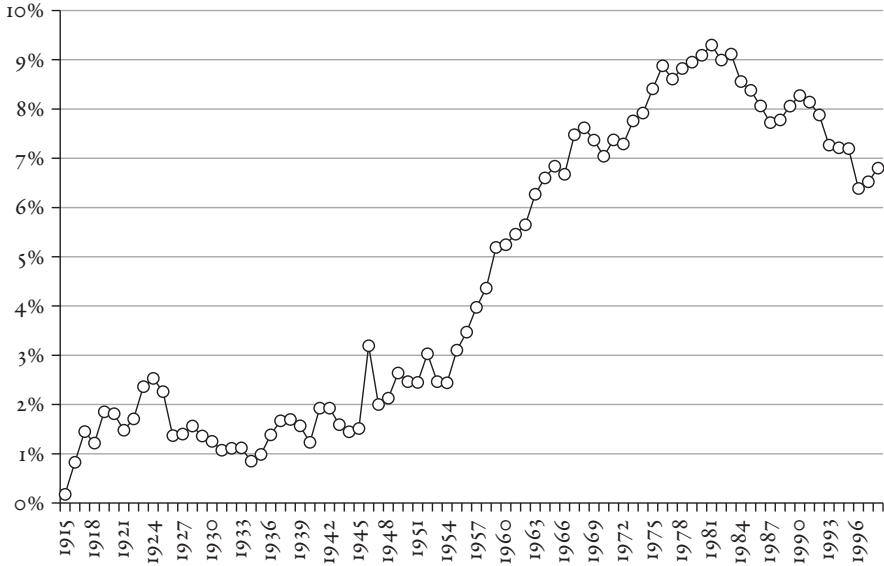


FIGURE 5-5. The average income tax rate (all households combined) from 1915 to 1998  
*Source:* Column (7) of Table A-2 (Appendix A)

receipts if it rests on an excessively small number of taxpayers, however high their incomes or the tax rates they pay.

Another way of gauging the extreme concentration of the income tax over the 1915–1944 period consists precisely of calculating the share of total income tax corresponding to the different fractiles. We first note that the top decile share (fractile P90–100) of total tax stood at around 98–99 percent throughout this period (it was even 100 percent in the first years the income tax was in effect) (see Figure 5-6). There is nothing surprising about this: if the share of taxable households is generally around 10–15 percent and does not exceed 20 percent, obviously the few households whose incomes lie below the P90 threshold but are nevertheless subject to tax will pay very little tax and their share of total tax will be entirely negligible. More interestingly, we note that the top-decile share (fractile P90–100) of total tax was typically around 90 percent in the interwar period, and it did not fall significantly below that level until the Second World War (see Figure 5-6). Moreover, this very large share was mainly due to the upper strata of the top 1 percent: in the interwar era, the



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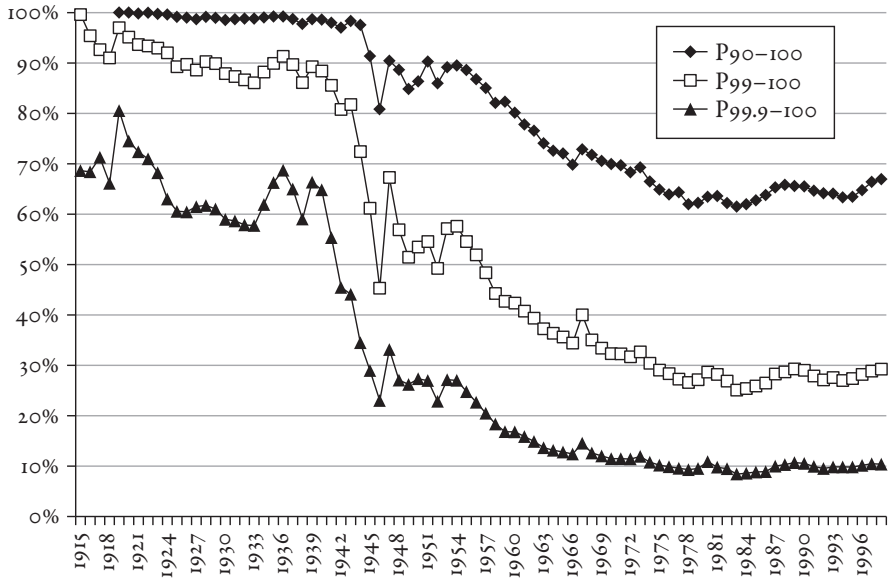


FIGURE 5-6. The share of total tax paid by the top decile (fractile P90-100), the top 1 percent (fractile P99-100), and the top 0.1 percent (fractile P99.9-100) from 1915 to 1998  
*Source:* Columns P90-100, P99-100, and P99.9-100 of Table B-21 (Appendix B)

share of total tax paid by the top half of the top 1 percent (fractile P99.5-100) was around 80 percent, the share paid by the top 0.1 percent (fractile P99.9-100) was around 60-70 percent, and the “200 families” (fractile P99.99-100) alone paid between 30 percent and 40 percent of total tax receipts.<sup>49</sup> Before the Second World War, the income tax rested almost exclusively on the top 1 percent of the income distribution, and mainly on the upper strata of that top 1 percent.

Obviously, this strong concentration of the tax burden was not an accident. It expressed the fact that, in the eyes of the governments of the time, the “high” incomes that deserved to be hit hard by the income tax were incomes far higher than those of the “middle classes” and “upper-middle classes.” This was the vision of inequality and redistribution held by those who had created the income tax, and it was never questioned by any of the interwar governments. The reforms of the tax schedule undertaken in the laws of December 30, 1916, and June 29, 1918, brought about an increase in the tax burden for all taxable households, but, besides the fact that the share of taxable households remained

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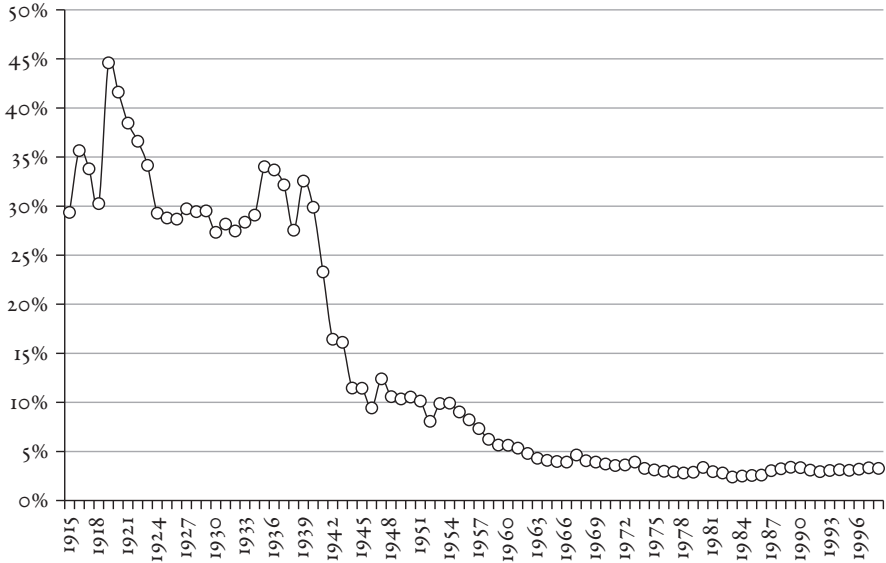


FIGURE 5-7. The share of total tax paid by the “200 families” (fractile P99.99–100) from 1915 to 1998

Source: Column P99.99–100 of Table B-21 (Appendix B)

very small (below 5 percent), the increase in average tax rates was almost insignificant for the lower strata of the top 1 percent (fractiles P99–99.5 and P99.5–99.9), and was only of some importance for fractiles P99.9–99.99 and P99.99–100.<sup>50</sup> As for the famous law of June 25, 1920, which went into effect with the 1919 tax year, the schedule it established was designed so that only very high incomes would be subjected to a tax increase: average tax rates dropped sharply up to the level of fractile P99–99.5 (from 1.9 percent in the 1918 tax year to 1.3 percent in the 1919 tax year), but more than doubled for the “200 families” (fractile P99.99–100) (from 12.8 percent in the 1918 tax year to 29.4 percent in the 1919 tax year).<sup>51</sup> In other words, the *Bloc National* and its finance minister at the time, François-Marsal, could boast of having demanded a significant sacrifice from “very large incomes,” but he made sure not to upset the lower strata of the top 1 percent, let alone the “middle classes” (upper or not).

The strategic choices of the law of June 25, 1920, persisted until the early 1950s. From this point of view, the increase in the nominal level of the standard deduction, from 7,000 to 10,000 francs, adopted in the law of December 31,

1928, represents a particularly noteworthy episode: inflation and nominal income growth had led to a significant increase in the share of taxable households, close to 18 percent in the 1927 tax year, and action had become urgent if one wished to prevent the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99) from being gradually pushed into significant tax rates; indeed, the increase in the tax threshold carried out in 1928 by the Poincaré government immediately brought the share of taxable households to roughly 12 percent (see Figure 5-1), which guaranteed that households in the P90–95 and P95–99 fractiles would have their tax rates frozen at trivial levels (see Figure 5-2). The 10,000 franc standard deduction continued unchanged over the years 1928–1942, so the share of taxable households followed the same trajectory as that of nominal incomes: a slight downward trend during years of deflation, an increase in 1937–1938 with the inflationary policy adopted by the Popular Front, a decline in 1939–1940 brought about by the decline in nominal incomes caused by entry into the war, and then a sharp increase in 1941–1942 due to inflation and the return of nominal-income growth, so that by the 1942 tax year 25 percent of households were taxable, the highest level ever reached since the creation of the income tax (see Figure 5-1). Like Poincaré in 1928, the Vichy government immediately decided on a massive increase in the standard deduction (from 10,000 francs in the 1942 tax year to 20,000 francs in the 1943 tax year), so that the share of taxable households was brought to roughly 13 percent in the 1943 tax year. The “middle classes” (fractile P90–95) thus found themselves in 1943–1944 in the same position they had been in throughout the interwar era, that is, slightly above the threshold of taxation (see Figure 5-1). The same scenario was repeated in the immediate postwar era: the share of taxable households was brought to 10 percent in 1945 (after the doubling of the provisional deduction, which increased from 20,000 to 40,000 francs by the provisional government), then rose very sharply in 1946 (the standard deduction remained frozen at 40,000 francs, and inflation reached its highest level of the century), before hitting 10 percent in 1947 (the standard deduction was increased from 40,000 to 100,000 francs), and then moving upward in 1948–1949, and so on (see Figure 5-1).

The situation changed radically starting in the early 1950s, as governments in power no longer sought to keep the “middle classes” (fractile P90–95) slightly above the tax threshold, and they let inflation and income growth take their course. The zenith of this new strategy came in the 1950s, a period of com-

plete stability in the income tax schedule: except for a slight increase in the tax threshold in 1953, the nominal levels of the various brackets remained strictly the same from the 1951 tax year to the 1959 tax year (see Chapter 4, Table 4-5).<sup>52</sup> The nominal levels of the various brackets were raised more frequently in the 1960s and 1970s, but the increases were sporadic and significantly less than nominal income growth, often even below inflation. With the strong growth of nominal income over the *Trente Glorieuses*, the result was a considerable rise in the share of taxable households, which had stood at around 15–20 percent in the early 1950s, and rose steadily from then on, ultimately reaching 65 percent in the late 1970s (see Figure 5-1). As a result, the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99) were gradually pushed into the middle and upper brackets of the tax schedule, and their average tax rates definitively stopped being trivial (see Figure 5-2). Of course, this process affected all of the top-income fractiles, which is why all average tax rates rose sharply over the *Trente Glorieuses*, including those of the highest fractiles, and even more so given that the top rates of the tax schedule were now fully applied due to the abolition of the deduction for the previous year’s tax payment decided on at the time of the Liberation (see Figure 5-3). But it was particularly spectacular for the “middle classes” and “upper-middle classes” (fractiles P90–95 and P95–99), who had started out in a situation of near total exemption from income tax.

Thus, it was over the course of the *Trente Glorieuses* that the income tax became a “mass tax.” This transformation is especially clear if we examine the change in the various fractiles’ shares of total tax revenues: the tax units of the top 1 percent (fractile P99–100), who in the interwar period paid 90 percent of income tax revenues, paid barely 30 percent of them in the late 1970s (see Figure 5-6); the tax units of the top 0.1 percent (fractile P99.9–100), who in the interwar era paid between 60 percent and 70 percent of revenues, paid only 10 percent in the late 1970s (see Figure 5-6); and the “200 families” (fractile P99.99–100), who in the interwar era were alone responsible for between 30 percent and 40 percent of receipts, paid only about 3 percent of them in the late 1970s (see Figure 5-7). Inversely, the “middle classes” and “upper-middle classes” (fractiles P90–95 and P95–99), who in the interwar era accounted for barely 10 percent of total income taxes, were responsible for nearly 40 percent of them by the late 1970s.<sup>53</sup>

This major “deconcentration” of income tax is in part explained by the deconcentration of incomes themselves: when the top-income share of total income collapses, it is to be expected that top incomes’ share of total taxes will

also fall, even if the tax rates remain the same.<sup>54</sup> Yet the deconcentration of the tax could never have taken on such magnitude, and would not have continued throughout the *Trente Glorieuses* (the process of income deconcentration came to an end after the Second World War), if governments in power had continued to spare the “middle classes” and “upper-middle classes” (fractiles P90–95 and P95–99): if those social groups had held onto the trivial average tax rates they had had in the interwar era, the topmost incomes of the top 1 percent would have continued to pay the overwhelming majority of income tax revenues. The deconcentration of the tax was also considerably amplified by the reduction in the top tax-rate thresholds, which started to hit the majority of tax units of the top 1 percent, rather than just those of the “200 families” (fractile P99.99–100). As a result, the share of the tax paid by the lower strata of the top 1 percent declined by less than their share of total income (or didn’t decline at all),<sup>55</sup> while the decline in the share paid by the “200 families” (fractile P99.99–100) was nearly twice as large as the decline in their share of total income.<sup>56</sup> Thus, legislators were not content to passively accept the consequences of income deconcentration; they took note of the fact that the “200 families” carried less weight than in the past, and they decided they now had to go after significantly lower “high” incomes.

We should also point out that the deconcentration and “massification” of the income tax came to an end at the same time as the *Trente Glorieuses*. As noted in the Chapter 4, in the 1980s and 1990s the income tax became a “tax to cut”; the tax increases of the Mauroy government in the early 1980s were the last of the century, and the golden rule since then has been that the income tax can only be reformed downward.<sup>57</sup> There is no doubt that the explanation for this shift of the 1980s and 1990s lies in large part in the vagaries of economic growth: over the course of the *Trente Glorieuses*, the very strong growth in incomes served as an alibi to justify increasing the tax burden (which in any case ate away only very partially at the gains in purchasing power); inversely, the stagnation in purchasing power over the 1980s and 1990s made the income tax a levy tolerated less and less by taxpayers. This was the context in which rate schedules were systematically indexed against inflation starting in the early 1980s (to prevent more taxpayers from becoming subject to tax during a period of stagnation in real incomes),<sup>58</sup> and in which the Chirac government in 1986 decided to extend the *décote* (tax credit) to all taxpayers of modest means, which resulted in a very large decline in the number of taxpayers. The share of

taxable households, which was around 60–65 percent in the early 1980s, suddenly fell to 52 percent in 1986, and has stood at around 50 percent ever since (see Figure 5-1). Generally speaking, the many tax relief measures instituted since the mid-1980s, notably under the Chirac government in 1986–1987, the Balladur government in 1993, and the Juppé government in 1996, brought about a significant decline in all average tax rates by fractile (see Figures 5-2 through 5-5). But when it comes to the big, long-term trends that concern us here, this shift of the 1980s and 1990s was of relatively limited importance: in the late 1990s, the concentration of the income tax, as measured by the various fractiles' shares of total taxes, stood at roughly the same level as in the late 1970s (see Figures 5-6 and 5-7). Over the long run, the major phenomenon has been that, compared to its interwar predecessor, the income tax at the end of the century rested to a much greater extent on the high-level white-collar workers in fractiles P90–95, P95–99, and the lower strata of the top 1 percent, and much less on the very high capital incomes of the upper strata of the top 1 percent, and that this shift was intended, not merely acquiesced in.

### 1.3. A Still Highly Concentrated Tax

But however significant it may have been, the magnitude of this long-term concentration phenomenon should not be exaggerated, because in the late twentieth century, the income tax remained a highly progressive tax even within the “top” income groups. First, it should be noted that the income tax never stopped resting predominantly on the top decile of the income distribution: in the late 1990s, the best-off 10 percent of tax units paid between 65 percent and 70 percent of total tax receipts (see Figure 5-6), whereas the average tax rate on the bottom 90 percent of tax units was just over 3 percent (see Figure 5-4). Of course, this average rate of just over 3 percent varied significantly within the 0–90 fractile: while the 50 percent of households who were not taxable have an average tax rate of 0 percent by definition, the tax units of the P80–90 fractile faced average rates that approached those of the “middle classes” (fractile P90–95), that is, around 7.5–8 percent in the late 1990s (see Figure 5-2). Yet this average rate of around 7.5–8 percent paid by the “middle classes” (fractile P90–95) in the late twentieth century remained relatively “reasonable”; it more or less corresponds to one month of income. Of course, in the eyes of the individuals in question, the amounts paid to the tax man were hardly trivial, and

they were actually far more significant than the amounts the “middle classes” (fractile P90–95) had to pay during the interwar era, a time when their average tax rate stood below 0.5 percent. In the late 1990s, tax units in the P90–95 fractile, whose average annual income was around 300,000 francs (about 25,000 francs per month),<sup>59</sup> had to pay roughly 25,000 francs each year for the income tax (rather than a sum of barely 1,500 francs, as would have been the case if the interwar average rates had continued to apply).<sup>60</sup> Still, a tax burden of around 7.5–8 percent does not weigh heavily when compared with the dizzying increase in “middle class” (fractile P90–95) purchasing power that took place over the course of the twentieth century: expressed in 1998 francs, the average pretax income of the “middle classes” (fractile P90–95)—like that of the overall population, moreover—multiplied by a factor of around 4.5 since the interwar era,<sup>61</sup> a 350 percent increase. Likewise, a tax burden of roughly 7.5–8 percent does little to alter the fact that the “middle classes” (fractile P90–95) have incomes around 2.2–2.3 times the average income (that is, around 120–130 percent higher) and about 5 times the incomes of minimum-wage workers (that is, about 400 percent higher).<sup>62</sup>

In particular, it is important to realize that, despite the significant deconcentration trend of the income tax, only the upper strata of the top decile of the income distribution were subjected to average tax rates of several dozen percent in the late twentieth century. In the late 1990s, according to our estimates, the average tax rate was around 7.5–8 percent at the P90–95 level, 11–12 percent at the P95–99 level, 17–18 percent at the P99–99.5 level, 23–24 percent at the P99.5–99.9 level, 32–33 percent at the P99.9–99.99 level, and 39–40 percent at the P99.99–100 level.<sup>63</sup> Recall that the average incomes declared by these social groups in the late 1990s were around 300,000 francs at the P90–95 level, 430,000 francs at the P95–99 level, 680,000 francs at the P99–99.5 level, 1 million francs at the P99.5–99.9 level, 2 million francs at the P99.9–99.99 level, and more than 7 million francs at the P99.99–100 level.<sup>64</sup> Here again we have an extremely clear illustration of the importance of the distinction between marginal tax rates and average tax rates: in the late twentieth century, the 54 percent top marginal rate applied to about 0.7 percent of the total number of tax units (the threshold for that bracket was about 800,000 francs of annual income for a married couple) but only for the best-off 0.01 percent of tax units, with incomes of several million francs, did the average rate actually approach 54 percent (while remaining materially below that level). The large gap between



marginal and average rates in the late 1990s is explained not only by the usual factors—top marginal rates apply only to the upper portion of the incomes in question, not to the total incomes; marginal rates apply to taxable incomes (after taking into account deductions and exemptions), whereas the average rates presented here are expressed as a percentage of fiscal income (before any deductions or exemptions)—but also by the fact that tax-reduction provisions, which grew very rapidly in the 1980s and 1990s, and which we have taken into account in our estimates, allowed very high income earners at the end of the century to significantly reduce their tax bills, in the same way (though less massively) as did the deduction of the previous year's tax liability from current income when it was in effect in the interwar era.<sup>65</sup> Ultimately, income tax receipts in the late twentieth century represented barely 7 percent of the total income of the French population, which is significantly higher than the levels seen in the interwar era (between 1 percent and 2 percent), but which remained relatively modest (see Figure 5-5).

Most importantly, these findings show the extent to which the “middle classes” have always remained “middle classes”: though legislators decided to bring them into the field of the income tax—that is, the field of “high”-income earners from whom it is legitimate to require contributions to the financing of national solidarity—they made sure not to radically undermine their standard of living or their position vis-à-vis less well-off households. The tax units of the P90–95, despite belonging to the best-off 10 percent of tax units, have always been much closer to the popular classes than to very high income earners, not only from the point of view of their income levels, but also from the point of view of their average tax rates. In the interwar era, the average tax rate was 0 percent for the popular classes, less than 0.5 percent for the “middle classes” (fractile P90–95), and could exceed 30 percent for the “200 families” (fractile P99.99–100):<sup>66</sup> thus the “middle classes” belonged to the same world as the popular classes. In the late twentieth century the average tax rate was still 0 percent for the popular classes, it rose to 7.5–8 percent for the “middle classes” (fractile P90–95), and it reached 40 percent for the “200 families” (fractile P99.99–100):<sup>67</sup> by this time, the “middle classes” no longer belonged to the same world as the popular classes, but they were not very far from it.

In our eyes, this profound reality expresses the ambiguity of the changes that have taken place around the questions of inequality and redistribution since the shocks of the 1914–1945 period. On the one hand, those shocks did



indeed result in a noticeable shrinking of the “high”-income concept: following the collapse of very high capital incomes, the idea gradually took root that wage-earning high-level white-collar workers also belonged to the “high”-income group. But on the other hand, wage hierarchies never stopped enjoying a very broad consensus, so that these “high-wage workers” have always been taxed with extreme circumspection, almost with regret. In a certain way, the shocks of the “first twentieth century” left redistribution an orphan: its natural target has disappeared, and there has been no genuine successor. We will return to this point when we analyze the evolution of the Socialist and Communist parties’ attitudes vis-à-vis inequality and redistribution.

## 2. *Who Are the “Top” Income Earners?* *Answers from Tax Increases*

### 2.1. The Rarity of Tax Increases

What is interesting about the major, long-term trends in the distribution and concentration of taxation that we have examined above is that they allow us to abstract from small, short-term events. Inversely, tax increases, on which we will focus now, make it possible to study how a government with a particular political configuration and operating at a particular historical moment expressed a certain vision of inequality and income distribution. The information thus obtained can sometimes be contingent, but it allows for a greater degree of precision. Increasing the income tax burden in effect forces governments and the economic and social forces behind them to leave aside abstract rhetoric about social inequality and to be extremely specific: they have to explain why taxes must be raised, and most importantly for whom. From which social groups is it legitimate to require an additional sacrifice for national solidarity, and who deserves to be spared? Starting from what level of income does one have a “high” income, so “high” that reducing it would be justified?

What also makes tax increases especially interesting, and specially deserving of separate study, is that they have been extremely rare in the history of the income tax. In particular, the major long-term trends we have examined were achieved gradually and progressively, without any government really having to take responsibility: throughout the century, the “normal” way of ensuring that the income tax would become less concentrated and more “massified” was not

by announcing and publicizing tax increases as such, but by not adjusting (or only partially adjusting) the various tax-bracket thresholds for increases in prices and incomes, and waiting for the taxpayer incomes to cross those various thresholds. The long-term rise in the number of taxpayers is a textbook case; over more than eighty years, not a single government has ever reduced the nominal threshold of taxation. The sole exception to this general rule goes back to the First World War when the finance law of December 30, 1916, lowered the standard deduction from 5,000 to 3,000 francs. But since that date, no government has ever taken such a step: all of the adjustments to the nominal taxation threshold have been adjustments upward, never downward.<sup>68</sup> In other words, the spectacular rise in the share of taxable households, which increased from barely 2–3 percent in 1915–1916 to more than 50 percent in the 1990s, with a maximum of 65 percent in the late 1970s,<sup>69</sup> was obtained “spontaneously,” simply as a result of the growth of nominal incomes (in cases where there was no adjustment to the nominal taxation threshold), or more generally due to nominal income growth that was larger than the nominal adjustment to the taxation threshold.

This is an interesting regularity, because it bears witness to a more general phenomenon, namely, governments’ somewhat schizophrenic relationship with the income tax. The income tax is perceived as virtuous and morally necessary, but publicizing one’s intention to increase its weight, and, even more so, to single out the social groups on whom it would be fair to place the burden of it, has always represented an extremely heavy symbolic act, one that very few governments have ventured to undertake. This fear of transparency is especially clear in cases where the increase affects taxpayers of “modest” means who had not been subject to tax the year before, and it must then be explained why they ought to be subject to it now (hence the overweening necessity of hiding behind inflation and nominal income growth to justify the increase in the share of taxable households). That obviously does not mean that successive governments chose to surrender control over the weight and distribution of the income tax to the vagaries of inflation and real income growth. As we saw earlier, inflation was used in a strategic way: it allowed governments to increase the number of taxpayers or to increase the tax burden on this or that fractile when doing so seemed justified, but they made sure not to go too far whenever this strategy risked hitting social groups whom they didn’t think should have to pay income tax (or whom they thought should not pay much). And we have already

encountered other historical examples in which the strategic use of inflation allowed governments in power to effect vast redistributions “discreetly”: inflation is what allowed the state to rid itself of the nominal debt it had accumulated during the two world wars, and it was again inflation that made possible a compression of the wage hierarchy and a reduction of the real level of public-sector wages during both of the two world wars. This shows the extent to which the issues of income and inequality have always been extremely sensitive political questions, so much so that governments have generally preferred to tackle them in disguised ways.

In fact, if we carefully examine the history of the income tax since the law of July 15, 1914, and if we except the two increases in the tax schedule that took place during the First World War (law of December 30, 1916, and law of June 29, 1918), which in a sense merely set the stage for the *Bloc National*, we count only three genuine tax increases in twentieth-century France: the reform of the schedule undertaken by the *Bloc National* (law of June 25, 1920), the reform of the schedule undertaken by the Popular Front (law of December 31, 1936), and a series of tax increases adopted by the Socialist government following the elections of May 1981 (notably via the law of August 3, 1981, and the law December 29, 1982). Every other tax increase was achieved “spontaneously,” thanks to the dynamics of inflation and nominal income growth, or via “exceptional surtaxes.”<sup>70</sup> These “exceptional surtaxes” were sometimes of great importance, especially with respect to the *double décime* adopted by the *Bloc National* on the eve of the 1924 elections (law of March 22, 1924), the “exceptional surtax” instituted by the Laval government (decree-laws of July 16 and 26, 1935), or the surtaxes following the events of May 1968 (law of July 31, 1968), and they often lasted longer than expected.<sup>71</sup> To ignore them completely would thus amount to a somewhat questionable sort of legalistic formalism. Nevertheless, “exceptional surtaxes” by definition are not intended to permanently alter the tax burden on various groups, and thus they do not have the same status as the tax increases that only three governments (the *Bloc National*, the Popular Front, and the Mauroy government) chose to embed into the very core of the tax schedule.<sup>72</sup>

Moreover, if we examine the short list obtained by adding the “exceptional surtaxes” to these three increases in the tax schedule, we see that there existed only two tax increases that were genuinely intended and acknowledged as such: the reform of the schedule by the Popular Front, and the series of tax increases

by the Mauroy government. As we saw in the Chapter 4, all of the other tax increases and exceptional surtaxes were decided on at the last moment, and reluctantly, by governments that had no particular sympathy for the income tax or for tax redistribution, but who were facing an exceptionally disastrous budget situation: the *Bloc National* was desperately seeking to pay off the war, the Laval government was struggling with deflation, the Couve de Murville government was coping with the social and budgetary consequences of the May 1968 events, and so forth.<sup>73</sup> That is why we will focus mainly on the 1936 and 1981 tax increases and on the vision of inequality and redistribution that they expressed; tax increases that are intended and acknowledged are exclusively phenomena of left-wing governments, and they make it possible for us to study how the Left evolved on these central issues over the course of the century.

Let us add finally that, given our point of view here, tax reductions are inherently far less interesting than tax increases. In effect, the tax-cutting scenario is an invariable one. On the one hand, it is completely and politically unimaginable to restrict a tax cut to incomes above some threshold; it is essential that all taxable households benefit from the cut, if only slightly. On the other hand, because the income tax is considerably heavier for very high incomes than it is for lower incomes, it is practically inevitable that an income tax cut will mainly benefit very high incomes:<sup>74</sup> for the government in power, the point therefore is to try to show that everyone will see their taxes reduced, that the tax cut being given to very high income earners is not all that large, and so forth, usually with some amount of bad faith. We find the same scenario with all of the tax cuts that have dotted the history of the income tax in twentieth-century France, in 1926 (Poincaré), in 1934 (Doumergue), in 1959 (Giscard d'Estaing), in 1986–1987 (Chirac), in 1993 (Balladur), in 1996 (Juppé), and so on. Tax increases are far more informative, because they require the governments responsible for them to draw a line between two categories of taxpayer: starting from what income level does one have a “high” income and deserve to be taxed more heavily?<sup>75</sup>

## 2.2. May 1981 and the Popular Front: History Repeats Itself?

In both 1936 and 1981, a government led by the Socialist Party and supported by the Communist Party came to power and immediately decided to increase

taxes on “high” incomes. Of course, the political program of those governments did not begin and end with the idea of “taxing the rich.” But that watchword did represent a key component of the identity of the political forces in power; the objective of broader income distribution and heavier tax progressivity played an important role in the programs publicized by the parties of the Left in the electoral campaigns of 1936 and 1981, and there was no doubt that this general goal would be implemented in one way or another in the event of electoral victory.<sup>76</sup>

In 1936, the income level above which the Popular Front wished to invoke national solidarity had been defined in an extremely precise way: the new tax schedule defined in average-rate terms, adopted in the law of December 31, 1936, had been designed so as to significantly increase the tax burden on households with taxable incomes above 75,000 francs and to reduce taxes on households with taxable incomes below 75,000 francs. This 75,000 franc threshold was also used by the Popular Front as part of its mechanism for reducing deductions for family dependents (deductions were reduced for families with incomes above 75,000 francs, and increased for everyone else), as well as in exempting “female taxpayers” from the surtaxes on childless taxpayers (the exemption applied solely to incomes below 75,000 francs, and the surtaxes were maintained for everyone else).<sup>77</sup> It is interesting to note that this threshold that the Popular Front implemented corresponded quite precisely to the figures that had appeared in electoral promises a few months earlier, which represents a unique example in the history of the income tax in France: the “Program of the Popular Union,” adopted in January 1936 by the SFIO (*Section Française de l’Internationale Ouvrière*, or French Section of the Workers’ International), the Radical Party, and the PCF (*Parti Communiste Français*, or French Communist Party), and very widely broadcast by those political forces during the 1936 electoral campaign, called for a “democratic reform of the tax system,” whose central element was a “rapid increase in the general tax rate on incomes above 75,000 francs” (with no further detail given).<sup>78</sup> Thus, it may be said that this threshold was a rather good reflection of what a “high” income was in the minds of the left-wing parties of the time.

To establish some orders of magnitude, we should make clear that this 75,000 franc threshold of taxable income, converted into 1998 francs and into fiscal income (before any deductions or exemptions), corresponded to an annual income of around 350,000 francs,<sup>79</sup> or nearly 30,000 francs per month, in

an era when the average income per tax unit, expressed in 1998 francs, was around 30,000 francs per year (2,500 francs per month),<sup>80</sup> and when the lowest wage levels (those for domestic employees or agricultural laborers), expressed in 1998 francs, were less than 15,000 francs per year (just over 1,200 francs per month).<sup>81</sup> In other words, the Popular Front was demanding additional sacrifice from households with incomes at least 12 times higher than the average household, and at least 25 times higher than the lowest incomes.<sup>82</sup> According to our estimates, 75,000 francs stood slightly above the P99.5 threshold of the income distribution of the time, and thus the tax increase passed by the government of Léon Blum hit the wealthiest 0.5 percent of households in 1936 French society.<sup>83</sup> This means, in particular, that the “middle classes” (P90–95) and “upper-middle classes” (fractile P95–99) had nothing to fear from the Popular Front’s new tax schedule. For example, teachers or mid-level white-collar workers in the public sector had annual wages that were one-fourth or one-fifth the level of the 75,000 franc threshold, so they could contemplate it serenely, feeling that they stood outside of the Socialists’ crosshairs.<sup>84</sup>

In practice, the actual results were very slightly different than expected: the rise in inflation and increase in nominal incomes attenuated the tax cuts that the “middle classes” (upper or not) would have otherwise enjoyed. The increase in family-dependent allowances for incomes below 75,000 francs in principle should have led to a decline in the share of taxable households, but that share was actually completely stable (9.7 percent of taxable households in the 1935 tax year, and 9.7 percent of taxable households in the 1936 tax year).<sup>85</sup> Likewise, our estimates indicate that average tax rates on the “middle classes” (P90–95) and “upper-middle classes” (fractile P95–99) were completely stable between 1935 and 1936 (when they otherwise would have declined), and that the average tax rate for fractile P99–99.5 even increased slightly.<sup>86</sup> But the essential aspects were left unscathed: as the Popular Front had decided, average tax rates rose significantly only beyond the P99.5 threshold.<sup>87</sup>

It is striking to note that the Mauroy government, nearly half a century later, decided to go after exactly the same fractiles of the income distribution. The fateful threshold was not announced before the elections,<sup>88</sup> and it was less explicitly defined than in the Popular Front era: the 25 percent surtax established by the law of August 3, 1981, affected taxpayers whose 1980 tax bill exceeded 100,000 francs.<sup>89</sup> But according to our estimates, the income threshold that had to be exceeded to fulfill this condition stood slightly above the P99.5

threshold of the 1980 income distribution,<sup>90</sup> in other words, quite precisely the same relative level as that set in 1936 by the Popular Front: in both cases, only the best-off 0.5 percent of tax units was required to contribute. In particular, in both 1981 and 1936, the “middle classes” (fractile P90–95) and “upper-middle classes” (fractiles P95–99), which throughout the century had been the realm of the “high-wage workers,”<sup>91</sup> had every reason to be content, as the “high” incomes that the Socialists thought it legitimate to take a bite of when they came to power were quite significantly above their own. These findings confirm what we said earlier: the “middle classes” always remained “middle classes.” More precisely, the shocks of the 1914–1945 era had not changed the fact that, in the minds of Socialists, it was very high capital incomes that should be challenged—not high wages or wage hierarchies, which were seen implicitly as justified and legitimate in both 1981 and 1936. The findings also show that political parties have never needed to appeal explicitly to the concept of fractiles when targeting their tax increases. The top-income hierarchy was not described in the terms we use here, but the overall orders of magnitude and social significance of the various income levels were sufficiently well understood for people to see the difference between the incomes of the “middle-classes” and “upper-middle-classes” (fractiles P90–95 and P95–99) and those of the upper half of the top 1 percent.

But it would be an exaggeration to conclude that Socialists’ notions of social justice and income redistribution remained totally insensitive to the shocks of the “first twentieth century.” First of all, while it is true that the fateful threshold had in both cases been set slightly above the P99.5 threshold of the income distribution, the Socialists of 1981 had taken on board the fact that they faced a significantly more compressed distribution than their predecessors of 1936 had faced, in particular a ratio between the P99.5 threshold and the average income that was nearly half as large: in both cases, the fateful threshold was slightly above the P99.5 level, but the level that the Popular Front had set was around 12 times the era’s average income (in 1998 francs, 350,000 francs of annual income for the threshold set by the Popular Front, versus 30,000 francs for the average income in 1936),<sup>92</sup> while the threshold used in 1981 was “only” 6 times the era’s average income (in 1998 francs, 800,000 francs of annual income for the threshold set by the law of August 3, 1981, versus around 130,000 francs for the average annual income in 1980).<sup>93</sup> If the Socialists of 1981 had wished to repeat the work of 1936 exactly, by only going after incomes more



than 12 times the average, their tax increase would have affected less than 0.1 percent of tax units, rather than nearly 0.5 percent.<sup>94</sup>

Most importantly, as discussed earlier, a key difference between the 1936 and 1981 tax increases is that the Popular Front wanted above all to put the astronomical incomes of the “200 families” on display, along with the amounts of taxes it was imposing on them, whereas Socialists in the late twentieth century declined to stigmatize such high incomes. Although the new income tax schedule established by the Popular Front in 1936 had been designed to increase the tax burden on all taxable incomes above 75,000 francs, it was, more importantly, characterized by the fact that mounting tax rates continued far beyond the 75,000 franc level, with a top bracket hitting incomes above 1.33 million francs, almost twenty times the fateful 75,000 franc threshold.<sup>95</sup> In other words, while the Léon Blum government raised taxes on the wealthiest 0.5 percent of tax units (about 85,000 tax units out of some 17 million at the time<sup>96</sup>), it clearly publicized the fact that its reform would mostly be bad for a few hundred of the wealthiest households (less than 0.01 percent of all tax units).<sup>97</sup> In 1981, the message sent by the Mauroy government was entirely different: the 25 percent surtax established by the law of August 3, 1981, affected all taxpayers whose 1980 tax liability exceeded 100,000 francs without distinction—that is, the best-off 0.5 percent of tax units (like the 75,000 franc threshold adopted in 1936)—and it appeared inappropriate in the Socialist government’s eyes to publicly stigmatize those within that “very high income” caste who earned even higher incomes. That does not mean all tax units of the P99.5–100 fractile were treated alike: the 25 percent surtax applied to the fraction of taxes above 100,000 francs,<sup>98</sup> which means it grew heavier as one climbed further above that threshold. In fact, in practice, in both 1981 and 1936 the increase in average tax rates was moderate at the P99.5–99.9 level, it was more significant at the P99.9–99.99 level, and it assumed its full magnitude only at the P99.99–100 level.<sup>99</sup> Nevertheless, the fact that the Mauroy government was content to single out incomes roughly six times the average (0.5 percent of tax units), whereas the Popular Front in its bills wanted to highlight incomes that were more than 200 times the average (less than 0.01 percent of tax units) is extremely revealing in itself: after the shocks of the 1914–1945 years, Socialists stopped singling out very high capital incomes.

Finally, another important difference between the 1936 and 1981 episodes is the fact that the tax increases that followed the May 1981 elections did not end



with the surtax established by the law of August 3, 1981. After initially limiting themselves to the richest 0.5 percent of tax units, the Socialists of the early 1980s decided to go after fractiles that were significantly lower in the income distribution of their time. It is true that the creation of a 65 percent bracket in the law of December 29, 1982, which represented the sole permanent change to the income tax schedule by the Mauroy government, affected only the best-off 0.5 percent of tax units (just like the surtax established by the law of August 3, 1981).<sup>100</sup> But in the framework of the finance laws of December 30, 1981, December 29, 1982, December 29, 1983, and December 29, 1984, the Mauroy government also decided to institute “exceptional surtaxes” for the 1981–1984 tax years affecting nearly 5 percent of tax units: the “middle classes” (fractile P90–95) had nothing to fear from them, but the “upper-middle classes” (fractile P95–99) and the tax units of the P99–99.5, which had been spared by the surtax established by the law of August 3, 1981, and by the creation of the 65 percent bracket, were directly affected.<sup>101</sup> We should also note that the mechanism for capping the effects of the family quotient, established by the law of December 30, 1981, was designed to affect the best-off 1 percent of tax units, which, while relatively narrow, was still twice as large as the share of tax units targeted by the law of August 3, 1981, and the law of December 31, 1936.<sup>102</sup> Compared to their predecessors of 1936, the Socialists of 1981 undeniably sought to go after “high” incomes that were less high up in the income distribution of their time. It is interesting to note that we find the same kind of shift with the tax increases adopted reluctantly by the Right: the new tax schedule established by the *Bloc National* and the “exceptional surtax” implemented by the Laval government were limited to raising taxes on the upper strata of the top 1 percent,<sup>103</sup> whereas the “exceptional surtaxes” instituted in July 1968 by the government of Couve de Murville affected nearly 5 percent of tax units.<sup>104</sup>

The magnitude of this shift should not be exaggerated, however. In practice, the 1981–1984 tax increases on the “upper-middle classes” (fractile P95–99) and the tax units of the lower half of the top 1 percent (fractile P99–99.5) were extremely small, and only the upper strata of the top 1 percent of the income distribution were subjected to a frank and massive increase in their average tax rates after the Socialists’ arrival in power.<sup>105</sup> Also, the tax increases of the 1981–1984 years, though carried out with circumspection, hardly helped to increase the popularity of the Mauroy government, which explains to a great extent why the Socialists never repeated the experiment: starting in 1984–1985, surtaxes

definitively turned into tax credits, and since then Socialist governments have limited themselves to carrying out the tax cuts adopted by governments of the Right.<sup>106</sup>

The sole exception to this general rule was the reduction in the threshold for capping the family quotient, adopted in 1998 by the Jospin government, whose controversial nature we already mentioned in the introduction. This measure ultimately affected only the best-off 3–4 percent of tax units (whereas the family benefit cap initially envisaged would have hit the best-off 10 percent of tax units), but going after the incomes of the “slightly upper-middle-class” enjoyed far from unanimous support within the “plural left” majority.<sup>107</sup> We should add that there is no reason to think that the Léon Blum government, if it had stayed in power a bit longer, would not also have gone on to demand an “effort of national solidarity” from incomes significantly less high than those he had addressed in 1936.<sup>108</sup> Also recall that the Popular Front, in a disguised way with its inflationary policy, did not hesitate to go after the “middle classes” and “upper-middle classes” (fractiles P90–95 and P95–99), though with great caution, and eliciting major controversy within the left wing of its parliamentary majority.<sup>109</sup>

We will conclude by noting that a comparison of the 1936 and 1981 episodes confirms the main findings that emerged from studying the long-term evolution of the concentration of the income tax. On the one hand, over the course of the twentieth century the socialists stopped singling out very high capital incomes. But on the other hand, those very high incomes, though symbolically disappearing from the bills, never stopped being Socialist governments’ only genuine target: publicly announcing one’s intention to tax wage-earning upper-level white-collar workers continues to be seen as an extremely weighty, even illegitimate act, and such a policy can be pursued only with the greatest caution. In a certain sense, Socialists at the end of the century no longer knew whom to turn to in order to make clear their intention to redistribute.

### 2.3. The “Virtual” Tax Increases of Election Platforms

One of the main interests of studying tax legislation is that it is almost solely in this domain that the various political forces are led to specifically express their ideas about inequality and income redistribution; political rhetoric is usually content to put forward relatively abstract principles of social justice, and it is

extremely rare for political officials to state openly which inequalities ought to be reduced and which income levels should be curtailed. Yet this prudent discretion is highly interesting in and of itself, and it seems to us that the question of how these practices evolved over the twentieth century merits a bit of elaboration. In addition, since the PCF never had an opportunity to implement its own policies, an additional interest of studying communist rhetoric is that it is the only source that can tell us how communist ideas about inequality and redistribution evolved over the course of the century. That is why we have examined all of the electoral programs disseminated by Socialist and Communist parties since the early twentieth century in order to study how the themes of “top” incomes and greater income redistribution were dealt with in those programs (the Socialist and Communist parties are the only parties with a tendency to openly discuss this theme).<sup>110</sup>

Let us start with the programs of the Socialist Party. These have always been highly sober programs: throughout the century, “reducing inequality” and the idea of “greater tax and social justice” occupied an important place in these documents, but it was extremely rare for Socialists to risk being more precise. For example, the program adopted in 1919, though it had the virtue of indicating that “for future balanced budgets, the German contribution will not obviate the need for new taxes, three or four times those that financed our peacetime budgets”—which was relatively brave in an era when people often simply chanted “Germany will pay”—dwelt little on how those new resources would be obtained; the SFIO merely indicated that the progressivity of the income tax that had been established in 1914 should be “sharply enhanced” (with no further details given).<sup>111</sup> It was ultimately the *Bloc National* that instituted this “sharply enhanced” progressivity, which deprived the Socialists of their primary issue: the programs adopted in the 1920s, as well as the 1932 program, were even less explicit than the 1919 program concerning any tax increases on “large incomes,” and they merely noted from time to time the need to lighten “the burdens on wage earners and the middle classes” (with no further details as to the precise contours of those named social categories).<sup>112</sup>

In fact, the only electoral program in which the Socialists risked explicitly announcing the income threshold beyond which they proposed to increase the burden of income tax was the “Program of Popular Unity” adopted in January 1936, in which the SFIO, the Radical Party, and the PCF publicly announced their intention to establish a “rapid increase in general tax rates on

incomes above 75,000 francs” (with no further detail provided), a promise that was rigorously kept, as we have discussed.<sup>113</sup> Since 1936, the Socialist Party has never been so explicit. The initial postwar programs were particularly discrete: the programs adopted by the SFIO in view of the 1946, 1951, 1956, 1962, 1967, and 1968 elections regularly declared that the Socialists’ objective was to ensure the “preeminence of direct taxation over taxes on popular consumption,” or that “taxes should be focused more on large incomes,” but they carefully refrained from making any reference to the notion of an income threshold beyond which incomes become “large.”<sup>114</sup> It is interesting to note that the Congress of Epinay and the new strategy of alliance with the Communists had only a limited impact on this sobriety. The *Changer La Vie* program adopted by the Socialist Party in March 1972 at the national convention in Suresnes again expressed the Socialists’ intention to make the income tax more heavily progressive, and even proposed creating a top bracket taxed at a 75 percent marginal rate (“progressivity will be reduced for the lowest incomes and increased for the highest incomes up to the maximum 75 percent rate”), but it “failed” to indicate at what income level the increase progressivity would begin if the Socialists came to power.<sup>115</sup> The “common program” signed in July 1972 by François Mitterrand and Georges Marchais in the name of the PS (*Parti socialiste*, or Socialist Party) and PCF reiterated similar promises (“taxes on the working-class population will be reduced,” “we will increase the progressivity of the tax schedule for the highest incomes”), without giving further details (the Common Program did not even refer to the idea of a 75 percent bracket).<sup>116</sup> The “Socialist Proposals for Realizing the Common Program” published in 1978 used almost identical language (“the progressivity of the tax schedule for top incomes will be increased,” with no further details).<sup>117</sup> The “Socialist Plan for France in the 1980s” published in 1983 reaffirmed this general objective (“the goal of the tax reform we intend to carry out is to reduce inequality”),<sup>118</sup> as did Proposal No. 35 of candidate François Mitterrand’s “110 Proposals” in the 1981 presidential election that read: “direct taxes will be reduced for small taxpayers and increased for large incomes, so as to narrow the spread of incomes” (with no further detail given).<sup>119</sup>

Thus, as the 1981 elections approached, and in contrast to what had happened in the 1936 election campaign, it was hard to say at what income level taxes would start to increase; there was no doubt that “large incomes” would be significantly curtailed, and that “small taxpayers” had nothing to fear, but

people were being asked to identify themselves within those abstract categories. We may note, however, that a number of indications pointed to the prospect that only very high capital incomes would be touched and that the wage-earning white-collar workers of the P90–95 and P95–99 fractiles would mainly be spared. Indeed, throughout the century the Socialists had taken up the defense of the “middle classes” and “wage earners” (seen as a unitary bloc), and such reassuring words for white-collar professionals had been reiterated on numerous occasions in the 1970s. For example, the 1972 program in its introduction declared: “The Socialist party addresses itself to the overwhelming majority of the French people, from blue-collar workers to the middle classes.”<sup>120</sup> From this point of view, the brochure entitled *Cadres: L’alternative socialiste*, published by the Socialist Party in early 1981 in view of the presidential election, is an especially significant document: in it, the Socialists freely repeated that “inequality between wage and nonwage incomes represents the principal dividing line of inequality,” and that “*cadres* will benefit from the Socialist tax reform, thanks to greater taxation of nonwage incomes” (with no further details given).<sup>121</sup> The document’s preface, signed by François Mitterrand, lays out Socialist thinking in a particularly brilliant way: “hit by unemployment, falling purchasing power, deteriorating working conditions—in short, affected in the same way as all wage earners by a government that refuses to combat inequality with genuine wealth redistribution—*cadres* are learning to be wary of liberalism, whose logic, they can see, disregards their interests.”<sup>122</sup> These words are interesting, for they confirm what we said earlier about the impact that the crises of the “first twentieth century” had on representations of inequality and “top” incomes: “the anvil of plutocracy” had become less oppressive than before, and very high capital incomes were almost never mentioned explicitly, but the Socialists never really stopped describing wage earners as a fundamentally homogenous group, and they never really sought openly to challenge the legitimacy of wage hierarchies or the living standards of “high-wage workers.”

As might be expected, the Communist programs were usually far more unapologetic than Socialist programs on the question of inequality and redistribution. Yet, examining these documents makes it clear that it was pretty much only in the Popular Front era that the PCF really tried to mobilize the masses around the theme “tax the rich,” and that, like the Socialists, the Communists were always relatively accepting of wage hierarchies.

In the 1920s and early 1930s, Communist proposals around the income tax were not much less sober than those of the Socialists: the programs published by the PCF were content to denounce the tax increases of the *Bloc National* (particularly the 1924 *double décime*) and to regularly demand the immediate and complete elimination of the schedular wage tax (“we demand the complete elimination of this unjust tax”), but they mentioned no concrete plan for increasing taxes on “large incomes.”<sup>123</sup>

Then came the Popular Front era, when the PCF decided to throw its support behind the government to a significant extent, which, among other things, was manifested in a vast public campaign intended to highlight the Communists’ tax proposals. In 1935, the PCF published an evocatively titled thirty-odd-page brochure (*The Rich Must Pay! Why? How?—The Economic and Financial Program Proposed by the Communist Party*), which laid out in great detail how the Communists intended to increase the tax burden on wealthy taxpayers. On the one hand, the PCF proposed creating a “progressive levy on large fortunes,” and on the other hand, “pending the organization and implementation of this levy,” the creation of an “exceptional tax,” which would immediately and significantly raise income taxes owed by very high-income earners. These were not abstract proposals: the PCF precisely indicated the rates of the “progressive levy on large fortunes” and the “exceptional tax” as well as the wealth and income brackets to which the rates would apply, and it even provided assessments of the revenues they would bring in, which were based on the most recent statistics derived from the tax-return tabulations. This 1935 brochure was reissued several times over the course of the 1936 election campaign,<sup>124</sup> and as soon as the elections had been won, the Communists put pressure (without success) on Léon Blum and his finance minister Vincent Auriol to have their proposals adopted, using countless pamphlets and press articles. The rate schedules of the “progressive levy on large fortunes” and the “exceptional tax” that had been proposed before the elections were published under large headlines on the front page of the September 27, 1936, issue of *L’Humanité* (see Image 5-1),<sup>125</sup> and Jacques Duclos introduced a bill on behalf of the Communists aiming to establish exactly these two levies.<sup>126</sup> In addition, the December 22, 1936, issue of *L’Humanité* offered its readers a special supplement featuring the speeches Jacques Duclos had recently delivered in the Chamber in support of the Communists’ tax proposals, and so on.<sup>127</sup> This intense advocacy continued

in early 1937, during the last days of the Popular Front,<sup>128</sup> and new brochures on the “tax the rich” theme were published by the PCF in 1938, after the fall of the Léon Blum government.<sup>129</sup>

These 1935–1938 documents published by the PCF are extremely valuable for our inquiry, especially because they are the only such documents in which the idea of “taxing the rich” was expressed with such precision in twentieth-century France. The Socialists never published concrete proposals of this kind (in the history of the PS, the only income tax campaign promise with numbers attached to it appeared in the “Program of Popular Unity,” and it was limited to the fateful 75,000 franc threshold), and the Communists never really repeated their 1935–1938 experiment, as we will see later in this section. A number of findings emerge from an examination of the Communist proposals from 1935–1938. First, we note that the PCF had no intention of going after the “middle classes” (fractile P90–95) or “upper-middle classes” (fractile P95–99): the “exceptional tax” proposed by the Communists affected only taxable incomes above 100,000 current francs (see Image 5-1), slightly above the fateful 75,000 franc threshold that appeared in the “Program of Popular Unity” and was actually adopted in the new IGR tax schedule established by the law of December 31, 1936.<sup>130</sup> In concrete terms, that means that the Communist plans affected just over 0.2–0.3 percent of tax units, versus almost 0.5 percent for the threshold that the Popular Front actually used;<sup>131</sup> the white-collar professionals of fractiles P90–95 and P95–99 were even less threatened by Jacques Duclos and Maurice Thorez than they were by Léon Blum and Vincent Auriol. Moreover, the PCF of the era spared no effort to reassure those social groups, and to show them that it did not confuse them with the “truly rich”: it regularly spoke of the “middle classes crushed by today’s tax burden,” it intended to take up the “defense” of those “middle classes,” and it was proud to announce that “average” incomes of about 30,000–50,000 francs—that is, incomes that were actually more than five times higher than the average income in 1936<sup>132</sup>—would enjoy very extensive tax relief if the Communists came to power.<sup>133</sup>

It is particularly striking to note that the schedule for the “exceptional tax,” though it was a surtax on the income tax, was expressed in terms of wealth holdings rather than in income terms. The PCF was proposing to apply a 1 percent tax rate to “wealth brackets earning incomes between 100,000 and 200,000 francs,” a 2 percent rate to “wealth brackets earning incomes between 200,000 and 500,000 francs,” a 3 percent rate on “wealth brackets earning



"Ce qui fait la force du Front populaire, c'est son programme."

F. BOCAYROL, Avec les 4 Frontales le 25 septembre.

Tout à fait d'accord ! Et c'est pourquoi nous, communistes, sommes fidèles à ce programme.

# L'Humanité

ORGANE CENTRAL DU PARTI COMMUNISTE (S.F.I.C.)  
57 ANNALES - N° 13.704  
RÉDACTION D'ADMINISTRATION : 12, RUE ROUVIÈRE, PARIS (17)  
LE NUMÉRO : 52 CENTIMÈS  
ORNAANCE 27 SEPTEMBRE 1936  
QUATRE ÉDITIONS  
Fondateur : JEAN JAURES  
Directeur : MARCEL GAGNIN  
DÉLÉGUÉ DE LA LIGNE

FINANCE



— Il sera tenu compte de son état financier lorsqu'il sera appelé à voter —

## CE SONT LES RICHES QUI DOIVENT PAYER !

**Fidélité au programme financier du Front populaire !**

La dernière loi des réformes financières du programme du Front populaire est intitulée : Mesures d'encadrement financier. Elle comprend :

- 1° RÉVISION DES MARCHÉS DE GUERRE, en liaison avec la modification des conditions de paiement.
- 2° RÉPRESSION DU GAUFFRAGE dans les administrations civiles et militaires.
- 3° Constitution de la caisse des pensions de guerre.
- 4° RÉFORME DÉMOCRATIQUE DU SYSTÈME DES IMPÔTS, comprenant :
  - a) UNE DÉTENTE FISCALE au profit de la reprise économique ;
  - b) LA CRÉATION DE RESSOURCES PAR DES MESURES ATTEIGNANT LES GROSSES FORTUNES (conservation rigoureuse de la RÉALISATION DU TAUX DE L'IMPÔT GÉNÉRAL SUR LES REVENUS ASSIMILÉS à 50.000 francs — réorganisation de l'IMPÔT SUCCESSORAL, — taxation des PROFITS DES MONOPÔLES DE FAIT, — dégrèvement de la FRANCE SUR LES VALEURS MOBILIÈRES, par la mise en vigueur de la carte d'identité fiscale créée par les Chambres, et l'aménagement d'une nouvelle fraction de l'IMPÔT GÉNÉRAL SUR LES REVENUS ASSIMILÉS à 50.000 francs, — suppression de leur EXONERATION par les mesures les plus sévères, affecté jusqu'à la satisfaction des besoins financiers à l'équipement de nos forces combattantes en France.

**TOUT CE POUR QUOI LE PEUPLE DE FRANCE A VOTÉ EN MAI ET CE 9 JUIN 1936 !**

Dans le Parlement on se rend compte que le projet de loi sur les mesures d'encadrement financier est un projet de loi qui ne vise pas à augmenter les dépenses de l'État, mais à réduire les dépenses de l'État, et à augmenter les ressources de l'État.

Le projet de loi sur les mesures d'encadrement financier est un projet de loi qui vise à réduire les dépenses de l'État, et à augmenter les ressources de l'État.

C'est pour cela que le projet de loi sur les mesures d'encadrement financier est un projet de loi qui vise à réduire les dépenses de l'État, et à augmenter les ressources de l'État.

**Le Parti communiste français demande — DANS UNE PROPOSITION DE LOI QU'IL A DÉPOSÉE — un prélèvement progressif sur les grosses fortunes**

de 5 %	sur les fortunes de 1 million à 2 millions
7 %	— " — " — " — " — "
9 %	— " — " — " — " — "
12 %	— " — " — " — " — "
15 %	— " — " — " — " — "
20 %	— " — " — " — " — "
30 %	— " — " — " — " — "
50 %	— " — " — " — " — "

Et, en attendant que le prélèvement, qui atteindra plus de 10 milliards, soit organisé et effectué, un prélèvement qui soit utile pour l'impôt unique et progressif sur le revenu.

**il propose une taxe exceptionnelle qui atteindra le budget minime :**

1 %	sur le bruto du capital représentant un revenu de 100.000 fr. à 200.000
2 %	— " — " — " — " — " — " — " — " — " — " — " — "
3 %	— " — " — " — " — " — " — " — " — " — " — " — "
4 %	sur le bruto du capital représentant un revenu au delà de 2 millions

Cette taxe, en profitant pour faire les statistiques des revenus de 1935, donnera plus de 2 milliards.

### L'avance gouvernementale se poursuit sur le front de Talavera

LA BATAILLE CONTINUE DANS LA RÉGION DE BILBAO DE MADRID, ANDRÉ MARTY DÉNONÇE LES MENSONGES DES RÉGULÉS

C'est la bataille de Talavera qui se poursuit sur le front de Talavera. Les régiments de l'armée républicaine ont subi de graves pertes. Les troupes nationalistes ont avancé vers Bilbao. Les régiments de l'armée républicaine ont subi de graves pertes. Les troupes nationalistes ont avancé vers Bilbao.



#### LA BATAILLE DE LA MER DE LA DÉMOCRATIE

S'il y avait une mer de la démocratie, elle serait dans le cœur de chaque homme qui se bat pour la liberté.

Le projet de loi sur les mesures d'encadrement financier est un projet de loi qui vise à réduire les dépenses de l'État, et à augmenter les ressources de l'État.

### Demain, le Parlement aura à se prononcer sur le projet de dévaluation du franc

LA COMMISSION DES FINANCES HIER SOIR, LÉON BLUM A COMMENTÉ LES MESURES PROPOSÉES

Le projet de loi sur la dévaluation du franc a été discuté hier soir par la commission des finances. Léon Blum a commenté les mesures proposées.



#### FRANÇOIS CHAMBERLAIN ET HITLER

Le projet de loi sur la dévaluation du franc a été discuté hier soir par la commission des finances.

Le projet de loi sur la dévaluation du franc a été discuté hier soir par la commission des finances.

### GRANDIOSE DÉMONSTRATION pour barrer la route à la guerre

Une grande manifestation a eu lieu à Paris pour barrer la route à la guerre. Des milliers de personnes ont participé à cette démonstration.

### VISITE ZOOLOGIQUE



IMAGE 5-1. The front page of the September 27, 1936, issue of L'Humanité. Source: Bibliothèque Nationale de France/gallica.bnf.fr



incomes between 500,000 and 1 million francs,” and a 4 percent rate on “wealth brackets earning incomes above 1 million francs” (see Image 5-1). In reality this was merely a trick of presentation. The “exceptional tax” advocated by the Communists was in fact calculated on the basis of incomes declared under the IGR; it applied to labor incomes as well as to mixed and capital incomes; and the marginal rates actually applied to the income brackets—which were 20 percent for incomes between 100,000 and 200,000 francs, 40 percent for incomes between 200,000 and 500,000 francs, 60 percent for incomes between 500,000 and 1 million francs, and 80 percent for incomes above 1 million francs—could be inferred from the 1 percent, 2 percent, 3 percent, and 4 percent rates officially announced for the wealth brackets by assuming that the incomes had been “recapitalized at 5 percent.” In other words, capital brings in an average annual income of around 5 percent of its value, or inversely a given income corresponds to a capital value twenty times higher (or at least a “fictive” capital value twenty times higher in cases where the incomes thus taxed were actually labor incomes).<sup>134</sup> This way of presenting the “exceptional tax” was obviously not neutral: besides the fact that this mode of presentation made the tax rates seem artificially low, the PCF wanted to signify that, generally speaking, very high incomes went to large capital owners, and that these “capitalists” were the Communists’ priority targets. Here we have a particularly clear expression of the great suspicions Communists had about the very idea of “high-wage workers” at that time.<sup>135</sup> This episode also confirms the great symbolic importance of tax schedules: beyond their practical importance for determining the various taxpayers’ liabilities, tax schedules often help to express and to forge a certain mode of representing inequality.

We will also note that the tax increases to which the PCF intended to subject the “200 families” were noticeably heavier than those envisioned by the government of Léon Blum: the new tax schedule adopted by the law of December 31, 1936, included a 40 percent top rate on incomes above 1.33 million francs, whereas the Communists’ “exceptional tax” would have applied a top rate of 80 percent to incomes above 1 million francs, which was all the more imposing given that the “exceptional tax,” by definition, came on top of the old tax schedule, so that the highest incomes would have actually been subjected to a marginal rate far above 100 percent if the Communists’ proposals had been adopted (and that does not even take the schedular taxes into account).<sup>136</sup> This explains why the PCF saw the tax reform envisioned by its partners as quite

timid, and this allowed the Communists to admonish the Socialists and radicals for being unfaithful to the “Program of Popular Unity” (see Image 5-1). In reality, the Léon Blum government respected its commitments in a perfectly honest way, since it instituted a “rapid rise in general tax rates on incomes above 75,000 francs,” as the program adopted in January 1936 had announced. But, given the relatively imprecise formula that had been used in the program (“rapid rise in general tax rates on incomes above 75,000 francs”), it is quite obvious that anyone was free to interpret it in their own way, and in particular that the PCF was in its rights in viewing the “rise” adopted by the government as insufficiently “rapid,” and in thinking that only the specifics the Communists appended to the “Program of Popular Unity” would make possible a genuinely “democratic” tax reform. However, it should be made clear that the Communists had no illusions about the volume of tax revenue that their proposals could generate. According to the estimates that the PCF carried out before the elections and published on the front page of *L’Humanité* in 1936 (see Image 5-1), the “exceptional tax” would provide about 2 billion francs, which, though a very significant increase in the era’s income tax revenue, and not an insignificant windfall in a period of crisis in the public finances, represented less than 1.5 percent of the total income of French households in 1936.<sup>137</sup> By redistributing the revenues from the “exceptional tax” to the rest of the population, “from blue-collar workers to the middle classes,” the Communists could have achieved an average increase in the standard of living of 1.5 percent.<sup>138</sup> There is nothing surprising about this result: the PCF’s revenue forecasts were based on the statistics derived from tabulations of tax returns,<sup>139</sup> and our estimates, which are based on the same source, indicate that the “200 families” (fractile P99.99–100) of 1936, though three times wealthier (relative to the average income) than those of the late twentieth century, collected little more than 1.5 percent of total income.<sup>140</sup> Thus it was inevitable that a tax increase resting mainly on that social group would provide limited revenues (using 100 percent marginal rates makes no difference).

It is true that the Communists had high expectations for their “progressive levy on large fortunes,” which would ultimately bring in much more substantial revenues than the “exceptional tax”: nearly 15 billion francs, according to the estimates published by the PCF (see Image 5-1), or about 10 percent of the total income of French households in 1936.<sup>141</sup> However, besides the fact that the PCF appears to have somewhat “inflated” this estimate,<sup>142</sup> it should be noted

that this “progressive levy on large fortunes,” whose highest rate, applied to fortunes larger than 50 million francs, was 25 percent (see Image 5-1), could by no means represent a permanent mode of redistribution of living standards: by definition, a 25 percent rate levied each year on a stock of wealth can only be implemented for a few years, after which there is no longer anything to tax in that wealth bracket. In other words, though the PCF brochures refrained from being completely clear on this point, there was no doubt that the only possible outcome of the “progressive levy on large fortunes” was the collective appropriation of the means of production, or at least the complete expropriation of large capital owners, after which the question would no longer be one of redistributing the income of capitalists to the rest of the population, but rather one of fairly and efficiently managing an economy from which capitalists have disappeared.

The episode of the “progressive levy on large fortunes” illustrates the ambivalence that has always characterized the attitudes of left-wing parties, and especially those of the Communist Party, vis-à-vis tax redistribution: if one believes that only the abolition of private property in capital can truly make it possible to correct the inequalities of capitalist society, it is quite logical that the income tax and the amelioration of inequality that it permits will elicit only limited enthusiasm, especially in comparison with a wealth tax, with which one could envision the socialist revolution being brought to fruition gently and in a short space of time (at least in theory), provided that the tax rates are set sufficiently high. Without going that far—in other words, in viewing a wealth tax simply as a tool for redistributing income, either in the form of a one-time levy at a high rate, or in the form of a tax at moderate rates levied each year on a permanent basis—a wealth tax also has the merit of very clearly expressing that it is wealth-owners, not salaried white-collar workers, who are being targeted for the redistributive effort, while also avoiding the need to talk about the ins and outs of the income distribution. All of this explains why Socialist and Communist programs, while often highly reticent on the subject of the income tax, have long made the creation of a wealth tax one of their principal demands.

For example, in the 1920s the Socialists agitated for a wealth tax with gusto, and Léon Blum and Vincent Auriol explained with great clarity that it would be an exceptional levy carried out a single time so as to pay off “once and for all” the costs of the war, in an economically more efficient and politically more transparent way than gradual depreciation of the public debt via inflation: lest the treasury bonds end up never being repaid except in funny money, better to

immediately carry out a massive and definitive levy on the *rentiers* who owned the treasury bonds.<sup>143</sup> But the Socialists did not manage to convince their Radical partners of the purity of their intentions (the right wing of the Radical Party glimpsed a Trojan horse for socialist revolution). This wealth tax never saw the light of day, and it was to a great extent the cause of the breakup of the *Cartel des Gauches*; ultimately it was the Poincaré government that in 1926 carried out the definitive monetary stabilization, thanks, notably, to the inflationary erosion of the value of the debt.<sup>144</sup> The “national solidarity tax” established in August 1945 by the provisional government, which was discussed in Chapter 2, partook of the same logic as the Socialist plans of the 1920s: it was a wealth tax whose top rate was almost as high as the top rate in the Communists’ plan of 1935–1936 (20 percent rather than 25 percent), but it was explicitly designed to be carried out only once.<sup>145</sup> Plans for wealth taxes disappeared from Socialist and Communist programs after 1945, then reappeared in the era of the “Common Program.” The key difference was that the wealth tax proposed in the 1970s—and ultimately implemented via the “tax on large fortunes” (IGF, for *impôt sur les grandes fortunes*) created in 1981, then the “solidarity wealth tax” (ISF, for *impôt de solidarité sur la fortune*) created in 1988 after the Chirac government abolished the IGF—was designed to be a permanent tax, and its top rates (around 1.5–2 percent) were relatively moderate. For example, assuming that a stock of wealth earns a 5 percent annual return for its owner, a 1.5 percent rate levied each year on the wealth holding in question would be equivalent to an additional 30 percent levy on the income from this wealth holding.<sup>146</sup> Another important difference between the “progressive levy on large fortunes” proposed by the PCF in 1935–1936 and the wealth taxes created and implemented by the Socialist governments of the 1980s and 1990s is that the “large” fortunes singled out by the latter were far less “large” (in constant francs, and even more so relative to the society of their time) than those that the Communists of 1935–1936 had envisaged taxing at their heaviest rate:<sup>147</sup> “very large fortunes,” like “very high incomes,” seem to have disappeared from the fiscal imagination of the late twentieth century. We will return to this point when we examine the evolution of the levels of large bequests and the tax brackets of the inheritance tax.<sup>148</sup>

Let us return to the history of the Communist programs and the way they dealt with the question of “top” incomes. The first important finding is that the PCF never repeated its “tax the rich” campaign of 1935–1938: after 1938, the

Communists never published entire brochures explaining in detail how and why the rich should be taxed, how much money it would bring in, and so on. The electoral programs issued between the Second World War and the early 1970s were particularly sober, and no references were made with numbers and figures to the idea of raising the tax burden on high incomes.<sup>149</sup> The only Communist proposals for income tax reforms that we have been able to find for this period, and which were never put into the programs, are all proposals for reforming the family-quotient system, and they contain no plans for any notable increases in top tax rates; had they been adopted, the highest incomes would have continued to be subject to approximately the same rates.<sup>150</sup> Then came the era of the Common Program. As already noted, the initial version adopted in 1972 was limited to relatively vague formulations invoking an increase in the tax burden on “high” incomes (“taxes on the working-class population will be lightened,” “we will increase the progressivity of the rate schedule for high incomes”).<sup>151</sup> But the process of updating the Common Program gave the Communists an opportunity to show that they could make more specific commitments than their Socialist rivals. Whereas the *Socialist Proposals for Updating the Common Program* repeated the formulation of 1972 nearly word for word (“the progressivity of the rate schedule for high incomes will be increased”),<sup>152</sup> the Communist version of the *Updated Common Program*, published in the same year (1978), indicated from exactly which income level, and up to what tax rates, the progressivity would be increased: the PCF announced “the creation of new tax brackets, up to 85 percent above 420,000 francs of annual taxable income for two [family-quotient] shares.”<sup>153</sup> In its newspapers, where the complete version of the new income tax schedule proposed by the Communists had been published in 1977, the PCF could write: “this is the first time that an opposition party has presented its policy so clearly, without being fuzzy or vague. No one can any longer seriously maintain that the PCF is hesitant to enter government.”<sup>154</sup> In reality, these Communist proposals of 1977–1978 were far less heavily publicized than those of 1935–1938: they comprised merely two lines in an *Updated Common Program* of nearly 200 pages, whereas the *The Rich Must Pay!* brochures of the 1930s, besides having a far more vigorous tone, had formed the *Economic and Financial Program of the Communist Party* all by themselves. In 1986–1987, the Communist deputies, clearly galvanized by a bill introduced by National Front deputies who were aiming to abolish the income tax within five years, went so far as to propose a new tax schedule whose top

marginal rate would be 100 percent (versus “only” 85 percent in 1977–1978), which would amount to establishing a “maximum income.”<sup>155</sup> But the initiative of 1986–1987 was even less heavily publicized than that of 1977–1978: at the time, the press made almost no mention of it, and the Communist programs of the 1980s and 1990s, like those of their Socialist counterparts, mentioned no specific plans for increasing the tax burden on top incomes.<sup>156</sup>

What do we learn from these Communist tax schedules from 1977–1978 and 1986–1987? The first observation is obvious but important: just as the PCF of 1936 had proposed to raise taxes on very high incomes in a significantly more massive way than did the Léon Blum government, the PCF of 1977–1978 and 1986–1987 proposed the creation of top brackets going up to 85 percent and 100 percent, whereas the Mauroy government limited itself to creating a new 65 percent bracket. In other words, the Communists, when they ventured to make specific proposals, were always marked by a desire to “tax the rich” more massively than the socialists.

Examining these tax schedules from 1977–1978 and 1986–1987 also shows that, throughout the century, the Communists envisioned going after slightly more narrow social groups than those the Socialists targeted. In both the 1930s and the 1970s–1980s, the fateful threshold above which the Communists intended to increase taxes, like the fateful threshold actually implemented by the Socialists when they came to power, was always between the P99.5 and P99.9 levels of the income distribution of the time; but whereas the threshold used by the Socialists was, in both 1936 and 1981, just above the P99.5 threshold, so that almost 0.5 percent of tax units was targeted, the threshold adopted by the Communists in 1935–1938, 1977–1978, and 1986–1987 was slightly further from the P99.5 threshold, so that the share of tax units affected was closer to 0.2–0.3 percent than to 0.5 percent.<sup>157</sup> Thus, in both the late twentieth century and the interwar era, the salaried professionals making up the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99) were even less threatened by the Communists than they were by the Socialists. This finding is also consistent with the stances adopted by the various parties in the 1997–1998 controversy over capping family benefits, which witnessed the Communists taking up the defense of the “middle classes” who were being poorly treated by their Socialist allies.<sup>158</sup> Obviously, it is quite possible that the ordeal of governmental power would have led the Communists to soften their stance somewhat. Nevertheless, the mere fact that the PCF never sought to openly

question the living standards of high-level white-collar professionals (or at least the overwhelming majority of them) deserves to be kept in mind: wage hierarchies have always enjoyed a very broad consensus within French society, and this very broad consensus probably helps to explain their great long-term stability.<sup>159</sup>

The final lesson from the Communist tax schedules of 1977–1978 and 1986–1987 is that the PCF, just like the PS, seemed to have definitively stopped referring explicitly to the astronomical incomes of the “200 families” (fractile P99.99–100). In the Popular Front era, the threshold for the 80 percent top rate of the “exceptional tax” proposed by the Communists was around the same level as the threshold for the top bracket of the tax schedule established by the law of December 31, 1936, namely, about 7 million 1998 francs of fiscal income (before any deductions or exemptions).<sup>160</sup> Inversely, in the 1970s and 1980s, the “very high incomes” singled out by the PCF were not much higher than those that already appeared in the rate schedules of the time. In 1977–1978, the threshold for the 85 percent top marginal rate, expressed in 1998 francs and in terms of fiscal income, was about 1.4 million francs (for a married couple).<sup>161</sup> And in 1986–1987, the threshold for the 100 percent top marginal rate, expressed in 1998 francs and in terms of fiscal income, was around 900,000 francs (for a married couple).<sup>162</sup> The abandonment of any explicit allusion to incomes of several million francs should probably be seen as a parallel of the lack of enthusiasm of the PCF’s postwar “tax the rich” campaigns (or rather noncampaigns): once you refuse to highlight very high capital incomes, which had been slashed by the crisis of the 1930s, the Second World War, and the nationalizations, and at the same time you continue to describe the overwhelming majority of high-level white-collar workers as “middle classes” that must be protected, the margins to maneuver become extremely narrow. This Communist experience confirms the idea that the shocks of the “first twentieth century” left redistribution, in a sense, an orphan.

### 3. *The Impact of the Income Tax on Inequality*

#### 3.1. The Immediate Impact on Inequality of Disposable Income

We come now to the question of the income tax’s economic impact on inequality. The most obvious and most immediate impact is that the income tax



can reduce current disparities in living standards. By definition, progressivity means that income inequality after tax (called “disposable income”) is lower than inequality before tax. When we examined the evolution of income inequality in twentieth-century France in Part One of this book, we looked only at before-tax incomes, and thus we did not take this effect into account: the income levels of the various top-income fractiles whose evolution we followed over the course of the century were estimated before taking income tax into account, as were the series showing the various fractiles’ shares of total income. In other words, the long-term decline in the top-income share of total income that we noted in Part One was actually even larger when expressed in terms of disposable income. How large was this additional reduction in living-standard disparities brought about by the income tax?

Let us begin with an overall look at the case of the top decile of the income distribution (fractile P90–100). According to our estimates, before taking the income tax into account, the top decile share of total income fell from about 45 percent (or slightly more) in the early part of the century to around 32–33 percent in the 1990s (see Chapter 2, Figure 2-6). In the early part of the century, the income tax did not exist, the “four old ladies” levied practically insignificant percentages of taxpayer income, and those levies were, in practice, practically proportional to income (or even slightly regressive for very high incomes).<sup>163</sup> It can thus be said that the 45 percent share of pretax income estimated for the top decile also provides a good approximation for the share of disposable income going to the top decile, and that is also the case for all of the other top-income fractiles. Until 1914, income redistribution carried out by the state was so mild that it may be ignored. In the 1990s, the income tax reduced the average income of the best-off 10 percent of tax units (fractile P90–100) by about 13–14 percent; it reduced the average income of the bottom 90 percent of tax units (fractiles P0–90) by about 3–4 percent; and it reduced the average income of all tax units taken together by about 6–7 percent (see Figures 5-4 and 5-5). The gap between the average tax rate on the top decile and the average tax rate on all households was thus about 7 percentage points (13–14 percent versus 6–7 percent), which means that the income tax resulted in roughly a 7 percent reduction in the top decile’s share of total income; in the 1990s, the top-decile share of before-tax income was about 32–33 percent, and the top-decile share of total disposable income (after taking income tax into account) was about 30–31 percent.<sup>164</sup>

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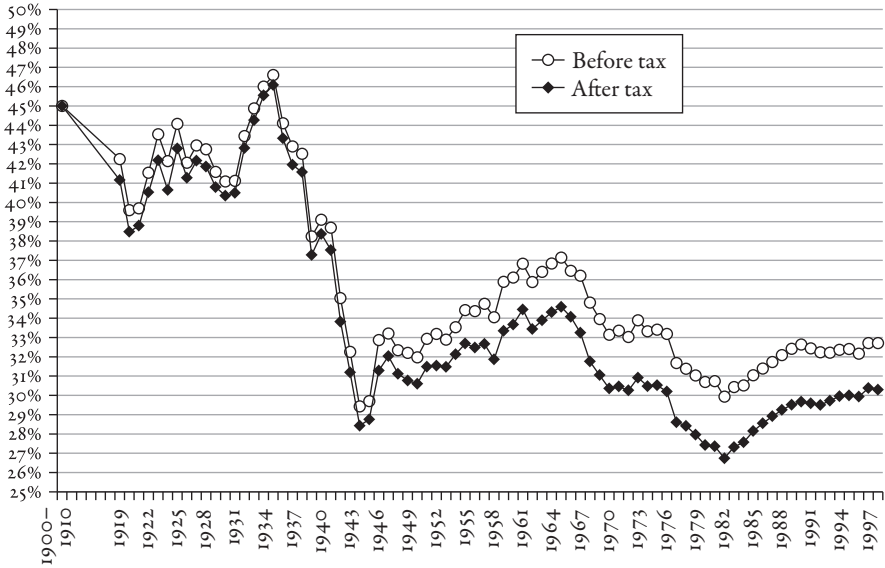


FIGURE 5-8. The top decile share of total income, before and after tax, in 1900–1910 and from 1919 to 1998

Source: Columns P90–100 of Tables B-14 and B-22 (Appendix B)

Thus, we see that the income tax’s contribution to the long-term reduction of inequality was actually relatively modest: the top-decile share of total pretax income fell from about 45 percent in the early part of the century to about 32–33 percent at the end of the century, and the top decile share of total disposable income fell from about 45 percent in the early part of the century to 30–31 percent at the end of the century (see Figure 5-8). In all scenarios, with or without income tax, the key point is that the ratio between the average living standards of the best-off 10 percent of tax units and that of the overall population was about 4.5 in the early part of the century, while the ratio stands slightly above 3 at the end of the century (3.2–3.3 before taking income tax into account, 3.0–3.1 after accounting for income tax): thus taking the income tax into account does not radically change the orders of magnitude. The long-term decline in the top-decile share of total income was approximately the same in terms of pretax income as it was in terms of disposable income.

The modest nature of the redistribution carried out by the income tax is the logical consequence of its very high degree of concentration: once the income tax becomes highly progressive only within the top 1 percent of the income distribution, and the tax rates on the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99) remain relatively moderate, it is inevitable that the tax will be unable to radically alter the orders of magnitude of inequality. To substantially reduce disparities in living standards between the best-off 10 percent of tax units (taken as a bloc) and the rest of the population, the tax required from the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99)—which by definition make up nine-tenths of the tax units in the top decile—would have to be sharply increased. Indeed, the income tax is so highly concentrated that the redistribution achieved by the government (as measured by the reduction in the top-decile share) is not much more significant in the 1990s than it was in the early part of the century.

However, this observation, as important as it is, needs to be qualified. First, redistribution is not limited to the income tax. To study in a satisfactory way the magnitude of redistribution of living standards carried out by the French government over the twentieth century, one would have to begin by estimating how the distribution of all the taxes other than the income tax (consumption taxes, payroll taxes, etc.) evolved as a function of taxpayer incomes, and above all how the various fractiles of the income distribution benefited from the various categories of public expenditure (police, roads, schools, hospitals, etc.) and social services since the beginning of the century.<sup>165</sup> It goes without saying that such an effort would widely exceed the scope of this book.<sup>166</sup> However, we should note that when it comes to the position of the best-off 10 percent of households vis-à-vis the bottom 90 percent, which is what particularly interests us here, the progressive income tax appears to be the principal factor of redistribution.<sup>167</sup>

Most importantly, it would be profoundly erroneous to see the low level of redistribution between the best-off 10 percent of households (taken as a bloc) and the rest of the population as a “failure” of the income tax: the fact is that the income tax was not designed to substantially reduce disparities in living standards between the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99) and the rest of the population, for the good and simple

reason that the position those social groups occupy in the income distribution has always been seen as legitimate. As we have seen, no political movement has ever sought openly to go after the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99). The income tax was always designed to heavily tax the upper layers of the top 1 percent of the income distribution, and to spare incomes below that. The disproportion between the tax rates paid by the lower nine percentiles of the top decile (fractiles P90–95 and P95–99) and those inflicted on the upper strata of the top 1 percent was especially massive in the interwar era, and has shrunk somewhat since then, no doubt following the realization that very high capital incomes had structurally collapsed. But that shift, though interesting, did not bring about a challenge to the essential principle: there was never any question of substantially reducing living standards for the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99), whose tax rates, though significantly higher than in the interwar era, have always remained relatively moderate. The purpose of the income tax was always to go after very high capital incomes, not “high-wage workers.” One may regret such an objective, and we will not take a position on that here. But the fact remains that, given that objective, the income tax played its part perfectly.

Indeed, while the impact of the income tax on the share of total income going to the top decile was relatively limited, the impact on the share going to the top 1 percent, and even more so the upper strata of the top 1 percent, was considerable indeed. At the P90–95 and P95–99 levels, we observe that over the long run the shares of total income were almost as stable in disposable-income terms as they were in pretax terms.<sup>168</sup> But if we look at the top 1 percent, we see that its share of disposable income experienced a significantly more marked decline than did its share of pretax income: in the 1990s, the income tax reduced the incomes of the top 1 percent of tax units by about 25–26 percent (see Figure 5-2), but reduced the average income of all tax units by only 6–7 percent (see Figure 5-5), a difference of nearly 20 percentage points. As a result, the top 1 percent share of disposable income is just over 6 percent in the 1990s, while its share of pretax income is close to 8 percent: the top 1 percent share of disposable income, which was around 20 percent in the early part of the century, was thus reduced by two-thirds over the twentieth century (see Figure 5-9). After taking income tax into account, we ob-

## WHO PAID WHAT?

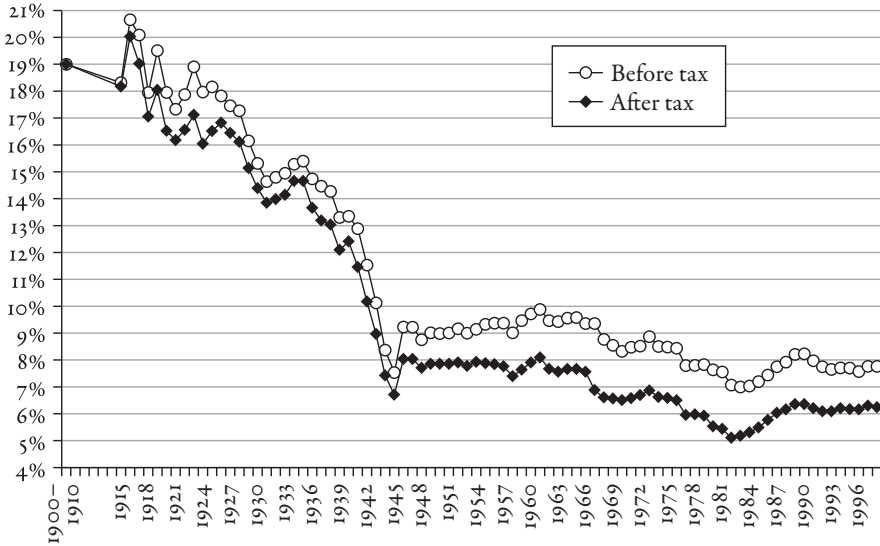


FIGURE 5-9. The top 1 percent share of total income, before and after tax, in 1900–1910 and from 1915 to 1998

*Source:* Columns P99–100 of Tables B-14 and B-22 (Appendix B)

serve that the average income of the best-off 1 percent of tax units at the end of the century is just over six times higher than the average income, rather than eight times higher.

The impact of the income tax is obviously greatest at the level of the “200 families” (fractile P99.99–100). Since the Second World War, the average tax rate on the tax units of this fractile has practically always stood between 40 percent and 60 percent, and has usually gravitated around 50 percent (see Figure 5-3). In the early part of the century, under the “four old ladies,” the average tax rate on the same households was practically zero.<sup>169</sup> As a result, the long-term collapse in the share of total income going to the P99.99–100 fractile was almost twice as marked in disposable-income terms as it was in pretax terms: the P99.99–100 share of pretax income fell from about 3 percent in the early part of the century to 0.5–0.6 percent in the 1990s, while its share of disposable income fell from about 3 percent in the early part of the century to 0.3–0.4 percent in the 1990s (see Figure 5-10). In other words, the ratio between

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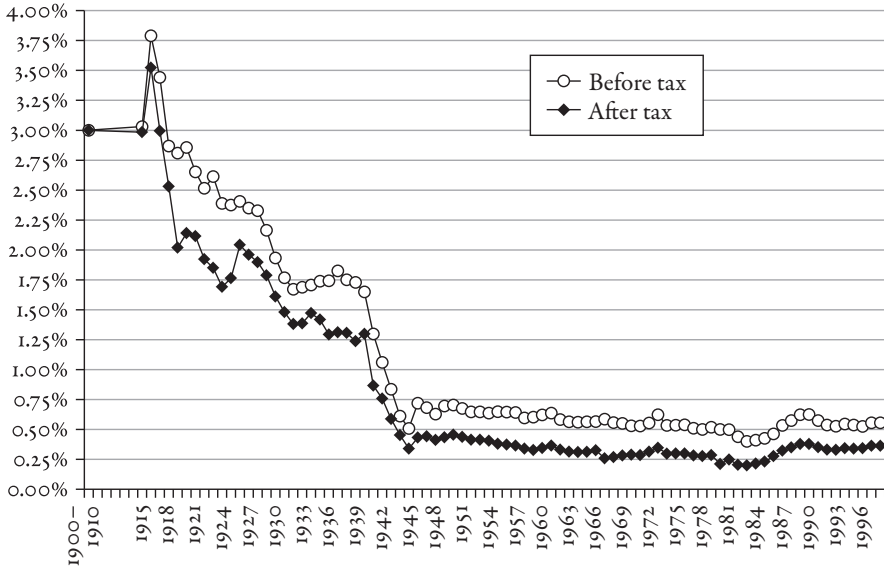


FIGURE 5-10. The “200 families” (fractile P99.99–100) share of total income, before and after tax, in 1900–1910 and from 1915 to 1998

Source: Columns P99.99–100 of Tables B-14 and B-22 (Appendix B)

the standard of living of the “200 families” (fractiles P99.99–100) and the average French standard of living, like the ratio between the “200 families’” living standards and those of the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99), was divided by almost 10 between the twentieth century’s two endpoints (rather than by 5). Here again it should be underscored that the gap between the “200 families” (fractiles P99.99–100) and the rest of the population never stopped being a yawning chasm: a 0.3 percent share of disposable income held by 0.01 percent of the population still means that the households in question have a standard of living thirty times higher than the average. Nevertheless, cutting this yawning gap in half unquestionably represents a real contribution to the reduction of inequality. The income tax never really tried to reduce inequality between the best-off 10 percent of households (taken as a bloc) and the rest of the population, but it has managed to significantly reduce inequality between the best-off 0.01 percent of households and the rest of the population, in other words, the most blatant inequality generated by capitalism.

### 3.2. The Dynamic Impact on Future Wealth Inequality

Moreover, the effect of the income tax was not only an immediate and automatic reduction in current disparities of living standards. The income tax also had a more complex impact on inequality, the effects of which were fully felt only after a number of years: by compressing the disposable-income distribution, the progressive tax structurally alters households saving and accumulation capacities, and thus brings about a reduction of future wealth inequality, and, as a result, future pretax income inequality. Unfortunately, these dynamic effects cannot be assessed with as much precision as the static effects. But there is every reason to believe that they played a decisive role in the long run, especially for very wealthy households, which depend in an essential way on their wealth holdings and the corresponding incomes. In our view, these dynamic effects were the main explanatory factor making it possible to understand why very large wealth holdings and the very high capital incomes that flow from them never truly recovered from the shocks of the 1914–1945 era.<sup>170</sup> In other words, according to this explanation, the effect of the income tax was not only to ensure that the top-income share of disposable income declined more than the top-income share of pretax income, but it was also responsible for the fact that the top-income share of pretax income itself experienced a large long-term decline. In particular, the income tax did not merely make it possible for the P99.99–100 share of disposable income to decline nearly twice as strongly as the P99.99–100 share of pretax income; more importantly, it also made it possible for the P99.99–100 share of pretax income to be divided by 5 over the course of the twentieth century. Without the income tax, the P99.99–100 share of total income probably would have used the half-century since the Second World War to regain its level from before the shocks of 1914–1945, or at least to make up a significant part of the ground it had lost (rather than remaining frozen at its 1945 level). As already noted, the initial dynamic effects of the income tax might also have helped to amplify the phase of collapse, especially over the 1920s, when we observe an almost continuous erosion in the position of very high incomes, despite strong economic growth.<sup>171</sup>

To get a sense of the magnitude of these dynamic effects and the plausibility of this explanation, it is useful to proceed via simulations. Let us begin by trying to understand the income tax's contribution to the collapse phase. We will consider the case of a wealth holder who has accumulated a sufficiently large fortune



(or inherited a sufficiently large fortune) to live on the income produced by this capital. Let us assume that the accumulation phase of this capital stock had taken place in a world without taxes, and that this capitalist is in the habit of consuming most of the income produced by his fortune each year, which allows him to afford an enviable style of life: a private mansion, domestics, second homes, and so on. To simplify, let us even suppose that this capitalist consumes all of his capital income: for example, suppose that each year his fortune brings in an income (net of the cost of managing the wealth) equal to 5 percent of the fortune, and that each year he consumes this 5 percent net return, so that his wealth is completely stationary. In other words, previous generations, or he himself in the first part of his life, accumulated to ensure his prosperity, but he is now content to consume his rents and preserve the value of his wealth. Suppose that a malicious government suddenly decided to tax his income at a substantial rate (for example, a 30 percent rate), and that our capitalist, convinced that this was merely a rough patch, or simply unwilling or unable to scale back his past consumption habits, chooses, at least initially, to maintain his earlier style of life, rather than scaling it back by 30 percent, as would be necessary to preserve the value of his capital.

The key point we wish to emphasize here is that such an attitude would, within an extremely short space of time, bring about a considerable curtailment of the fortune in question. Suppose that the initial fortune was 10 million francs and the net return was 5 percent, so that the capitalist is in the habit of spending 500,000 francs of income each year. With a 30 percent tax rate, the capitalist finds himself with a net-of-tax return of 3.5 percent, thus 350,000 francs of income rather than 500,000 francs. In the first year, he is therefore forced to reduce the value of his capital by 1.5 percent, and in order to preserve his style of life, he sells investment securities or real estate properties for 150,000 francs (or fails to carry out 150,000 francs worth of investment needed to maintain the value of his fortune, which amounts to the same thing). By the second year, he is forced to reduce his capital by larger proportions: he receives an income net-of-tax equal to 3.5 percent of 9.85 million francs, or 344,750 francs, and must therefore reduce his capital by an additional 155,250 francs. And so on over the years that follow: we can thus calculate that 18 percent of the capital will have been eaten away after ten years, 42 percent after twenty years, and so forth, and that after thirty-five years nothing will be left of the initial fortune

(see Table 5-1). If the tax rate is 50 percent rather than 30 percent, then the process by which the accumulated capital is eroded will obviously be even quicker: 28 percent of the capital will have been destroyed after ten years, 64 percent after twenty years, and after twenty-eight years nothing will be left (see Table 5-1). And if our capitalist were accustomed to living with a 10 percent net return rather than a 5 percent net return, then the process moves so rapidly that he does not even have time to realize that he's heading for disaster: with a tax rate of only 30 percent, the capital is completely destroyed after fourteen years (see Table 5-1).

As theoretical as it may seem, this cumulative process of shrinking fortunes seems to us to describe rather well what many capitalists experienced in the interwar era, and especially the 1920s. Before the First World War, under the system of the "four old ladies," wealth holders paid at most 3–4 percent of their incomes in direct taxes; this was therefore a tax-free world (or nearly so), in which capitalists who felt it was time to enjoy past accumulations could afford to consume practically all of their patrimonial income, while maintaining the size of their fortune. Then, suddenly, in the early 1920s, the taxman started levying substantial portions of the highest incomes: the average tax rate on tax units in the P99.99–100 fractile reached 30 percent in the 1919 tax year, a level that continued (approximately) to apply over the years that followed, if we omit the respite offered by Poincaré in 1926, which was short-lived (see Figure 5-3).<sup>172</sup> As a result, the share of disposable income going to the "200 families" (fractile P99.99–100) collapsed to around 2 percent in the early 1920s, even though their share of pretax income at that moment stood at a level not much below that which we estimated for the 1900–1910 years (about 3 percent) (see Figure 5-10). Faced with this almost one-third reduction in their disposable income, the most fatalistic taxpayers no doubt resolved to immediately reduce their consumption by the same proportion. But those who chose to maintain their prewar lifestyle for a few more years must have very quickly suffered the consequences, and we think this process helps to explain why the "200 families" (fractile P99.99–100) share of pretax income experienced a downward trend over the 1920s, falling from almost 3 percent after the war to less than 2.5 percent on the eve of the 1929 crisis (see Figure 5-10). It may also be noted that this roughly 20 percent erosion over the 1920s corresponds precisely to the theoretical 18 percent reduction in wealth (and thus also in income, for a

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TABLE 5-1

*The impact of the income tax on capital accumulation, I*

	$r = 5\%$ , $t = 30\%$	$r = 5\%$ , $t = 50\%$	$r = 10\%$ , $t = 30\%$	$r = 10\%$ , $t = 50\%$
$n = 5$	8	13	17	28
$n = 10$	18	28	41	63
$n = 15$	29	45	75	
$n = 20$	42	64		
$n = 25$	58	85		
$n = 30$	77			
...				
	$n^* = 35$	$n^* = 28$	$n^* = 18$	$n^* = 14$

*Explanation:* With income taxation at a rate  $t=30$  percent, the owner of capital that earns a return of  $r=5$  percent and who chooses to maintain his initial standard of living (from before the introduction of the tax) will have destroyed 8 percent of his capital after  $n=5$  years, 18 percent of his capital after  $n=10$  years, etc., and will have totally exhausted his capital after  $n^*=35$  years (before the introduction of the tax, the wealth holder consumed all of his return each year, and his capital was stationary).

*Note:* The formulas corresponding to these calculations are the following:  $x_n = t[(1 + (1-t)r)^n - 1] / (1-t)$ , and  $n^* = \log(1 + (1-t)/t) / \log(1 + (1-t)r)$ .

given return) that would be experienced by a capitalist choosing to maintain his prior standard of living for ten years despite a 30 percent tax rate on a 5 percent return (see Table 5-1).

We come now to the key question, namely, the impact of the income tax on the process of reconstituting new large fortunes that began in 1945. Following the destruction of the First World War, hyperinflation, and, above all, the crisis of the 1930s and the destruction of the Second World War—which, as we just saw, were probably amplified by the initial dynamic effects of the income tax—the “200 families” (fractile P99.99–100) found itself in 1945 with an average pretax income (expressed in constant francs) and a share of total pretax income roughly five times smaller than at the start of the century.<sup>173</sup> Given the magnitude of this collapse, the question is not whether it was possible in 1945 to maintain the same lifestyle as at the beginning of the century: the few capitalists who persisted in this attitude beyond the 1920s had totally used up their wealth by the end of the Second World War, and it had been a long time since they belonged to the P99.99–100 fractile of the income distribution. Therefore,

let us now consider the case of capitalists (or aspiring capitalists) who understood that it had become necessary to reduce their lifestyle if they hoped one day to regain past fortunes, and see what dynamic impact the income tax had on this process of capital accumulation, and on the size of the fortunes that they could hope to attain. The more “modest” a style of life these wealth owners adopt, the more they will devote a significant share of their capital incomes to accumulation, and the more they can hope to rebuild (or build) a large fortune. In a world without taxes, this process of accumulation can be extremely rapid. For example, let us consider a capitalist who in 1945 has a “medium-sized” patrimony (whether due to a very sharp reduction in its size over the 1914–1945 years, or to the fact that the person in question comes from a new generation of entrepreneurs and has not yet had enough time to accumulate a large fortune), and this patrimony earns him an annual return of 5 percent. This capitalist must choose a lifestyle, and for simplicity, we will assume that he retains this lifestyle for the next fifty years. If he chooses a style of living that requires him to spend 100 percent of the return on his initial wealth holding, then by definition he will have nothing to save, and his fortune will be completely stationary. But if he adopts a lifestyle that costs him 80 percent of the return on his initial wealth holding, his fortune will have multiplied by a factor of 3.1 after fifty years; with a style of life in which he spends 60 percent of the return on his initial wealth holding, his fortune will have multiplied by a factor of 5.2 after fifty years, and so on (see Table 5-2).

The key point is that the income tax strongly limits these possibilities of capital accumulation, even for capitalists who are willing to devote most of their disposable income to their accumulation strategy. Suppose, for example, that the taxman takes 50 percent of the income of the capitalist in question each year, which is the level around which the average tax rate on fractile P99.99–100 has gravitated since the Second World War (see Figure 5-3). By definition, our capitalist will only be able to increase his fortune if he adopts a style of life in which he spends less than 50 percent of the return on his initial patrimony (before tax): if he chooses a more expensive lifestyle he will merely squander his fortune within a short space of time, as we have seen (see Table 5-1). If he adopts a lifestyle in which he spends 40 percent of the return on his initial patrimony (before tax), his fortune will have multiplied by a factor of only 1.5 after fifty years, a growth rate less than half of that which would be obtained in a world without taxes by a capitalist adopting a lifestyle twice as expensive (3.1),

less than a third the rate obtained in a world without tax by a capitalist adopting a lifestyle that was 1.5 times more costly (5.2), and nearly one-fifth the rate that would be obtained in a world without tax by a capitalist adopting the same style of life (7.3) (see Table 5-2). In other words, for a given lifestyle, the existence of the income tax results in wealth accumulation over a fifty-year period that is roughly one-fifth of what it would be possible to build if the tax did not exist. The dynamic impact of the income tax would be even more massive if we assumed that the accumulation process was carried out by a capitalist who managed to guarantee a particularly high return on his capital (for example, because he headed strongly expanding businesses that operated in new economic sectors). With an annual return of 10 percent (rather than 5 percent), we can calculate that a capitalist who accepts a lifestyle in which he spends 60 percent of the initial return on his capital will have multiplied his patrimony by a factor of 47.6 after fifty years in a world without taxes; in comparison, with a 50 percent tax rate, a capitalist enjoying the same 10 percent return and adopting a lifestyle in which he spends 20 percent of the initial return on his capital (before tax)—that is, a lifestyle three times more “modest,” which represents a far greater effort of saving—will have multiplied his patrimony by a factor of only 7.3, a growth rate that is more than six times smaller (see Table 5-2). The idea that the existence of the income tax could explain why fortunes accumulated since 1945 (and thus the very high capital incomes observed since 1945) have remained frozen at levels around one-fifth of those that were reached by fortunes at the beginning of the century (relative to the average incomes of the respective periods)—fortunes that had been the product of an (almost) tax-free world—thus seems relatively realistic from a quantitative point of view.

It must be emphasized that these simulations do not take into account the progressive inheritance tax, which, like the progressive income tax, assumed quite considerable importance after the First World War for wealthy taxpayers. At the P99.99–100 level, we can estimate that the average tax rate paid on the inheritance tax, which had been barely 5 percent at the beginning of the century and until 1914, suddenly rose to about 20–25 percent in the interwar period (even 30–35 percent in the early 1920s), 30–35 percent in the 1950s, 15–20 percent in the 1960s and 1970s, and again 30–35 percent in the 1980s and 1990s.<sup>174</sup> Since the First World War, therefore, in order for a stock of capital to hold its own over time, and therefore in order to be able to increase its value, it is no longer enough that it not be worn out: each generation must manage to pass

WHO PAID WHAT?

TABLE 5-2  
*The impact of the income tax on capital accumulation, II*

	<i>r</i> = 5%, <i>t</i> = 0%	<i>r</i> = 5%, <i>t</i> = 30%	<i>r</i> = 5%, <i>t</i> = 50%	<i>r</i> = 10%, <i>t</i> = 0%	<i>r</i> = 10%, <i>t</i> = 30%	<i>r</i> = 10%, <i>t</i> = 50%
<i>c</i> = 100%	1.0	0.0	0.0	1.0	0.0	0.0
<i>c</i> = 80%	3.1	0.3	0.0	24.3	0.0	0.0
<i>c</i> = 60%	5.2	1.7	0.5	47.6	5.1	0.0
<i>c</i> = 40%	7.3	3.0	1.5	70.8	13.2	3.1
<i>c</i> = 20%	9.4	4.3	2.5	94.1	21.3	7.3

*Explanation:* In a world without tax (*t* = 0 percent), the owner of a capital stock that returns a rate *r* = 5 percent can multiply his capital by a factor of 9.4 after fifty years if he is willing to reduce his consumption to *c* = 20 percent of the income provided by his initial patrimony. In a world with a tax rate *t* = 50 percent, the owner of a capital stock that returns a rate *r* = 5 percent can multiply his capital by a factor of 2.5 after fifty years if he is willing to reduce his consumption to *c* = 20 percent of the income (before tax) provided by his initial patrimony (the calculations assume that the capital owner maintains the same absolute level of consumption for fifty years).

*Note:* The formula corresponding to these calculations is the following:  $x_n = c / (1 - t) + [(1 + (1 - t)r)^n] [1 - c / (1 - t)]$ .

on a significantly larger patrimony than it had itself inherited, otherwise the inheritance tax and the passing of generations will inexorably reduce the family fortune to negligible levels. The situation was totally different in the nineteenth century and until 1914, when the passing of the generations took place without a loss of capital (or nearly so). The coefficients of capital accumulation indicated in Table 5-2 are thus overestimates, probably by at least a third (assuming that a capitalist dynasty in 1945 that accumulated over fifty years faced the inheritance tax at least once), and their differences vis-à-vis the coefficients obtained for the tax-free pre-World War I world are overestimated by the same amount.

It goes without saying that all of these little calculations, though they confirm the quantitative plausibility of the proposed explanation, in no way demonstrate that things actually happened this way. To rigorously study the dynamic impact of the income tax on the accumulation of large fortunes in twentieth-century France, precise information would be needed concerning how the patrimonial strategies of the different social groups in question adapted to the new tax conditions, how the saving rates of the various fractiles evolved over the course of the century, and so on.<sup>175</sup> In addition, current inequality of disposable

income impacts not only saving capacities and thus future inequality of wealth and capital income: current inequality of disposable income is also an important determinant of investment capacities and thus of future inequality of mixed incomes, and it can even have an impact on future wage inequality.<sup>176</sup> The question of the dynamic impact of the income tax on pretax income inequality is thus extremely complicated, and it is probably impossible to demonstrate with certainty that the nonreconstitution of very high incomes is explained by this process. Nothing allows us to assert that other factors did not also play an important role.

It must be noted, however, that it is not easy to find plausible explanations for why the half-century of economic growth that took place after 1945 did not permit the reconstitution of very high capital incomes at a level comparable to those that existed at the start of the century. In particular, the idea that we moved from a family capitalism, full of large individual shareholders, to a capitalism without capitalists, synonymous with very large companies with scattered shareholders, is not really an explanation. The whole question is why such a shift took place; to be sure, many old-style capitalists were decimated by the crises of 1914–1945, but it is hard to see what irrepressible economic or technological forces could explain why new capitalists could not take their places or why big individual shareholders definitively disappeared. The explanation based on the progressive income tax (and on the progressive inheritance tax) has the obvious virtue of resting on a clearly identifiable break: capitalists had been able to “accumulate in peace” throughout the nineteenth century and up to 1914, whereas in the interwar period, and even more so since the Second World War, they have had to face very substantial taxes, levied annually on their incomes, and once per generation on their wealth. In the absence of other genuinely satisfying explanations, and keeping in mind the inherent uncertainties in the analysis of such a complex process, the explanation proposed here seems the most convincing one. To firm up this conclusion, however, we must make sure that the collapse and nonreconstitution of large patrimonies does not represent a “tax illusion,” a theory according to which the phenomenon we seek to explain quite simply never existed (Chapter 6). An examination of foreign experiences will then allow us to study the extent to which the model proposed here to account for the French experience also applies to other countries (Chapter 7).



PART THREE

FRANCE AND THE  
KUZNETS CURVE



## Was the “End of the *Rentiers*” a Tax Illusion?

Is it possible that the “end of the *rentiers*” was a tax illusion? More precisely, is it possible that the collapse and nonreconstitution of very high capital incomes—a phenomenon we have observed at the level of tax returns, and the only major structural transformation in income inequality in twentieth-century France—actually reflects a totally artificial shift, explained simply by a vertiginous drop in the share of very high capital incomes actually declared to the tax authorities? As noted in the Introduction, the spectacular magnitude of the observed phenomenon invites a degree of skepticism about the importance of this explanation. Moreover, we have seen that the “real” economic impact of the progressive income tax (and the progressive inheritance tax) on the accumulation and reconstitution of large wealth holdings was sufficiently massive to explain all by itself why these wealth holdings (and their corresponding incomes) never recovered from the shocks of the 1914–1945 period, without any need to appeal to the idea of a collapse in the share of very high capital incomes actually declared to the tax authorities. In Chapter 7, we will also see that the same type of structural collapse is observed in all developed countries, which suggests again that this is a quite real economic shift.

However, given the importance of this phenomenon for our inquiry (without it, no long-term compression of income inequality would have taken place in twentieth-century France), it seems necessary to bring together all of the available data that might allow us to evaluate as precisely as possible the validity of this explanation based on the idea of a tax illusion. We will begin by evaluating the magnitude of the biases introduced by capital incomes that are legally exempt from the progressive income tax, the list of which has lengthened considerably since the reform of 1914–1917 (section 1). Then we will see what can be said about the magnitude of tax fraud strictly speaking, and more importantly how it evolved over the course of the century (section 2). Finally, we will try to evaluate the plausibility of a collapse and nonreconstitution of large fortunes, not by situating ourselves from the point of view of the resulting

capital incomes, but from the point of view of the fortunes themselves, and we will do this by using the only statistical source that allows us to study the evolution of wealth inequality over the entire twentieth century, namely, bequest declarations (section 3). Let us make clear from the outset that, to our mind, these data represent the most convincing proof of the very real nature of the “end of the *rentiers*”: the bequest declarations will allow us to observe a dizzying long-term decline in the level of very large bequests, the magnitude and time pattern of which are in total conformance with what we have observed on the basis of income tax returns—which is especially interesting since these two statistical sources are highly independent of each other.

### *1. The Problem of Capital Incomes Legally Exempt from Income Tax*

Let us begin by recalling the overall magnitude of the phenomenon we seek to explain. Between the two endpoints of the twentieth century, average income per tax unit, expressed in 1998 francs, multiplied by a factor of about 4.5 (see Chapter 1, Figure 1-6). The average income declared by the first nine percentiles of the top decile—that is, by fractiles P90–95 and P95–99 (the “middle classes” and “upper-middle classes”)—experienced approximately the same growth as the average income, with growth coefficients of about 4–4.5 between the century’s two endpoints (see Chapter 2, Figure 2-5). But if we move up to the top strata of the top 1 percent of the income distribution, we observe smaller and smaller growth coefficients, and even a complete absence of any increase in purchasing power for the wealthiest 0.01 percent of tax units: in the late 1990s the average income declared by the tax units of the P99.99–100 fractile (the “200 families”), expressed in 1998 francs, still had not regained its level from the beginning of the century (it is about 10–20 percent smaller) (see Chapter 2, Figure 2-7). In other words, the ratio between the incomes of the “200 families” (fractile P99.99–100) and the average income—along with the ratio between the incomes of the “200 families” (fractile P99.99–100) and those of the “middle classes” and “upper-middle classes” (fractiles P90–95 and P95–99)—fell by a factor of about 5 over the course of the twentieth century.

In this section, we will try to determine the extent to which the existence of capital incomes legally exempt from income tax, which do not appear in tax

returns and which we have not so far sought to take into account, might explain this phenomenon. Actually, we will focus on investment income: real estate incomes have enjoyed certain tax breaks over the twentieth century (notably the exemption for “fictive” rents since the 1964 tax year), but as we have seen, real estate incomes have always been of limited importance for recipients of very high incomes, so taking such exemptions into account could result only in a relatively small markup (at most about 5–10 percent) of income for the “200 families” (fractile P99.99–100) at the end of the century.<sup>1</sup> Among the investment incomes that have benefited from partial or complete exemptions, we will distinguish between those that have gradually left the field of the progressive income tax over the twentieth century—incomes subject to the optional levy and incomes from various exempt savings accounts and savings plans (section 1.1)—and the case of “incomes” that, because of their very particular form, have never been subject to the general progressive income tax, such as credited interest on life insurance contracts (section 1.2), capital gains (section 1.3), and the undistributed profits of businesses (section 1.4).

### 1.1. The Case of Incomes Subject to the Optional Levy and Incomes from Savings Accounts

As we saw when examining income tax legislation, there are two major categories of investment income that had belonged to the progressive income tax base under the system established in 1914–1917, but that exited that base late in the century: (1) income from bonds, debt notes, and other fixed-income investments, which have benefited from the optional levy regime since the 1965 tax year; and (2) income from various completely tax-free savings accounts and savings plans, the list of which has lengthened considerably since the late 1950s.<sup>2</sup> By definition, these two income categories were not taken into account in the estimates of the incomes of various top-income fractiles presented in Chapter 2, which we reviewed earlier, since those estimates are based solely on incomes declared under the progressive income tax. The amounts in question are far from negligible: in the late twentieth century, the overall volume of these two income categories has far exceeded that of the capital incomes that are declared under the progressive income tax.

In the late 1990s, capital incomes declared under the progressive income tax (mainly dividends from “directly” owned stocks) represented just over

100 billion francs per year.<sup>3</sup> Meanwhile, the volume of income subject to the optional levy exceeded 60 billion francs per year,<sup>4</sup> and the volume of income received each year by holders of various completely tax-free savings accounts and savings plans (*livrets A*, *livrets bleus*, CODEVI, LEP, PEL, PEP, PEA, etc.) reached 130 billion francs.<sup>5</sup> We can see, then, that it is no exaggeration to say that the exceptional regimes have become the rule and the standard legal regime has become the exception: in the late 1990s, the overall volume of income subject to the optional levy or earned on various completely tax-free savings accounts and savings plans was around 200 billion francs per year, almost twice the volume of investment income declared under the progressive income tax. If these two exceptional regimes disappeared—that is, if the optional levy were abolished and if all incomes from exempt savings accounts and savings plans had rejoined the general income-tax system, as had been the case under the tax system established in 1914–1917—then the volume of investment income subject to the progressive income tax schedule would have suddenly multiplied by a factor of about 3. These figures give a sense of the spectacular evolution in the tax treatment of investment income over the twentieth century.

As spectacular as they are, these figures are nevertheless insufficient to allow an accounting for these two income categories to explain the phenomenon of collapse and nonreconstitution of very high capital incomes that is of interest to us here. For example, if we assume that the incomes subject to the optional levy and the incomes from various totally exempt savings accounts and savings plans are distributed in the same way as investment incomes declared under the progressive income tax, that would mean the investment incomes declared by the various top-income fractiles would have to be multiplied by a factor of about 3 to obtain the “real” incomes that would have been declared if the 1914–1917 rules had persisted. Since investment income as a share of total income declared by the various top-income fractiles in the 1990s reached 50–55 percent at the level of the “200 families” (fractile P99.99–100),<sup>6</sup> that would mean that the average income of fractile P99.99–100 in the late twentieth century would have been about twice the average income actually declared by this fractile. This would be a considerable markup, which, notably, would mean that the purchasing power of the “200 families” would have doubled (rather than stagnating) between the century’s two endpoints. Yet, while quite considerable, this markup would very clearly be insufficient to explain the phenomenon in question: the

ratio between the incomes declared by the "200 families" (fractile P99.99–100) and the average income fell by a factor of about 5 between the century's two endpoints, not by a factor of about 2.

Most importantly, the assumption that the incomes subject to the optional levy and incomes from the various exempt savings plans and savings accounts (mainly interest) are distributed in the same way as incomes subject to the progressive tax schedule (mainly dividends) is a totally unacceptable hypothesis, and it leads to an extremely large overestimate of the coefficient by which the declared incomes of the "200 families" (fractile P99.99–100) would have to be marked up in the 1990s. Indeed, all of the information available to us shows that owners of large investment fortunes have always favored investment in stocks rather than fixed-income investments, so that very large capital incomes have always been composed principally of dividends rather than interest. This is especially clear when it comes to interest from the various tax-exempt savings accounts and savings plans. Indeed, these various forms of "popular" savings have always been "capped," meaning that the amounts one may invest tax-free are not allowed to exceed a certain amount. In the 1990s, the cap was 100,000 francs for *livrets A*, 400,000 francs for PELs, and 600,000 francs for PEPs and PEAs.<sup>7</sup> Someone who used all of these savings accounts and savings plans, in each case investing the maximum amount permitted, could thus build a totally tax-free fortune of about 2 million francs.<sup>8</sup> Assuming an average interest rate of about 5 percent, which is relatively optimistic for this type of investment, one could thus receive a completely tax-exempt income of about 100,000 francs per year.<sup>9</sup> This is a considerable sum, which again shows the extent to which investment incomes have shifted out of the general income tax regime in the late twentieth century: obviously a wage of 100,000 francs per year does not enjoy the same regime. But as considerable as it is, this sum is entirely trivial for tax units of the P99.99–100 fractile: in the 1990s, the average annual income declared by the "200 families" (fractile P99.99–100) was about 7–8 million francs,<sup>10</sup> and thus these 100,000 francs of exempt interest per year would represent only a bit more than 1 percent of the total income of these tax units.<sup>11</sup> Also, there is every indication that such households do not even concern themselves with "maxing out" the various exempt savings accounts and savings plans, given the constraints and low rates of return connected to these "collective" forms of saving: for example, the studies on household wealth carried out by INSEE in



the 1990s indicate that the percentage of households holding tax-exempt savings accounts and savings plans declined significantly as one moved into the upper strata of the income and wealth distributions.<sup>12</sup>

The case of incomes subject to the optional levy deserves further attention, since this exceptional regime has never been capped. In the 1990s, it was possible to own a fortune of infinite size in the form of bonds, credit notes, and various fixed-income investments subject to the optional levy, and the corresponding interest—all of which belonged to the IGR tax base under the tax system established in 1914–1917, including the interest on various bonds, credit notes, and annuities issued by the state (without exception)—will in this case escape our estimate of the income level of the “200 families” (fractile P99.99–100). However, the sources we have available, though highly imperfect, allow us to be certain that these fixed-income investments were of limited importance for owners of large fortunes. First of all, we have the wealth studies carried out by INSEE, which allow us to confirm that investment securities are the hallmark of large fortunes: small wealth holdings rest mainly on liquid assets (checking accounts, currency, etc.) and savings accounts; then, for the largest fortunes, real estate assets (and to a lesser extent savings plans) gain in importance; and finally, investment securities become predominant for very large fortunes.<sup>13</sup> Not all of these studies make a distinction between stocks and bonds within the category of investment securities, but when they do, the results make it possible to observe that this rise in the share of investment securities as a function of wealth levels is mainly explained by the very rapid growth of stocks, and that the growth of bonds is far less rapid, even insignificant.<sup>14</sup> Moreover, these results are entirely consistent with the tabulations of bequest declarations carried out by the tax administration as a function of both overall bequest size and the categories of assets bequeathed. These “complete” tabulations were carried out for only a limited number of years, but the results point to the same fundamental regularity in all available years: liquid assets and real estate have always been of distinctly lesser weight for very large bequests, which for the most part are composed of investment securities; most importantly, the share of bonds and notes in total investment securities has always been a strongly declining function of the overall bequest size, and the share is usually below 20 percent for very large bequests, which have always been made up predominantly of stocks.<sup>15</sup>

Let us add that from an economic point of view, there is nothing surprising about this regularity. The return on stocks has always been much higher than

that on bonds: stocks are more risky, because one can never know in advance whether the company in question will earn profits or distribute large dividends; but as long as one holds them for a sufficiently long period of time, they are far more advantageous than bonds, whose sole merit is that they assure a fixed and steady return, whatever the vagaries of the economic cycle (except in the event of hyperinflation). It is thus perfectly logical that owners of large fortunes, who can afford to wait a few years before obtaining large dividends, and who also have the means to diversify their portfolios to limit their risk, have always chosen to invest the bulk of their fortunes in the form of stocks rather than bonds: the higher return thus obtained can easily offset the less advantageous tax treatment to which dividends are subject. Let us add that stockholders are the true owners of firms: it is they who make up the boards of directors and take the major strategic decisions, while bondholders make do with collecting interest and have no right to be informed about the management of companies. This "power" conferred on stockholders, which comes on top of their greater return, and which, in the eyes of the individuals concerned, is often of considerable value, helps to explain why large fortunes are usually made up of stocks. For example, there is nothing surprising about a dynasty that wishes to keep control of the L'Oréal company keeping the bulk of its portfolio in the form of L'Oréal shares (and a few other companies, to limit risk), even though the dividends thus obtained are more heavily taxed than the interest the dynasty could receive by selling its shares and reinvesting its fortune in the form of treasury bonds or debt securities issued by the National Mail.

Thus, there is no doubt that the investment income declared under the progressive income tax (mainly dividends) is by far the most unequally distributed and most highly concentrated of all investment incomes: it is more unequally distributed than incomes subject to the optional levy, which in turn are more unequally distributed than the income from the various completely tax-free savings accounts and savings plans. Using the bequest statistics available for the 1990s, we can estimate that the value of bonds and bills held by the tax units of fractile P99.99 was about 15–20 percent of the value of their shares;<sup>16</sup> assuming, optimistically, that these bonds and bills earned them the same average annual return as their stocks, we can thus assume that the incomes subject to the optional levy that are received by the tax units of fractile P99.99–100 in the 1990s represented about 15–20 percent of the investment incomes they declared under the progressive income tax. Since those investment incomes represented

about 50–55 percent of the total incomes declared by those tax units,<sup>17</sup> taking the incomes subject to the optional levy into account would thus cause us to mark up our estimate of the average income of the “200 families” (fractile P99.99–100) at the end of the century by about 10 percent (at a maximum). To be sure, an approximate 10 percent structural markup is not totally negligible, and in any event it is far less negligible than the markup associated with exempt savings accounts and savings plans, which, as we saw, could not exceed 1 percent and is probably significantly less. But the key fact that interests us here is that the maximum overall markup of about 10 percent is about  $1/40$  the 400 percent markup that would have to be applied to our estimates of the average income of the “200 families” (fractile P99.99–100) in the 1990s for the ratio between the average income of this fractile and the average income overall to have regained its early twentieth-century level at the end of the century. We can see, then, that accounting for the two major categories of exemptions that appeared over the course of the century (incomes subject to the optional levy and incomes from various completely tax-free savings accounts and savings plans) can in no way suffice to explain the phenomenon of the nonreconstitution of large fortunes or to validate the theory of a “tax illusion,” however greater the uncertainties inherent in any such estimate.<sup>18</sup>

### 1.2. The Case of Interest Credited on Life Insurance Contracts

The case of interest credited on life insurance contracts is more complicated than that of income subject to the optional levy or that of income from the various savings accounts and savings plans. An initial difficulty comes from the fact that the “income” corresponding to life insurance contracts has a relatively ambiguous status, insofar as it is, in principle, never pocketed by the individuals who have chosen to invest their money in this way: an individual invests a certain amount of money in the form of a life insurance contract, to the benefit of another individual (their spouse, their children, etc.); this sum is then invested by the insurance company, and the investment thus produces interest, which is added to the initial capital; finally, upon the death of the individual who undertook the saving, the beneficiaries receive the entirety of the capital accumulated up to that point. This very particular status explains why interest credited to life insurance contracts has never been considered by the tax laws as fully belonging to “income,” and why such interest has never been subject to income tax and

has never appeared in income tax returns.<sup>19</sup> However, it would be unjustified not to take them into account; although such interest does not allow one to increase one's current standard of living, it does contribute to an increase in the wealth of the individuals concerned. In addition, not all life insurance contracts continue to their "normal" term (that is, the death of the saver); they are often used to disguise medium-term saving, for instance, in view of retirement.<sup>20</sup> Most importantly, this form of investment enjoyed a considerable wave of popularity throughout the 1980s and 1990s, to such an extent that, according to the national accounts, the total amount of interest credited on life insurance contracts had reached 150 billion francs per year in the late 1990s,<sup>21</sup> which was roughly 1.5 times the total amount of investment income declared under the progressive income tax. This popularity is closely linked, on the one hand, to the aging of the population, and on the other hand, to the very advantageous tax status these incomes enjoy: in addition to the fact that interest credited on life insurance contracts has never been subject to the income tax, the amounts passed on to heirs via life insurance contracts have been exempt from inheritance tax since the law of July 13, 1930, as we will see in section 1.2 of this chapter.

A second difficulty is because it is extremely difficult to determine the quantitative importance such income had in the early part of the century and the interwar period. Indeed, it is only since the 1960s that the national accounts have separated out this interest from the total interest and investment income received by households: for earlier periods, interest credited on life insurance contracts was in theory taken into account by the national accounts, but it is impossible to know the exact amount.<sup>22</sup> The available data allow us to observe a very sharp increase in the amount of such interest since the early 1960s, and especially over the 1980s and 1990s,<sup>23</sup> but it would be going too far to conclude that such incomes were of negligible importance in the early part of the century and the interwar period. It cannot be ruled out that life insurance played an important role in those periods, and that this form of investment then experienced a very sharp decline following the hyperinflation of the Second World War, before entering a new boom period in the final third of the century.<sup>24</sup>

In any event, the information we have available concerning the distribution of life insurance contracts in the 1990s demonstrates with certainty that—even assuming such incomes did not exist in the early twentieth century and the interwar period—accounting for interest credited on life insurance contracts at the end of the century cannot explain the phenomenon of the nonreconstitution

of large fortunes. In effect, all available studies show that in terms of concentration and inequality of distribution, life insurance occupies an intermediate position between savings accounts and savings plans, on the one hand, and investment securities on the other: life insurance is far less “popular” than the various savings accounts and savings plans, but it is far more so than investment securities, and especially stocks. This is particularly true for very large fortunes: while the weight of stocks and dividends rises extremely rapidly as one enters the upper strata of the top decile of the income distribution (and even more so as one enters the upper strata of the top 1 percent), the weight of life insurance and interest credited on life insurance contracts varies relatively little within the top deciles, and even tends to decline slightly as one enters the top 1 percent. This regularity appears very clearly in the studies of income carried out by INSEE in the 1980s and 1990s,<sup>25</sup> as well as in the wealth studies carried out in the 1990s,<sup>26</sup> which suggests that it is a very robust property.

This regularity is also entirely consistent with the fact that life insurance contracts, though tax-advantageous and economically low-risk, also come with certain institutional constraints, and do not give their holders the power, freedom, and high returns that only direct ownership of stocks can offer to large fortunes: for the latter, life insurance is clearly of far greater interest than exempt savings accounts and savings plans, but it often plays only a supplementary role compared to directly held stocks. On the basis of these studies, we can estimate that interest credited on the life insurance contracts owned by the tax units of the P99.99–100 fractile of the income distribution equals about 20 percent (at a maximum) of the investment income declared by those tax units under the progressive income tax.<sup>27</sup> Since that investment income represents about 50–55 percent of the total income declared by those tax units,<sup>28</sup> taking interest credited on life insurance contracts into account would lead us to mark up our estimate of the average income of the “200 families” (fractile P99.99–100) in the 1990s by about 10 percent (at a maximum), which, again, is quite insufficient compared to the 400 percent markup that would have to be applied in order for the ratio between the average income of this fractile and the overall average at the end of the century to have regained its level from the early twentieth century.

However, as was the case with incomes subject to the optional levy and the income from exempt savings accounts and savings plans, it would be too much to conclude that interest credited on life insurance contracts has had no signifi-

cant impact on income inequality. In reality, the results we have obtained for all of these incomes show above all the extent to which the exemptions benefiting investment income, especially under the exceptional regimes instituted since the Second World War, were designed so as to favor the reconstitution of "middling" wealth holdings, rather than that of very large fortunes. To be sure, the holders of very large fortunes have benefited from the slow march toward a "single" income tax, and from the creation of the tax asset, but the important fact is that their income of choice (dividends) has never escaped the progressive income tax schedule, which explains why the share of investment income in the total income declared by the "200 families" at the end of the century settled at the same level as in the interwar period (about 50–55 percent in both cases),<sup>29</sup> despite the very strong growth in the overall volume of exempted incomes. Inversely, while it is by definition very difficult to determine precisely how incomes that are not declared under the progressive income tax are distributed, there is no doubt that the creation of the optional levy, the proliferation of exempt savings accounts and savings plans, and the spread of life insurance explain to a very large extent why the investment incomes declared by the "middle classes" and "upper-middle classes" (fractiles P90–95 and P95–99) still had not regained the weight they had in the interwar period. In the interwar era, investment income could represent up to 7–8 percent of the total income declared by the "middle classes" (fractile P90–95) (the equivalent of almost a month of supplementary income), but in the 1990s it represented only 2 percent (the equivalent of a week of supplementary income),<sup>30</sup> and we can estimate that at least half the difference is explained by income subject to the optional levy, income from savings accounts and savings plans, and interest credited on life insurance contracts.<sup>31</sup>

Of course, at all events, this is a question of backup income: as we saw in Chapter 2, the "middle classes" (fractile P90–95), along with the "upper-middle classes" (fractile P95–99) and the overwhelming majority of tax units in the top 1 percent, live for the most part from their earned incomes (above all their wages), so this "tax illusion" could only have relatively limited consequences for the incomes of these social groups. Still, not to take into account these exempt incomes would amount to underestimating the top-income share of total income at the end of the century: the exemptions have benefited "middling" fortunes more than large fortunes, but the mere fact of furthering the reconstitution of wealth holdings (even "middling" ones) is inevitably a factor tending

to exacerbate inequality (since the bottom deciles of the income distribution have no wealth—or very little). Indeed, taking into account the incomes subject to the optional levy, incomes from exempt savings accounts and savings plans, and interest credited on life insurance contracts, we can estimate that the top-decile share of total income in the 1990s stood at roughly 34–34 percent, rather than the roughly 32–33 percent that we estimated when examining only incomes subject to the progressive income tax (see Chapter 2, Figure 2-6).<sup>32</sup> In the same way—though the meager available sources do not allow us to quantify this exacerbation of inequality in a satisfactory way—the very sharp growth of investment income in the 1980s and 1990s suggests that the top-decile share of total income since 1982–1983 experienced significantly greater growth than what we observed when examining only incomes subject to the progressive income tax (see Chapter 2, Figure 2-6).<sup>33</sup> In other words, the “tax illusion” brought about by the existence of investment incomes legally exempt from the progressive income tax is entirely insufficient when it comes to explaining the long-term phenomenon of the collapse and nonreconstitution of very large fortunes, but this theory seems much more pertinent when it comes to diagnosing the growth of inequality in the 1980s and 1990s.

### 1.3. The Case of Capital Gains

The case of capital gains deserves particular attention: unlike the income categories we have examined so far, capital gains represent an extremely popular form of income for owners of very large securities portfolios. Generally speaking, capital gains are the gain that an individual or company can obtain from the sale of a given asset at a price above that at which it had been purchased. Thus, one can realize a capital gain when selling an apartment, a house, a business, and so forth. In practice, however, the largest capital gains are usually realized on stock markets: it is by skillfully buying and reselling stocks that one can pocket the most considerable sums in record time, especially during periods of very rapid growth in stock prices, as, for example, in the 1980s and 1990s, and this “speculative” activity is obviously all the more profitable when one owns large holdings of shares, which is the case for the largest fortunes.

However, before examining the size of the adjustments that should be applied to our estimates of top-income levels in order to take capital gains into account, it is useful to ask how far capital gains truly constitute “income.” This



question has indeed been the object of many controversies, not only among economists, but also, and most importantly, in the context of debates surrounding the question of capital gains taxation. According to some economists, capital gains represent not "income," but a "gain in capital," and they should not be added to other incomes. This, for example, was the position adopted by Kuznets, who in 1953, when analyzing statistical tables derived from American tax returns for the years 1913–1948—and thus carrying out the first large-scale study of income inequality—decided to simply exclude capital gains from his field of inquiry.<sup>34</sup> Such a position may be justified by the fact that capital gains correspond to no new production, no creation of new value, so that treating them in the same way as income that is distributed as a result of genuine production can seem strange. This is particularly clear in the case of a "stationary" economy whose total stock-market capitalization is fixed and the only changes in stock prices are due to some companies growing at the expense of others. In such an economy, any capital gains would by definition be immediately offset by a capital loss: those individuals managing to guess sufficiently early which companies are declining and which are growing would sell shares in the former and buy shares in the latter and would thus realize a capital gain, whereas those adopting the opposite strategy would realize a capital loss of an equivalent amount. In other words, the sum of capital gains and capital losses would always be strictly zero, and total income would be solely determined by the total level of production, independent of any transfers caused by changes in stock prices.

This "artificial" nature of capital gains is also quite evident in the case of an economy whose total stock market capitalization is experiencing very strong expansion. Such periods of stock market euphoria may have developed because shareholders concur in predicting a general increase in business profits in the more or less near future (and thus a general increase in dividends, which would justify paying a higher price for shares that offer those dividends), or simply to the fact that shareholders are convinced they can always find a buyer who will buy their shares at a higher price than they paid for them (irrespective of the anticipated dividends). In practice, these periods of stock market euphoria are sometimes of considerable magnitude, and they can cause the stock market's capitalization to grow structurally faster than production, as was the case in the 1980s and 1990s, for example. But the important fact is that total income cannot grow structurally faster than production. Of course, for a few years, the sum of actually realized capital gains and capital losses can be strictly positive—for



example, if new households participate in the stock market, thus allowing other households to realize their capital gains. But this type of phenomenon cannot last very long, and more importantly, it cannot affect the stock market's capitalization as a whole: if all shareholders try to realize their capital gains, there will be no one to buy their shares, and prices will collapse. In other words, capital gains that are generated by periods of stock market euphoria exist only "virtually" (one sometimes speaks of "unrealized" capital gains): by definition, these capital gains would disappear instantly if everyone tried to realize them. Here we can see what distinguishes capital gains from incomes linked directly to production. This heavily "virtual" nature of capital gains also explains why the national accounts have never sought to measure or account for them. Indeed, the objective of the national accounts is to estimate the volume of goods and services produced by the national economy and the way this production is distributed in the form of wages, profits, taxes, dividends, pensions, and so on; changes in the prices of financial assets (stocks, bonds, real estate, etc.) have never played the slightest role in these estimates, and the statisticians in charge of the national accounts have thus never paid attention to these price changes or the corresponding capital gains.

However, in the framework of this study, we think it would be quite excessive to simply ignore capital gains. First of all, the fact that certain individuals demonstrate sufficient acumen or possess enough information or contacts to realize considerable capital gains is merely a particular aspect of a more general process that contributes to the formation of income inequality: acumen, information, and contacts make it possible for some individuals to make a business more profitable, to get a promotion, to choose the most promising education, and so forth. It would thus be strange to completely ignore the "capital-gains" aspect of this more general phenomenon of inequality that allows some to register larger gains than others. "Unrealized" capital gains, besides being often very difficult to estimate, should probably be ignored: they are too dependent on very rapid shifts in financial market prices and their existence is too "virtual" for any accounting of them not to pose formidable problems of interpretation.<sup>35</sup> On the other hand, capital gains actually realized by individuals who are able to sell their assets at the right moment deserve to be included in our estimates of top-income levels and top-income shares of total income.

Most importantly, ignoring capital gains would risk strongly biasing our conclusions, because these "incomes" assumed great importance in the 1980s

and 1990s, obviously due to very strong stock market performance, but also because of the development of new, so-called immediate-recapitalization financial products offered to households, which have gone a long way toward making capital gains a practically “normal” way of receiving investment income. For example, an individual who decided to buy shares in a mutual fund (*fonds commun de placement*, FCP; or *société d’investissement à capital variable*, SICAV) might never personally pocket any dividends or interest: the management entity of their FCP or SICAV will decide on the best way of investing the sums raised, and the dividends and interest received will be directly “recapitalized,” that is, they will be immediately reinvested, thus helping to increase the value of the shares of the FCP or the SICAV; then, when the individual needs liquidity, they will sell their shares, thus pocketing a capital gain, perhaps a very large one if the managers of their FCP or SICAV managed to choose the most promising securities (both in terms of the dividends and interest they pay as well as the increase in their price). The growth of these financial products—which by the mid-1980s had already been popularized by the “rehabilitation” and strong performance of the stock market—was greatly stimulated by the law of December 29, 1989, which generalized the ability of FCPs and SICAVs—and more generally all “collective securities-investment entities” (*organismes de placements collectifs en valeurs mobilières*, or OPCVMs, of which FCPs and SICAVs are examples)—to “freely” recapitalize dividends, which means that dividends obtained by investing the money of subscribers to OPCVM shares are not subject to any tax and can be recapitalized for their full amount.<sup>36</sup> Independent of this question of dividend taxation, the advantage of these forms of “collective” investment is obviously that they allow individuals who wish to invest in the stock market to benefit from informed professional management at low cost and thus to realize substantial capital gains. It can be seen that, in an extreme case in which all household investment savings were invested this way, households would never have to pocket any investment income (strictly speaking): all interest and dividends would be received and immediately recapitalized by the entities managing these collective investments, and the households would pocket capital gains only when selling their shares in these entities. In particular, in such a world, the sum of the capital gains and capital losses realized by households would be structurally positive, even if stock market capitalization were stationary: capital gains would now merely be a way of disguising the dividends and interest received by the entities managing shares in collective

investments in which households have invested their savings. These biases mean that it is quite essential to take capital gains into account, so as to be sure that the nonreconstitution of very high capital incomes is not due to a “tax illusion” of this kind.

Unfortunately, the evolution of the volume and distribution of capital gains over the twentieth century is extremely difficult to estimate precisely. Besides the fact that the national accounts do not account for capital gains, these “gains in capital” made their appearance in tax law and tax returns at a very late date. Under the tax system established in 1914–1917, there was no general mechanism for taxing capital gains. In principle, of course, there were several particular situations in which capital gains would incur a tax. For example, capital gains realized by “speculators on stock exchanges” theoretically belonged to the non-commercial profit schedule (*bénéfices non commerciaux*, BNC), and thus, like all other forms of BNC, they were subject to both the schedular tax on BNC and the IGR, but only if it could be established that the stock market activity of the “speculator” in question constituted his or her true occupation, “exercised on a regular basis.”<sup>37</sup> In other words, “an ordinary individual who resells a security from his portfolio at a higher price than he bought it is subject to neither the schedular tax nor to the general tax.”<sup>38</sup> In practice, there is hardly any doubt that this tax regime for capital gains “exercised on a regular basis” covered only a tiny fraction of the capital gains actually realized, and we can only conclude that tax returns filed under the IGR, which we have used to estimate top-income levels, did not take capital gains into account at all (or almost at all).<sup>39</sup> Let us also mention the case of capital gains realized by businesses, which in certain situations could be taxable under the IGR and thus, in principle, had to appear on tax returns—for example, in the case of capital gains exercised by unincorporated businesses or capital gains arising from the liquidation of a business.<sup>40</sup> But again, these are very specific situations, and they do not change the fact that, as a general rule, capital gains were totally exempt from tax.<sup>41</sup> In addition to theoretical prejudices, according to which capital gains represent a “gain in capital” rather than an “income,” this very high degree of nontaxation of capital gains under the legislation emerging from the 1914–1917 reform no doubt expressed legislators’ awareness of their own limits at the time: as we will see in this chapter, the interwar tax administration already had its work cut out for it when it came to the problem of dividends and interest that taxpayers “omitted” to put on their tax returns, so the question of a generalized taxation

of capital gains—which leave far fewer traces and are even more difficult to monitor than dividends and interest—simply was not on the agenda.

That is where the situation remained throughout the interwar era and the first postwar decades, and it was not until the law of July 19, 1976, that an overall mechanism was established to incorporate capital gains into the income tax laws.<sup>42</sup> This law was adopted after a long and tumultuous parliamentary process, and the Giscard government spared no effort to make this legislative innovation appear to be a key moment in the history of taxation and social justice. According to the terms of the July 25, 1974, letter addressed by Valéry Giscard d'Estaing to his prime minister Jacques Chirac, and reproduced in the official letter of mandate of the "Commission to Study the Generalized Taxation of Capital Gains" (established with great fanfare in February 1975): "In contemporary society, realized capital gains contribute to an increase in the resources and standard of living of the individuals concerned, in a manner similar to income. Thus, the evolution of our tax system toward a more demanding conception of justice means that the concept of income should now encapsulate all realized capital gains. I ask that you move forward with a study, and then the drafting of a bill, to generalize the taxation of capital gains within the income tax."<sup>43</sup> In reality, an examination of the chronology and the debates of the period demonstrates unambiguously that this sudden interest in the question of capital gains had more complex origins than might be suggested by the idea of an inexorable march forward "toward a more demanding conception of justice": the government at the time sought to correct the image that had been created by the many tax breaks granted to investment incomes since the reform of 1959, starting with the tax asset (established in 1965), about which much ink continued to spill. In addition, establishing a "generalized taxation of capital gains" would make it possible to defuse the idea of a wealth tax, which was being strongly advocated by the Left at the time.

It should also be pointed out that, in a certain sense, the reform of 1976 merely formalized the fact that capital gains would never be subject to the general income tax system. It is true that the law of July 19, 1976, subjected all investment and real estate capital gains to the progressive income tax schedule. But it introduced complicated distinctions between short-term, medium-term, and long-term capital gains, which entitled the taxpayer to different deductions, and the new system for taxing capital gains on investment securities would go into effect only starting January 1, 1978, which was then pushed back to

January 1, 1979. In fact, this new regime was never put into effect, because a new law simplified and lightened the investment capital-gains mechanism, even before the latter had time to go into effect: the law of July 5, 1978, established that only investment capital gains “exercised on a regular basis” would be subject to the progressive schedule (again in the form of BNC), and that all other investment capital gains would be subject only to a 15 percent proportional rate. In practice, given the fact that the tax regime for capital gains “exercised on a regular basis” was applied extremely rarely, this means that practically all investment capital gains were definitively placed outside the field of the progressive income tax. The Socialist government that emerged from the May 1981 elections confirmed this new orientation: the law of December 29, 1982, simplified the mechanism put in place in 1976–1978 by eliminating the largely spurious tax system for investment capital gains “exercised on a regular basis,” as well as the complicated distinctions between short-term, medium-term, and long-term capital gains. It left only two systems of taxation, one covering all real estate capital gains (subject to the progressive income tax schedule),<sup>44</sup> and the other covering all investment capital gains (subject to a 15 percent proportional rate). These new provisions have been in effect without any major interruption since the 1982 tax year, and thus investment capital gains at the end of the twentieth century enjoyed sharply reduced taxation compared to the rules of the general tax system: whatever their amount, however high they might be, gains registered when selling investment securities were taxed only at a 15 percent proportional rate, and thus they escaped the rigors of the top marginal rates of the income tax schedule.

In any event, the key fact that interests us here is that the reform of 1976–1982 marked the grand entry of capital gains into the income tax returns (and thus the tax statistics). The tax administration took a few years to adapt to the many legislative changes up to 1982, and in fact it has been only since 1988 that capital gains have been subject to a systematic annual statistical treatment: each year since the 1988 tax year, the tax administration has compiled a specific statistical table showing the number and amounts of investment capital gains taxed at the proportional rate, as a function of the level of income subject to the progressive income tax schedule. These statistics are extremely valuable for our study, because they tell us the precise magnitude of the portion of income that the various top-income fractiles in the 1990s obtained from capital gains, and so far we have not attempted to take this portion of income into account.<sup>45</sup>

According to the terms of the law of July 5, 1978, which were incorporated into the law of December 29, 1982, investment capital gains were to be taxed only at the 15 percent rate if the total volume of asset sales realized over the course of a given year exceeded a certain threshold (below this threshold, capital gains were totally exempt from tax), and only these capital gains appear in the statistics. This threshold was regularly increased until 1993, when the Balladur and Juppé governments took the initiative to sharply reduce it, notably in the case of capital gains obtained through FCPs and SICAVs, which had experienced very rapid growth over the preceding years. A new specific threshold for capital gains realized through sales of OPCVM shares was established by the law of December 30, 1993: in the 1993 capital gains tax year, capital gains on sales of OPCVM shares were subject to the 15 percent rate once the corresponding asset sale exceeded 166,000 francs, whereas all other capital gains on securities sales were taxable only if the value of the corresponding asset sale exceeded the general threshold of 332,000 francs. The threshold for OPCVMs fell to 100,000 francs in the 1994 capital gains tax year, 50,000 francs in the 1995 capital gains tax year, and then it was definitively abolished by the law of December 30, 1996: thus since the 1996 capital gains tax year, capital gains on sales of OPCVM shares have been taxable from the first franc. The Juppé government took the opportunity to phase out the general threshold for other investment capital gains, and it fell from 342,800 francs in the 1995 capital gains tax year to 200,000 francs in the 1996 capital gains tax year; it was only 50,000 francs in the 1998 capital gains tax year. These reductions in the sales threshold are of very limited importance for our study: of course, they had the immediate result of sharply increasing the number of investment capital gains incomes appearing in tax returns, which have more than tripled since the 1991–1992 capital gains tax year;<sup>46</sup> but this tripling in the number of taxable capital gains had practically no impact on the total amount of these capital gains,<sup>47</sup> which shows the extent to which gains from sales of investment securities were concentrated among the owners of large portfolios and were only marginally affected by sales thresholds set at such levels. However, this legislative episode had the virtue of showing that the tax administration in the 1990s had the administrative means to tax all capital gains from the first franc: when the law reduced the sales threshold, the number of declared capital gains incomes began to skyrocket. Though of limited practical importance, this reduction in sales thresholds also confirms what we said in Chapter 4 about the dawning awareness of governments in the

1990s that previous governments had gone too far in exempting investment incomes from tax.<sup>48</sup>

What can we learn from these statistics about the importance of capital gains for top-income households in the 1990s? First, these statistics allow us to measure the very high degree of concentration in these “gains in capital.” In the 1990s, the total amount of capital gains taxed at the proportional rate has represented between 1.5 percent and 2 percent (depending on the year) of the total income declared by all tax units (whether subject to tax or not) under the progressive income tax.<sup>49</sup> In other words, if these capital gains were distributed to all tax units in proportion to their income, then all incomes would be about 1.5–2 percent higher, a relatively limited markup. But capital gains are much more unequally distributed than other incomes: in the 1990s, the fraction of income obtained from capital gains taxed at the proportional rate had on average been about 0.5 percent for the least well-off 90 percent of tax units (fractile P0–90), it had been just over 1 percent for the “middle classes” (fractile P90–95), and it fluctuated between 2 percent and 3 percent for the “upper-middle classes” (fractile P95–99); the income fraction then reached 5–6 percent for the lower half of the top 1 percent of the income distribution (fractile P99–99.5), 10–12 percent for the next 0.4 percent (fractile P99.5–99.9), 15–20 percent for the P99.9–99.99 fractile, and then it ranged up to 25 percent (or even slightly more) for the “200 families” (fractile P99.99–100).<sup>50</sup>

In fact, these results show that capital gains are approximately as concentrated as the investment incomes subject to the progressive income tax schedule (mainly dividends on directly owned shares),<sup>51</sup> which, as we have seen, are far more concentrated than all other forms of investment income. The magnitude of capital gains realized by the best-off 0.01 percent of tax units (fractile P99.99–100) at the end of the twentieth century deserves to be underscored: each year, these tax units pocketed investment capital gains whose total amount equaled almost half the value of the investment incomes (excluding capital gains) that they declared under the progressive income tax.<sup>52</sup> In other words, each household in the P99.99–100 fractile obtained extra income equal to about 2 million francs thanks to its capital gains (on average): accounting for capital gains results in a roughly 25 percent markup in the average income of the “200 families” (fractile P99.99–100) in the 1990s, which rose, for this reason alone, from 7–8 million francs per year (see Chapter 2, Figure 2-7) to nearly 10 million francs per year.<sup>53</sup> Here we can see the importance of the tax breaks these top incomes received



thanks to the proportional-tax regime at the 15 percent rate that capital gains enjoy. If we look at all tax units in the top 1 percent of the income distribution, the importance of capital gains diminishes, but still remains highly significant: capital gains represent an average boost to income of about 10–12 percent for tax units in the top 1 percent (fractile P99–100),<sup>54</sup> which means that the share of total income going to the top 1 percent was about 9 percent in the 1990s, rather than about 8 percent, as we estimated earlier without taking capital gains into account (see Chapter 2, Figure 2-14).

However, as important as they were, these capital gains in the 1990s were not nearly enough for an accounting of them to explain the phenomenon of the nonreconstitution of very high capital incomes. Here again, the orders of magnitude are worth recalling: the markup corresponding to capital gains is about 25 percent, which is about  $1/15$  the roughly 400 percent markup that would need to be applied to our estimates of the average income of the "200 families" (fractile P99.99–100) in the 1990s to conclude that these tax units at the end of the century regained their position from the beginning of the century (relative to the overall average income).<sup>55</sup> In other words, for the "200 families" (fractile P99.99–100) to have regained their relative position from the beginning of the century, their average income would need to be roughly 35–40 million francs in the 1990s (instead of 7–8 million), not roughly 10 million francs (instead of 7–8 million). Adding together the markups due to income subject to the optional levy (10 percent at a maximum), interest credited on life insurance contracts (10 percent at a maximum), and capital gains (about 25 percent), we thus obtain a maximum markup of about 45 percent, which is nearly  $1/10$  the roughly 400 percent markup that would be needed to justify viewing the nonreconstitution of very high capital incomes as a "tax illusion." These orders of magnitude are important, because they show the extent to which our conclusions do not depend on errors of estimation of a few percentage points, nor even more substantial errors of a few dozen percentage points.<sup>56</sup> As was the case with the other categories of investment income analyzed earlier in this chapter, the existence of capital gains no doubt means that income inequality grew more in the 1980s–1990s than we estimated solely on the basis of incomes declared under the progressive income tax (see Chapter 2, Figure 2-6), but they are clearly insufficient to explain the long-term phenomenon of the collapse and nonreconstitution of very high capital incomes that interest us here.

We should also add that it would be quite excessive to assume that capital gains were of negligible importance for top incomes at the start of the century and in the interwar era. We can, of course, imagine that the very sharp rise in the stock market since the mid-1980s, as well as the growth of immediate-recapitalization financial products, led to significant growth in the weight of capital gains relative to the situation prevailing in the 1970s and early 1980s, despite the fact that tax statistics on capital gains have only existed in their current form since 1988 and show a very high degree of stability in the volume and distribution of capital gains since that date.<sup>57</sup> But it would be extremely hazardous to draw any precise conclusions from this regarding the weight of capital gains at the beginning of the century and in the interwar era. As with interest credited on life insurance contracts, it is quite possible that capital gains already represented a substantial contribution to the incomes of wealthy taxpayers in the early part of the century and the interwar era, and that this form of income simply experienced a “renaissance” in the 1980s and 1990s. We might also point out that some interwar jurists were already worrying about the fact that most capital gains escaped the IGR, and proposed subjecting all capital gains to tax, which, according to them, could bring in “significant” additional government revenues.<sup>58</sup> No one appears to have ventured to put numbers on the magnitude of these lost revenues, but the very fact that they were preoccupied by this question suggests that capital gains already had a certain weight and social visibility in the France of the 1920s and 1930s. Let us also note that we do have American statistics for the interwar era, which indicate that capital gains could represent up to 20 percent of the total income of well-off taxpayers in the late 1920s, before collapsing during the economic crisis of the 1930s.<sup>59</sup> Obviously it is impossible to transpose these American statistics to the French reality of the same era, but it is difficult to believe that French “capitalists” in the 1920s were completely ignorant of a form of income that was already so popular among their American counterparts, or that they had to await the invention of FCPs, SICAVs, and other “collective” investments in order to discover the charms of “gains in capital.” Thus, there is every reason to believe that a complete accounting of capital gains would cause us to mark up not only our estimates for top-income levels in the 1990s, but also our estimates for top-income levels in the 1920s (and probably at the beginning of the century), in which case the impact of these adjustments on the long-term evolution of the relative position of top incomes would be even more limited than the estimates given above would lead us to believe.

#### 1.4. The Case of Undistributed Profits

Finally, let us come to the case of undistributed business profits. By definition these profits are not part of household “income”: firms distribute only part of their profits to their shareholders in the form of dividends, and undistributed profits allow firms to replace their used-up capital, to finance new investment without having to issue new shares or borrowing, to build up reserves, and so forth. Thus, in principle, there is no reason to try to account for these undistributed profits when studying income inequality among households.

In practice, however, undistributed profits can play a more complicated role. Consider, for example, the case of a person who owns the majority of shares in a flourishing business, and who thereby receives considerable dividends each year, far above what he “needs” to finance his consumption and standard of living. It may be in the interest of this individual for the business in question to somewhat reduce the volume of dividends it distributes: the sums thus retained will escape the top marginal rates of the income tax (since they will no longer be part of his “income” in the tax sense), but they will continue to belong to him, because the firm belongs to him. The individual may accumulate a considerable fortune in this way, but the accumulation will not appear in the tax returns (or will appear only partially), since it will take place within the firm. In practice, this type of strategy is more difficult to undertake in very large companies, whose equity is always highly dispersed, and whose largest individual shareholders rarely own more than a few percentage points of the shares: distributed dividends are necessarily the same for each share, whoever owns it, and it would not sit well with small shareholders to be deprived of the dividends they are entitled to. But a variety of entirely legal juridical formulas make it possible to arrive at the same ends in this case: for example, owners of large investment portfolios can create ad hoc companies of which they are the sole shareholder (or almost so) whose sole purpose is to manage their share portfolios, which leaves them with complete freedom to decide on the date and amount of the dividends the company pays them. That is why the notion of “income” itself is relatively ambiguous for individuals with large wealth holdings, whose “needs” in terms of current consumption are more than satisfied, and whose main goal is to increase the return on their wealth. Is the existence of this type of tax strategy liable to bias the conclusions we reached solely on the basis of profits actually distributed to shareholders?

The first answer is that, by definition, these individual strategies of “accumulating profits within a business” cannot last forever. Once the individual in question feels the need for liquidity, the profits accumulated in the business will end up having to be distributed, in which case they will show up in the tax returns (possibly in the form of capital gains, which helps to explain why it was essential to take account of “gains in capital,” and why this form of income assumes such importance for the wealthiest taxpayers). And in cases where the individual in question never feels the need to bring this strategy to an end within his lifetime, and where his goal is to increase the return on his investment wealth before passing on the largest possible fortune to his heirs, which is probably the most common scenario, the capital thus accumulated will end up appearing in the bequest declarations (hence the interest in studying the evolution of very large bequests, which we will do in section 3).

The second answer is that the tax incentives for developing this type of strategy were actually far stronger under the tax system established in 1914–1917 than under the system in place at the end of the twentieth century, so this factor probably helps to strengthen our conclusions about the collapse and nonreconstitution of very high capital incomes (rather than undermining them). As we saw in Chapter 4, in the interwar era dividends were in effect subject to “triple taxation”: first, business profits were subject to the schedular tax on industrial and commercial profits, then dividends were subject to the IRVM (levied at the source), and finally shareholders had to declare their dividends under the IGR. Undistributed profits were thus far less taxed than distributed profits: by accumulating profits within ad hoc businesses instead of distributing them to themselves in the form of dividends, the owners of large investment portfolios in the interwar era could escape the IRVM, whose rates were generally around 15–20 percent,<sup>60</sup> and above all they could avoid the IGR and the top marginal rate of the progressive tax schedule, which by the early 1920s exceeded 50 percent (see Chapter 4, Figure 4-1). Thus there was a very strong tax incentive to develop this kind of strategy. At the end of the century, the situation was completely different, since dividends enjoyed a “single” tax regime: business profits were subject to the tax on business profits, then shareholders had to declare their dividends for the income tax; but with the tax asset, which “reimburses” shareholders for the profit taxes already paid by the businesses in question, dividends were actually subject only to a single tax (the income tax) and only undistributed profits were really subject to the business profit tax. In

addition, the difference between the top marginal rates of the income tax and the tax rates on company profits has declined considerably since the interwar era: in the interwar era, the rate of the schedular tax on industrial and commercial profits was about 10–15 percent (at most),<sup>61</sup> around 1/5 the level that the top marginal rate of the IGR schedule had reached by the early 1920s;<sup>62</sup> since the Second World War the company profit tax rate has generally been around 50 percent,<sup>63</sup> a level far below the top marginal rates of the income tax.<sup>64</sup> In fact, not only has the strategy of “accumulating profits within businesses” become far less advantageous over time, but there are numerous situations in which taxes on undistributed profits have actually become heavier than those on distributed profits, even for taxpayers whose marginal tax rate under the income tax is higher than the company profit tax rate. For example, if a taxpayer enjoys large tax reductions arising from certain specific expenses (investments in the French overseas territories, real estate investments, etc.), it is very much in his interest for the profits of businesses he controls to be distributed to him in full, since those profits would thus escape all taxes. On the basis of these changes in tax law, it thus seems logical to assume that this tax strategy caused declared incomes under the progressive income tax to be reduced by significantly larger proportions during the interwar era than at the end of the century.

Of course, it might be imagined that it took the “capitalists” of the interwar era a certain amount of time before thinking up legal schemes that would allow them to avoid collecting “too many” dividends: before the First World War, in the absence of the IGR, the tax advantage for undistributed profits relative to distributed profits was limited to the IRVM, whose rate, moreover, was quite low, so it cost large shareholders almost nothing to pocket as many dividends as possible. But the tax treatment for undistributed profits after the reform of 1914–1917 was so advantageous, and so much more advantageous than it was for undistributed profits at the end of the century, that it seems quite unthinkable that the period of adaptation could have lasted more than a few years and could explain a substantial part of the phenomenon that interests us here (unless we assume that “capitalists” in the interwar era were unconcerned about the amount of their taxes). It must also be recalled that by definition, only incorporated businesses, and in particular publicly traded firms, can leave some of the profits they realize over the course of a given year undistributed. In unincorporated businesses, the notion of “undistributed profit” doesn’t exist: because the accounts of the business coincide with the personal accounts of its

owner, the latter is required to declare all profits from his business under the progressive income tax. This regime affects not only the very large number of small individual businesses lacking a legal personality separate from that of their owners, but also partnerships (*sociétés en nom collectif*), a category of business that includes some large companies that have chosen to preserve their status as family businesses. Yet the importance of these large partnerships has sharply declined over the course of the twentieth century, which is explained notably as a result of tax considerations: already in 1926, Allix and Lecerclé noted that the inability of partners in *sociétés en nom collectif* to retain profits in order to escape the IGR (unlike shareholders of incorporated businesses) risked being fatal to an “intermediate legal form between the individual business and the large corporation, whose dynamism has rendered many services to the country,” and they specified that many large partnerships had already been transformed into publicly traded companies, “notably in the textile industry.”<sup>65</sup> Thus, it is possible that the top incomes declared in the very first years of the income tax were slightly higher than they would have been if partnerships had had time to adapt to the new rules of the game and implement a strategy for retaining profits and “accumulating profits within businesses.” But, while it is extremely difficult to assess precisely how the practical significance of these strategies evolved over time,<sup>66</sup> here again, it seems hardly realistic to assume that this adaptation period could explain more than a marginal fraction of the phenomenon of interest here: the tax returns show unambiguously that no more than a relatively limited share of the top incomes declared in the interwar era could have been based on profits of partnerships whose owners had not had time to transform them into corporations.<sup>67</sup>

## 2. *The Problem of Tax Fraud*

Let us now turn to the problem of tax fraud strictly speaking—that is, the problem of incomes that are legally required to appear in tax returns, but which do not do so. By definition, it is very difficult to assess the precise magnitude of tax fraud. In particular, recall that it would be extremely hazardous to use the national accounts series to undertake such estimates. This kind of an approach would have a degree of legitimacy: the national accounts are based on a systematic cross-checking of numerous tax sources (notably businesses’ profit-tax

returns) as well as nontax sources (production indices, multiple industry surveys, etc.), so the overall estimates are highly independent of the tax-return data, making comparisons permissible.<sup>68</sup> The problem, however, is that the national accounts provide us with only estimates of broad aggregates as represented by the various income categories (wages, profits, etc.) at the macroeconomic level (all households combined, taxable and nontaxable), so they do not allow us to assess how the "rate of fraud" varies as a function of income. In addition, even staying at this macroeconomic level, the problem is that the "income" concept used in the national accounts is far broader than that used in the tax returns, so the aggregates estimated by the national accounts are always significantly higher than the tax aggregates, for reasons that have nothing to do with fraud. In particular, it is impossible to use the national accounts to gauge the magnitude of fraud engaged in by self-employed workers: the accounts merely estimate self-employed "gross" profits (the term "gross operating surplus" is used), and these "gross" profits do not take into account depreciation and replacement costs for plant and equipment; they also ignore certain costs and expenses (interest, pension contributions, etc.), so that, by definition, these "gross" profits are far higher than the "net" profits self-employed workers are required to declare for the income tax, making it impossible to infer anything precise about fraud on the basis of such a comparison.

Note, however, that the problems with defining "income" are far smaller for investment income than they are for self-employed mixed incomes. Concerning investment income, it is true that the estimates in the national accounts do not allow us to quantify fraud precisely, but they do allow us to see that the considerable gap between aggregate investment income declared under the progressive income tax and aggregate investment income attributed to households in the national accounts can be explained mainly by incomes legally exempt from income tax, rather than by illegal evasion (at least for the 1980s and 1990s). In the 1990s, aggregate investment income attributed to households in the national accounts was about five times the aggregate investment income declared under the progressive income tax.<sup>69</sup> But the key point is that 90 percent of this considerable gap is explained by income from tax-exempt savings accounts and savings plans, incomes subject to the optional levy, and interest credited on life insurance contracts.<sup>70</sup> In other words, if we account for these three income categories that do not appear in tax returns for legal reasons, we can see that tax fraud strictly speaking can cover only 10 percent (at most) of total investment



income.<sup>71</sup> The national accounts do not tell us how this 10 percent (at most) of fraud is distributed among taxpayers, but it does show us the extent to which legal devices that make it possible to escape the progressive income tax schedule take on an importance that far exceeds that of illegal evasion at the end of the twentieth century.<sup>72</sup>

We also have estimates of tax fraud undertaken by the tax administration itself on the basis of tax adjustments that are carried out by the tax inspectors. The main order of magnitude to keep in mind is that, for the progressive income tax, the tax collections actually carried out by the tax administration are usually around 5–10 percent higher than the total amount of tax appearing on the tax assessments that are compiled on the basis of the income spontaneously declared by taxpayers (the exact figure varies depending on the year, but does not seem to have changed much over the long run, either upwards or downwards).<sup>73</sup> This roughly 5–10 percent difference mainly corresponds to tax adjustments: the fact that some taxpayers do not declare all the income they are required to declare results (in cases of audits) in adjustments that raise the initial tax amount. This order of magnitude is interesting, but it would obviously be highly imprudent to conclude from it that our estimates derived from tax returns should be marked up by a uniform coefficient of about 5–10 percent to obtain “real” incomes. First of all, by definition, adjustments in terms of tax receipts are higher than adjustments in terms of income, so this 5–10 percent greater volume of receipts corresponds to a slightly smaller percentage markup in terms of income.<sup>74</sup> But, inversely, not all taxpayers are subject to an audit every year, and it cannot be ruled out that the adjustments would be far higher if there were generalized audits of the entire population. Finally, this overall estimate of roughly 5–10 percent obviously tells us nothing about how “real” rates of fraud vary as a function of taxpayer income.

In fact, the only way to move past the ambiguities inherent in such fraud estimates based on tax-receipt statistics would be to have systematic studies in which a national representative sample of all taxpayers were subject to a thorough tax audit. Such studies are obviously highly costly for the tax administration (and do not sit well at all with taxpayers), and, to our knowledge the only study of this type that has been carried out in France dates to the early 1970s. In 1972, the *Direction générale des impôts* built a representative sample of about 40,000 taxpayers chosen at random from the entire universe of 1971 tax returns and made “thorough” audits of all taxpayers in the sample (with “thorough

verification of the overall tax situation," "verification of the accounting for all professional profits," etc.) part of the annual tax-audit program for the relevant departments. The study appears to have been carried out in an extremely rigorous fashion, and, while it is relatively dated, it would be unjustified to minimize its significance, since there is no reason to assume that the level of fraud was particularly low at the time. Thus, the results it obtained, which were published in 1979, are of great interest for our inquiry.<sup>75</sup> First, we observe that a large number of taxpayers can be faulted: the audits of all taxpayers in the sample resulted in tax adjustments in more than 20 percent of cases.<sup>76</sup> The 1972 study also confirmed that fraud is far more common among the self-employed than among wage earners: the share of "fraudsters" was far lower on average for wage earners, while it exceeded 50 percent for certain categories of self-employment profits.<sup>77</sup> But the important point is that, in the overwhelming majority of cases, fraud appears to have involved relatively small amounts: taking into account all of the tax adjustments that were undertaken, we find that the total volume of income that should have been subjected to income tax was about 5 percent higher than the total amount actually declared (among "fraudsters" and "non-fraudsters" combined).<sup>78</sup> Most importantly, while it is true that this 5 percent average upward adjustment (for "fraudsters" and "non-fraudsters" combined) was far lower among wage earners (about 2 percent) than among the self-employed (almost 20 percent), it should be noted that the upward adjustments were significantly higher for "small" self-employed workers than for "big" self-employed workers, and that they also tended to be larger for small wage earners than for large wage earners.<sup>79</sup> In addition, the average upward adjustment rate for investment income was very close to the average rate observed for income as a whole (7 percent rather than 5 percent).<sup>80</sup> As a result, average rates of upward adjustment were a declining function of overall income: they were above 5 percent for the lowest income brackets, and below 5 percent for the highest brackets.<sup>81</sup>

By all appearances, these results are of relatively broad applicability. In particular, the fact that fraud is greater for "small" taxpayers, particularly for "small" self-employed taxpayers, seems entirely consistent with other available information and partial studies. For example, in the interwar period, by all indications taxpayers slightly above the threshold of taxation exhibited a particularly marked ill will toward the tax administration, as these "small" taxpayers often felt that their incomes were far too small to be subjected to the new taxes

created in 1914–1917, and they wished to demonstrate their discontent.<sup>82</sup> A study carried out by the tax administration in the 1950s—that is, the period of the Poujadist upsurge described in Chapter 4<sup>83</sup>—also reached the conclusion that rates of fraud were significantly higher for small businesses than for large businesses.<sup>84</sup> This pattern might also be explained by the fact that taxpayers in the lowest brackets were ultimately not taking great risks: in failing to undertake a perfectly “honest” accounting, and declaring incomes 10 percent or 20 percent lower than their real incomes (or even more), they knew that the amount of additional taxes they would be required to pay in the event of an audit would be relatively modest in any event.

We may add that similar studies carried out in foreign countries have given comparable results, specifically with respect to the overall rate of upward adjustment. We may note in particular the case of a study carried out by the IRS in 1948, which was based on a representative sample of randomly selected taxpayers and a program of “thorough” tax audits carried out for each taxpayer in the sample, exactly like the French study of 1972. Here again, the results indicated a relatively high percentage of upward adjustments (though slightly lower than those in France) but relatively limited overall rates of adjustment (for “fraudsters” and “non-fraudsters” combined): taking into account all of the adjustments undertaken, the American tax administration concluded that the average income declared by the 0.5 percent of tax units with the highest declared incomes (fractile P99.5–100) was understated by about 2 percent, and that the average income declared by the next 4.5 percent (fractile P95–99.5) was understated by about 6 percent.<sup>85</sup> Thus, the rates obtained in the US in 1948, which were confirmed by other similar studies carried out by the American tax administration in the 1970s and 1980s,<sup>86</sup> were very close to the 5 percent average upward adjustment rates (also declining as a function of income) obtained in France in 1972. These results are extremely interesting, since the studies were carried out using practically identical methodologies in both countries. Thus, it would seem that the notion, highly widespread in France, that tax fraud in France is of incomparably greater magnitude than in the Anglo-Saxon, Germanic, or Scandinavian countries (which were considered to be more “disciplined,” and less “Latin”) is highly exaggerated. It is possible that fraud is more widespread in France (in terms of the number of taxpayers involved),<sup>87</sup> but there is no basis for claiming that its overall average level (as a percentage of declared income) is actually greater.

In any case, beyond the question of differences among countries or the notion of a French particularity in terms of fraud, the main finding from these estimates is that accounting for tax fraud seems absolutely unable to explain the type of transformation in the income distribution that interests us here: average rates of upward adjustment of roughly 5 percent or even 10 percent will not be able to explain why the disparity between the average income of the wealthiest 0.01 percent (fractile P99.99–100) and the overall average income fell by a factor of about 5 between the two endpoints of the twentieth century. One may well view these tax fraud studies as insufficient, and in particular believe that the audits were not carried out as "thoroughly" as they should have been, especially for very high incomes. The studies also suffer from the fact that they were based on a limited number of observations and thus do not make it possible to isolate the various top tenths of a percent or hundredths of a percent within the top 1 percent of the income distribution. But there is such a gap between the estimates obtained and those that would have to be obtained for the phenomenon of the collapse and nonreconstitution very high capital incomes to be attributed to a "tax illusion" that it is hard to see what could make up the difference. In any event, as things currently stand, these estimates of the magnitude of tax fraud are the least unsatisfactory estimates available, and in particular they are far more satisfactory than the "estimates" found in the vast pamphlet literature devoted to the theme of tax fraud: every era has had its share of best-sellers denouncing the magnitude of tax fraud, but a quick survey of them shows the extent to which such literature has always been based on a small number of individual anecdotes, which, however suggestive, hardly give us a sense of the overall scope of the problem.<sup>88</sup> Thus, in the absence of completely satisfactory estimates, and while being aware of the limits of the estimates we have, it makes sense to conclude that tax fraud, like the legal exemptions, seems hardly able to explain the magnitude of the transformations observed on the basis of declared income.

There is another method that can provide a sense of the magnitude of tax fraud: by examining how top incomes have reacted to the sudden changes in top marginal rates that have punctuated the history of the income tax, we can estimate the extent to which the taxpayers in question were able to vary their declared income as a function of the risks they would run. We have undertaken a detailed analysis of this kind for the period 1970–1996: we have taken into account every change in the marginal tax rates to which top incomes were subject

over this period, starting with the tax increases passed by the Socialist government that emerged from the May 1981 elections, and we have studied the extent to which the incomes declared by the affected taxpayers adapted to these changes. The results are extremely clear: declared top incomes over the 1970–1996 period do not seem to have reacted significantly to changes in top marginal rates (including in 1981–1982), and short-term changes in relative top-income levels are explained far more by the macroeconomic cycle (top incomes decline more sharply than other incomes in recessions, and inversely they increase faster during economic recoveries, independently of any changes in marginal tax rates) than by tax incentives.<sup>89</sup> The natural interpretation of these results is that, individual anecdotes dealing with isolated cases aside, it is actually far more difficult to remove one's income from the attention of the tax authorities than is sometimes imagined.

In addition, a quick examination of the main changes in top marginal tax rates since 1914 suggests that this conclusion holds not only for the 1970–1996 period, but also for prior periods. The most spectacular example no doubt is the tax cut of 1926, which represents the largest reduction in income tax rates ever carried out in France: as soon as it took power, the Poincaré government decided to cut the top marginal rate of the IGR in half, from 60 percent in the 1925 tax year to 30 percent in the 1926 tax year.<sup>90</sup> Contrary to the government's expectation, the impact of this measure on the incomes declared by the affected taxpayers was relatively limited. We do observe a transitory increase in the relative position of top incomes in 1926, which contrasts with the downward trend of the previous years, but what is important is that the magnitude of the increase was extremely small (according to our estimates, the P99.99–100 share of total income rose from 2.38 percent in 1925 to 2.41 percent in 1926).<sup>91</sup> Likewise, the decision by the Doumergue government to cut the top marginal rate of the IGR to 24 percent in 1934, its lowest level since 1915–1918,<sup>92</sup> had only a negligible impact on the level of incomes declared by the affected taxpayers,<sup>93</sup> and by all indications this level depended primarily on the recession and deflation rather than on the issue of tax fraud. Inversely, as already noted, the coming to power of the Popular Front and the inflationary stimulus that resulted from it had a positive impact on the level of top incomes declared under the IGR, despite the large increase in tax rates on them that was adopted by the government of Léon Blum.<sup>94</sup> All of these episodes confirm that the level and evolution

of income declared by very wealthy taxpayers are determined chiefly by strictly economic forces, not by how much income these taxpayers can manage to hide, which has probably always been far more limited than one might think. Still, it should be noted that this method of estimating the magnitude of tax fraud—which, compared to the studies just discussed, has the great virtue of allowing us to specifically examine the case of the upper strata of the top 1 percent—has certain limits as well: in particular, the tax-rate changes whose effects on declared incomes we tried to measure usually had a relatively short life expectancy, so it is hard to say what the magnitude of the adjustments would have been if the affected taxpayers had had sufficient time to fully adapt to the new incentives.

In fact, the argument that in our eyes demonstrates most convincingly that tax fraud cannot explain the phenomenon that interests us here is that by all indications the magnitude of fraud was significantly greater in the interwar era than it was at the end of the twentieth century. In other words, tax fraud does pose a real problem for estimation, but there is every reason to believe that fraud was as great as it was in the 1920s and 1930s—that is, the very moment when top incomes declared under the income tax reached their highest level of the century. Thus, the existence of fraudulent practices tends more to strengthen our conclusions about the collapse and nonreconstitution of very high capital incomes, rather than undermining them. In the interwar era, all observers believed that tax fraud, and particularly fraud concerning investment incomes, was endemic: the general view was that securities holders "omitted" an extremely large fraction of the corresponding incomes from their tax returns, and that only the small portion of the income from investment securities that was taxed at the source via the IRVM actually found its way into the IGR tax base and was subject to the stringency of its top marginal rates. Of course, one should be wary of these judgments by contemporaries: as we have noted, denunciations of tax fraud are common to every era, and the pamphlets on this subject in the interwar era, like those of earlier periods, hardly stand out for their rigor.<sup>95</sup> The episodes of 1926, 1934, and 1936 discussed earlier suggest that contemporaries probably tended to overestimate the ease with which wealthy taxpayers in the 1920s and 1930s could alter their declared incomes according to the risks they would run. Likewise, comparing the volume of investment incomes declared under the IGR and the volume of income subject to the IRVM suggests that the gap was probably smaller than was imagined at the time.<sup>96</sup>

Nevertheless, this impression of endemic tax fraud, which was so widely present within interwar French society—far more so than in late twentieth-century French society—did have certain “objective” bases. Indeed, it must be emphasized that the tax administration of the time had far more limited investigatory powers to carry out its monitoring—especially monitoring the volume of investment income appearing on tax returns—than did the tax administration at the end of the twentieth century. There is nothing surprising about this: the system of the “four old ladies” inherited from the French Revolution was thoroughly imbued with the idea that taxes must be as “un-inquisitorial” as possible; supporters of the income tax finally managed to impose the principle of income declarations, but this had been a major concession from supporters of “non-inquisitorial” taxes, and going any further than this was out of the question. Thus the income tax established by the law of July 15, 1914, was based on spontaneous taxpayer declarations of income and gave the tax administration very limited powers of investigation to verify the validity of these declarations (at least in comparison with modern standards). In particular, the key point that must be kept in mind is that the interwar tax administration had no right to require businesses, banks, or any other institution that paid individuals interest or dividends to reveal the identities of their account holders (let alone the amounts of income they paid out). The administration thus depended to a very great extent on the good faith of taxpayers, or on its own indirect knowledge about the wealth holdings of individuals (for example, owing to bequests declarations), or on indirect procedures such as tax audits carried out on the basis of “evidence of living standards.”

A very large number of bills were introduced in the 1920s and 1930s to remedy the situation and extend the powers of the tax administration, but these proposals faced vigorous opposition from the supporters of “non-inquisitorial” taxes. In the 1920s, and especially during the *Cartel des Gauches* period, two bills were the subjects of particularly virulent debates: the “coupon stamp book” (*carnet de coupons*) and the “coupon worksheet” (*bordereau de coupons*). The coupon stamp book was a veritable “tax identity card”: every holder of investment securities had to appear with his coupon stamp book when any interest or dividend was being paid, the paying establishment (firm, bank, or any other institution) had to stamp the book each time it made a payment, and the tax administration would have access to the coupon stamp books so as to audit the amounts of investment income appearing on tax returns. This formula was



never put into effect, but it gives a fairly good idea of the practical problems that arose in the interwar era in combating tax fraud. The coupon worksheet was supposed to be less inquisitorial than the coupon stamp book: individuals could continue to receive interest and dividends with no additional procedures (except providing their address), and the paying establishments were required to maintain worksheets so that all of the necessary information concerning the identity of the payees and the sums paid out could be communicated to the tax administration. The coupon worksheet formula was adopted on several occasions in the 1920s and early 1930s, but its implementation was put off each time.<sup>97</sup>

It was not until the decree-law of July 8, 1937, that the coupon worksheet was finally adopted and implemented, and thus, after a number of fruitless attempts, the coupon worksheet officially went into effect for the 1937–1938 tax collection. These new “inquisitorial” powers conferred on the tax of administration were never challenged, and the system that was in effect at the end of the twentieth century was relatively close to the one adopted in 1937: in the 1990s, paying establishments provided individuals each year with a worksheet listing all investment income paid to them over the course of the preceding year, taxpayers were required to send this worksheet to the tax administration at the same time that they sent their tax return, and the administration could communicate directly with the financial establishments to verify the information. Banks were also required to alert the administration about any dubious payments on individual accounts for which they were responsible, to respond to any request for additional information the tax administration might need to deal with litigation, and so on: such investigatory powers were completely out of reach for tax auditors in the interwar era (at least until 1937–1938). In addition, the growth of information technologies had allowed the tax administration to develop effective and genuine operational use of all this information. Of course, it is extremely difficult to estimate the magnitude of the fraud these new powers allowed the tax authorities to put an end to: apart from the fact that fraud concerning investment securities was probably smaller in the 1920s and 1930s than contemporaries imagined, it is likely that the new legal regime established in 1937 only very gradually transformed the practical reality of relations between the tax administration and banks, and that it was only after the Second World War that the new investigative rights granted to the tax administration began to be fully implemented.<sup>98</sup> But in any event, it is certain that it was much easier for interwar “capitalists” (at least until 1937–1938) to hide their dividends

than it was for those at the end of the twentieth century. Whatever the exact magnitude of interwar fraud pertaining to securities, it is hard to see how it could have been smaller than the fraud practiced at the end of the century: by the 1990s, it was practically impossible for an individual owning shares in a well-established company not to declare the corresponding dividends, whereas such a possibility did exist in the interwar period.

We should add that incentives for fraud, and not just opportunities for fraud, also tended to decline over time. As we saw in Chapter 4, the top marginal income tax rate in effect at the end of the twentieth century was actually one of the lowest since the creation of the income tax (see Chapter 4, Figure 4-1). Most importantly, the creation of the tax asset by the law of July 12, 1965, caused a sharp reduction in incentives for fraud for shareholders and recipients of dividends. The idea of the tax asset is, in effect, that declaring one's dividends is indispensable in order to benefit from the corresponding tax asset. Thus, fraud has not only become riskier, but also less profitable. For example, a shareholder whose total volume of tax assets exceeds his tax liability has no interest in engaging in fraud and every interest in honestly declaring all of his dividends, even if he knows he is at no risk of a tax audit, since only this "honesty" will allow him to be reimbursed on his tax assets and receive a check from the tax administration (such a situation was by definition impossible before the tax asset was created). More generally, the tax asset has the effect of significantly reducing the net tax actually owed by shareholders under the income tax, and thus it reduces the incentive for fraud by the same amount. Moreover, in addition to this indirect effect on fraud incentives, the tax asset has also had a direct, mechanical effect on the level of income declared under the income tax: since the 1965 tax year, the incomes appearing in the statistical tables compiled by the tax administration that we have used in estimating the levels of the various top-income fractiles always include the amounts of any tax assets.<sup>99</sup> In other words, if the tax asset had existed in the interwar era, the amount of very high capital incomes declared over that period would have been even higher than we observed, and this is independent of the fact that the existence of tax assets probably would have led to a significant decline in fraud.<sup>100</sup>

Let us also note that the considerable growth in the volume of capital incomes legally exempt from the progressive income tax can only have helped to reduce incentives for fraud. Though it is true that the most popular incomes among owners of large investment fortunes (dividends) have always been fully

subject to the progressive income tax schedule, the growth of these exemptions, and in particular the creation of the optional levy, probably played a “safety valve” role, allowing “capitalists” to shield some of their incomes from the stringency of the progressive schedule, without even having to engage in fraud. Recall, finally, that the many tax-reduction mechanisms arising from particular expenses (investments in the French overseas territories, real estate investments, etc.), which expanded in the 1980s and 1990s, did not exist in the interwar era: at that time, declaring a very high income under the progressive income tax necessarily meant that one’s tax liability was also very high. At the end of the century, very high incomes declared to the income tax, which we have used to estimate the level of the various top-income fractiles, sometimes belonged to taxpayers who, thanks to tax-reduction mechanisms (or thanks to the tax asset), were actually subjected to only a very small tax (or even zero or negative taxes), and this was perfectly legal.<sup>101</sup>

For all of these reasons, it seems unrealistic to assume that fraud could be greater at the end of the century than it was in the interwar era. By the same token, it seems improbable to us to imagine that the magnitude of fraud could have increased in such proportions that the phenomenon of the collapse and nonreconstitution of very high capital incomes could be attributed to a “tax illusion” of this kind. It is particularly striking to note that in the late 1930s, the average income declared by tax units of the P99.99–100 fractile (expressed in 1998 francs) was about 5–6 million francs, just below the level observed in the 1990s (about 7–8 million francs) (see Chapter 2, Figure 2-7), even as the average income per tax unit for the overall population multiplied by a factor of about 4.5 between those two dates.<sup>102</sup> This fact deserves to be kept in mind: in the late 1930s, top marginal income tax rates had been at extremely high levels for nearly twenty years, and for nearly twenty years top income earners had had time to develop strategies allowing them to hide their incomes, all within a legal and regulatory framework in which the tax administration’s investigatory powers were highly limited (at least until 1937–1938). In addition, the very high incomes declared in the late 1930s had already been sharply curtailed by the economic crisis and the resulting bankruptcies, a curtailment that came only shortly after the shocks of the First World War. And, despite everything, the average income declared by tax units of the P99.99–100 fractile in the late 1930s stood just below the level observed at the end of the twentieth century, even as average income for the whole population more than quadrupled. This inescapable reality

seems to attest to the very real nature of the phenomenon studied here: namely, the magnitude of the collapse and nonreconstitution of very high capital incomes was simply too massive for it to be explained by evasion (legal or illegal).

### 3. *Findings from Bequest Declarations*

Thus, by every indication, the collapse and nonreconstitution of very high capital incomes represented a very real economic phenomenon, not a “tax illusion.” Yet, however far-reaching the arguments advanced above were, it would be insufficient to stop there: the phenomenon that interests us here is chiefly about the evolution of wealth distribution, and it would thus be particularly convincing if it could be confirmed on the basis of sources that pertain directly to wealth holdings, rather than just the incomes derived from them. Indeed, recall that from a macroeconomic point of view, capital incomes have lost none of their significance. According to the estimates in the national accounts, the capital income share of firms’ value-added at the end of the twentieth century stood at approximately the same level as at the start of the century; so did the capital income share of household income, for that matter.<sup>103</sup> Thus, the collapse and nonreconstitution of very high capital incomes must correspond to a marked flattening of wealth inequality: if our conclusions on the basis of incomes are correct, we should observe that very large wealth holdings never regained their levels from the start of the century. Did they?

Bequest declarations are the only source that allows us to answer this question in a satisfactory way. Of course, this source has certain limits—if only because, by definition, it pertains only to the wealth holdings of the deceased, not those of the entire population, but it does have the enormous advantage of allowing us to study the evolution of very large wealth holdings over the entire twentieth century. Other available sources pale in comparison. The wealth studies carried out by INSEE in the 1980s and 1990s, which we used above to understand the structure of wealth holdings whose resulting incomes escape income tax, are a relatively recent creation, and they do not make it possible to undertake long-term studies. In addition, like all studies based on surveys, they do not allow us to study the specific case of very large wealth holdings. Statistics derived from the wealth tax (the *impôt sur les grandes fortunes*, IGF, and then the *impôt de solidarité sur la fortune*, ISF) instituted and implemented by the

Socialist governments of the 1980s and 1990s should, in principle, allow us to study very large fortunes. But, in addition to the fact that the wealth declarations submitted within the framework of the IGF and ISF are unfortunately not subjected to annual and systematic statistical analysis by the tax administration (the available statistics are relatively meager and cover only a few isolated years), this source by definition covers only the 1980s and 1990s.<sup>104</sup> Finally, we may mention the investigations and rankings of large fortunes that are regularly published in magazines. Here again, this is a “source” that hardly lends itself to a study of long-term wealth inequality, especially since the methodology and the sources used by these investigations are always relatively uncertain, and vary strongly from one magazine to another.<sup>105</sup> On the other hand, bequest declarations are a source of quite remarkable stability and consistency over time, despite the fact that these declarations were, unfortunately, somewhat neglected by the French tax administration in the late twentieth century.

Thus, we will begin by describing the major features of the bequests statistics used here, as well as how we have analyzed them (section 3.1) (the reader with little interest in these technical details can skip directly to the following subsection). Then we will present the principal facts that we have been able to bring to light from the estimates based on these raw materials, starting with the spectacular long-term collapse in the level of very large bequests, a phenomenon whose magnitude again seems far too massive to be explained by the idea of “tax illusion” (section 3.2). Finally, we will try to determine the extent to which contemporaries who experienced these events “in real time” were aware of this collapse of very large wealth holdings, and we will see that, as with top incomes, the evolution of the tax brackets used in the legislation represents an extremely valuable source for answering this question (section 3.3).

### 3.1. The Source Used

As we saw in Chapter 4, the progressive inheritance tax was established in France by the law of February 25, 1901. This law represents a major break, not only in the history of taxation, but also in the history of tax statistics. Because the inheritance tax was entirely proportional until 1901, the administration could, in effect, calculate the tax owed by heirs without having to add up the various components of wealth passed on in the bequests: one could merely apply the single tax rate separately to each house, each piece of land, each investment

security, and so on, which the heirs, moreover, were not even required to declare to the same collections office. The practical result was that before 1901, the tax administration had never sought to compile rankings of bequests as a function of their amounts; it merely compiled statistics on the overall volume of bequests declared in France, giving no indication of the distribution of this overall volume by the size of the wealth holdings in question. These aggregate statistics, which have existed since 1826, are not without interest: for example, they make it possible to observe the very rapid growth in the volume of bequeathed assets in France over the course of the nineteenth century, as well as the inexorable ascent of investment wealth, which in 1826 represented just over one-third of the overall volume of bequests (versus two-thirds for landed wealth), but which had become the large majority by the beginning of the twentieth century.<sup>106</sup> But these overall statistics provide no information about the inequality of bequests: for studying the evolution of wealth inequality in nineteenth-century France, the bequest statistics compiled by the tax administration are of no utility, and one must go back to the individual bequest declarations preserved in the governmental archives and try to compile representative statistics oneself on the basis of these declarations, which raises considerable difficulties.<sup>107</sup>

The law of February 25, 1901, completely transformed the situation. Starting in 1901, the implementation of progressivity forced the administration to add up the different components of wealth passed on in a given bequest, and, also starting from that date, the administration began to compile rankings of bequests as a function of their amounts and publish the corresponding statistical tables. The most interesting table from our point of view shows the number and amounts of declared bequests, as a function of a certain number of bequest brackets: bequests with total amounts (before being divided among the heirs) between 5 million and 10 million francs, bequests with total amounts between 10 million and 20 million francs, and so forth. This table, which the tax administration has compiled and published at (more or less) regular intervals since the 1902 bequest-tax year, is the exact equivalent of the tables showing the number and amounts of declared incomes as a function of a certain number of income brackets, which have been compiled each year since the 1915 tax year. In other words, just as the creation of a progressive income tax by the law of July 15, 1914, allows us to study the evolution of income inequality since 1915, the creation of a progressive bequest tax by the law of February 25, 1901, allows us to study the evolution of wealth inequality since 1902. In particular, as with the

statistical tables derived from tabulations of income tax returns, the statistical tables derived from tabulations of bequest tax returns have the enormous advantage of being based on a complete tabulation of all returns filed over the course of a given year, so this source allows us to estimate the levels of the various fractiles of very large bequests in an extremely precise way. However, a number of important differences between the statistics derived from income tax returns and those derived from bequest tax returns, as well as between the analyses we have carried out on the basis of these two sources, warrant explanation here.<sup>108</sup>

First of all, unlike the system that was used for income tax returns, which have been tabulated every year since the 1915 tax year (without exception), the tax administration unfortunately has not carried out annual tabulations of bequest declarations. The key statistical table, showing the number and amounts of bequests as a function of a certain number of bequest brackets—which is also the table that has been available for the greatest number of years—was compiled every year over the period 1902–1913 (except in 1906 and 1908). But the series was interrupted with the First World War, and it resumed only in 1925, from which date tabulations of bequest declarations were carried out every year until 1964 (except 1928, 1934, 1961, and 1963). At the end of each of those two distinct periods of near-annual bequest-declaration tabulations (1902–1913 and 1925–1964), the tax administration decided to put a definitive stop to this long series. Thus since 1964, the only annual bequest statistics compiled by the tax administration pertain to the number and overall amount of bequests declared in France, as had been the case in the nineteenth century.<sup>109</sup> Fortunately, however, this abandonment of bequest statistics—which is quite interesting in and of itself, and to which we will return in this section—was compensated by the organization of large-scale studies of bequest statistics in 1984 and 1994: the tax administration compiled representative samples of all bequest declarations submitted over the years 1984 and 1994, and compiled statistical tables similar to the earlier ones, for those two years.<sup>110</sup> It should be made clear that these studies in 1984 and 1994 were not “studies” in the usual sense. Although they were based on samples of bequest declarations, rather than all declarations, what is important for our purposes is that the samples contained the entire set of very large bequests, so the statistical tables derived from these studies make it possible to estimate the levels of the various fractiles of large bequests just as precisely as did the comprehensive tabulations that had been carried out up to 1964.<sup>111</sup> In other words, we do have a continuous and consistent series of



bequest statistics running from 1902 to 1994. Obviously, the fact that our estimates cover only the years 1902–1913 (except 1906 and 1908), 1925–1964 (except 1928, 1934, 1961, and 1963), 1984, and 1994 represents a significant handicap in studying high-frequency fluctuations in the various fractiles of large bequests, especially for the last third of the twentieth century. But as we will see, bequest sizes change relatively slowly, and the results show long-term changes that are clear and massive enough for us to be able to move on to constructing annual estimates.

The second important difference concerns the way we have analyzed the statistics. When it came to the statistics derived from income tax returns, our objective was to analyze all of the available data as systematically as possible: we wanted to be able to study both short-term fluctuations and long-term changes, and we wanted to estimate as rigorously as possible both the evolution of the various top-income fractiles and their shares of total income, their composition, their tax rates, and so on. The spirit in which we have analyzed the bequest statistics is far more modest: first and foremost, it was a question of attempting to confirm the principal long-term transformation that we observed at the level of incomes, namely, the collapse and nonreconstitution of very high capital incomes.

We proceeded in the following way. We started with the fact that the total number of deaths observed each year in France is relatively stable over the long run: if we exclude brief bursts due to wars, and if we also exclude deaths due to infant mortality, which were still very numerous at the start of the century, we observe that about 500,000 individuals (or very slightly more) died in France each year in the twentieth century, throughout the century.<sup>112</sup> Not all of these 500,000 annual deaths resulted in a bequest declaration, however. Bequest declarations pertain only to those with something to bequeath, which in practice excludes a significant fraction of deaths; in addition, since 1956, bequests whose total amounts do not exceed a certain threshold are officially exempted from the obligation to file a declaration.<sup>113</sup> As with our study of income inequality, we have thus chosen to limit ourselves to the top decile of the social hierarchy: for each year, we estimated the level of the average bequest for the largest 50,000 bequests (which corresponds approximately to the 50,000 bequests with the greatest wealth, that is, the P90–100 fractile of the distribution of wealth holdings at death), the level of the average bequest for the largest 25,000 bequests (which corresponds approximately to the P95–100 fractile), and so on,

up to the average bequest for the largest fifty bequests (which corresponds approximately to fractile P99.99–100). We often make use of the notations P90–100, P95–100, etcetera, in referring to the various fractiles of the wealth distribution at death (or more simply, the "hierarchy of deceased"), that is, the largest 50,000 bequests in a year, the largest 25,000 bequests in a year, and so forth.

These estimates have a number of limits. First of all, in contrast to what we did for top incomes, we have not sought to estimate the large bequests as a share of the total volume of wealth at time of death.<sup>114</sup> It is, in fact, extremely difficult to estimate the evolution of the total volume of wealth at time of death in a consistent way over the long run. In addition to the fact that small bequests have been officially exempt from the requirement to file since 1956, it is likely that the tax administration has always shown a degree of tolerance for heirs who fail to declare such small bequests.<sup>115</sup> Also, estimates of small bequests pose significant practical and conceptual difficulties: for a large part of the population, "wealth" has always been limited to household objects and personal effects, whose market value is often difficult to determine precisely (although the total volume of these small bequests is far from negligible). We should add that macroeconomic data on wealth holdings (and thus also on wealth at time of death) are far more meager than those concerning income, as estimates of total household wealth generally cover only a few isolated years (there is no continuous long-term series, in contrast to income), and the few available estimates pose formidable problems of consistency and comparability.<sup>116</sup> Rather than dividing our estimates of the levels of the various large-bequest fractiles by an uncertain denominator, we have preferred simply to examine these levels and their evolution over the twentieth century. As we will see, this method is sufficient for our purposes here: our study of top incomes has shown us the full extent of the disparities characterizing the top decile of the social hierarchy—from the "middle classes" (fractile P90–95) to the "200 families" (fractile P99.99–100)—and our estimates will enable us to compare the trajectories of wealth holdings in the various top-decile fractiles of the hierarchy of deceased with the trajectories of the incomes in the various top-decile fractiles of the income distribution.

Also, we did not attempt to analyze all of the statistical tables that the tax administration compiled on the basis of bequest declarations. We already discussed the tables that show not only the number and amounts of bequests as a function of a certain number of bequest brackets, but also the amounts of the various types of assets (furniture, stock, bonds, etc.) declared within these

different bequest brackets; those tables were very useful in determining, for instance, how the distribution of securities between stocks and bonds changed as a function of wealth.<sup>117</sup> Unfortunately, those tables were compiled for only a few isolated years, and thus we have not attempted to carry out precise estimates of the evolution in the composition of the various large-bequest fractiles.<sup>118</sup> The tax administration also more or less regularly compiled tables showing, not the number and amounts of bequests as a function of a given number of bequest brackets (before their division among the various heirs), but rather the number and amounts of “bequest shares” as a function of a certain number of “bequest share” brackets (“bequest share” refers to the share of a bequest actually going to each heir). These tables would be indispensable if we were trying to estimate the precise evolution of the average tax rates to which the various bequest fractiles were subjected: the progressive inheritance tax has always been calculated not according to the total bequest passed on by the deceased (before division among heirs), but separately at the level of each heir and each bequest share.<sup>119</sup> Because of both the irregularity with which these tables on bequest shares were compiled, and most importantly, the extreme complexity of the bequest tax schedules, we have not attempted to analyze that information in this book.<sup>120</sup> (Bequest schedules vary not only as a function of the family relationship between the deceased and the heirs, but also—sometimes—as a function of the number of children the deceased had—especially in the interwar era—which it is not always possible to account for properly on the basis of the available tables.) Thus, all of our estimates concern the bequest fractiles within the hierarchy of wealth at time of death, without taking into account how the bequests within those various fractiles were divided among the heirs. Finally, we also have not sought to analyze the statistical tables that show the number and amounts of bequests as a function of bequest brackets as well as the age of the deceased. These tables could be used to obtain separate estimates of the various fractiles of wealth-at-time-of-death for each age bracket, which—combined with the results showing the coefficients for each age bracket’s weight within the population—could make it possible to estimate the various fractiles of the wealth distribution for the overall population (rather than just the population of deaths). In light of the fact that these bequest statistics by age bracket exist only for a few isolated years, as well as the imprecision inherent in such a method (the deceased within a given age group are not a random sample of that age group), we preferred not to use that information within this book, making

do instead with estimates of the various fractiles of the hierarchy of wealth at time of death (for all deaths combined, whatever their age).<sup>121</sup> For a full scale study of inheritance in twentieth-century France, it would be essential to try to overcome these difficulties and use that additional information as systematically as possible (that is, composition, bequest shares, age). But, given our needs here, and given the extremely clear and massive nature of the results we have obtained, the limited analysis we have undertaken seems amply sufficient.

### 3.2. The Results: The Collapse of Very Large Bequests

Let us now move on to the results we have obtained from our analysis of bequest statistics. We will start with the case of the "middle classes," that is, bequests corresponding to the P90–95 fractile of the hierarchy of deceased, in other words, the lower half of the largest 50,000 bequests declared each year. Expressed in 1998 francs, the average bequest passed on by the "middle classes" (fractile P90–95) at the beginning of the twentieth century and the eve of the First World War was about 340,000–350,000 francs; the exact amount varied very slightly according to the year, but with no clear trend, either upward or downward (see Figure 6-1). "Middle-class" wealth was then subjected to the crises of the "first twentieth century": the value of bequests passed on by the P90–95 fractiles of the hierarchy of deceased collapsed following the First World War, before recovering in the 1920s, and then collapsing again during the 1930s crisis, and above all during the Second World War (see Figure 6-1). At the end of the Second World War, the children of deceased members of the "middle classes" had to share wealth holdings, whose average level (expressed in 1998 francs) was less than 100,000 francs, the lowest level in the twentieth century. Bequests passed on by the "middle classes" (fractile P90–95) then experienced spectacular and uninterrupted growth over the second half of the century, with an average bequest of about 1.1 million francs in the 1990s (see Figure 6-1). In other words, the average value of wealth holdings accumulated and passed on by the "middle classes" (fractile P90–95), expressed in 1998 francs, rose from barely 350,000 francs at the start of the century to about 1.1 million francs at the end of the century, thus multiplying by a factor of about 3.2.<sup>122</sup>

There is nothing surprising about this considerable degree of enrichment, since it is the logical results of the very rapid growth in incomes. Of course, comparisons between fractiles of the income distribution and fractiles of the

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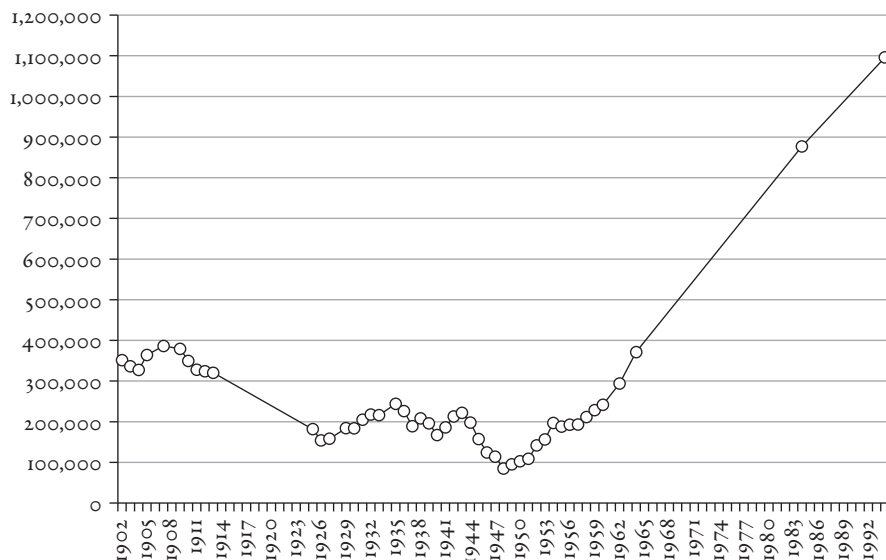


FIGURE 6-1. The average bequest of the “middle classes” (fractile P<sub>90–95</sub>), from 1902 to 1994 (in 1998 francs)

Source: Column P<sub>90–95</sub> of Table J-9 (Appendix J)

hierarchy of deceased must be made with caution, since the two hierarchies do not perfectly coincide: the “middle classes” (fractile P<sub>90–95</sub>) of the hierarchy of deceased are not the “middle classes” (fractile P<sub>90–95</sub>) of the income distribution, if only because the former are made up solely of deceased, whereas the latter are made up of households from all age groups. But when the average income of the “middle classes” (fractile P<sub>90–95</sub>) of the income distribution multiplies by a factor of about 4.7 between the century’s two endpoints,<sup>123</sup> it would be highly surprising if the wealth holdings accumulated and bequeathed by the “middle classes” (fractile P<sub>90–95</sub>) of the hierarchy of deceased did not also experience very rapid growth.

We may also note that it is entirely consistent for the growth of bequests to have been less than the growth of incomes (multiplying by 3.2 in the first case, 4.7 in the second case): the deceased of the 1990s are, in effect, individuals who had to await until the end of their active lives to benefit fully from the higher incomes brought about by the *Trente Glorieuses*, and thus it is to be expected that they would not have been able to accumulate wealth holdings in propor-

tion to the long-term growth of incomes. For the same reasons, it is quite logical that “middle-class” bequests (fractile P90–95) continued to grow at a robust pace over the 1980s and 1990s (see Figure 6-1), even though income growth had slowed sharply since the late 1970s:<sup>124</sup> the further one moves through time, the more one finds deceased individuals who benefited from the *Trente Glorieuses* during their active life, and this process of bequests catching up to incomes will come to an end only when all those who worked during the *Trente Glorieuses* have died. Here we have a particularly clear illustration of the fact that the evolution of wealth, and especially the evolution of wealth at time of death, is always delayed to a certain extent relative to the evolution of incomes. It will also be noted that having estimates for the final third of the century that are highly isolated in time does not pose a major problem (at least when it comes to identifying long-term trends): bequests turn over slowly, at the same pace as generations, and the isolated estimates we have for the years 1964, 1984, and 1994—which are not far from being in perfect alignment with Figure 6-1—leave no doubt about the overall trend.

Let us now consider the case of the fractiles above the “middle classes” (fractile P90–95) within the hierarchy of deceased; as we will see, the trajectories of these fractiles are also entirely consistent with those observed for incomes. As was the case with the income statistics, the principal finding from our analysis of bequest statistics is that the very large long-term increase in wealth observed among the “middle classes” (fractile P90–95) gradually and steadily tapers off as we enter the top percentiles of the hierarchy of deceased, and even turns into a long-term decline in wealth when we reach the upper strata of the top 1 percent: the average bequest passed on by the P90–95 fractile of the hierarchy of deceased, expressed in 1998 francs, multiplied by a factor of more than 3 between the century’s two endpoints; this coefficient then falls to slightly less than 2 for fractile P95–99; and within the P99–100 fractile it stands significantly below 1.<sup>125</sup> As with incomes, this phenomenon takes on particularly spectacular proportions when we climb to the P99.99–100 fractile (the “200 families”). Indeed, we find that these wealth holdings never recovered from the shocks brought on by the two world wars and the crisis of the 1930s: at the end of the twentieth century, the average bequest passed on by the P99.99–100 fractile of the hierarchy of deceased—that is, the average value of the fifty largest bequests declared each year—stands significantly below its level from the beginning of the century (see Figure 6-2). On the eve of the First World War, the

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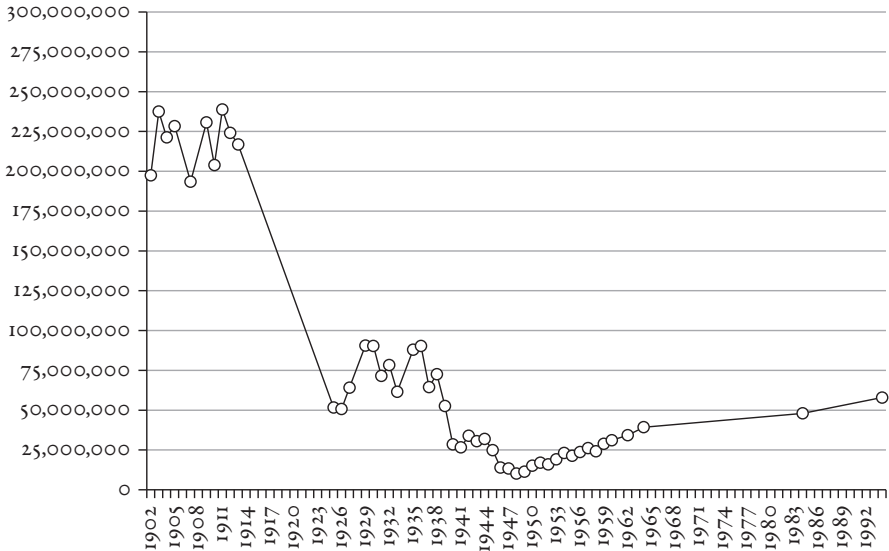


FIGURE 6-2. The average bequest of the “200 families” (fractile P99.99–100), from 1902 to 1994 (in 1998 francs)

*Source:* Column P99.99–100(\*) of Table J-9 (Appendix J)

average annual value of these fifty largest bequests, expressed in 1998 francs, was about 200–250 million francs; this average value could vary significantly from one year to the next, but these erratic movements have no clear trend, either upward or downward (see Figure 6-2). If we take the average of all the years of the 1902–1913 period, we get an average bequest passed on by the P99.99–100 fractile of the hierarchy of deceased of about 220 million francs.<sup>126</sup> By way of comparison, in the 1990s, despite very substantial and steady growth relative to the trough levels reached at the end of the Second World War, the average value of the fifty largest annual bequests was barely 60 million francs (see Figure 6-2), just over one-quarter of the average level observed in the years 1902–1913.<sup>127</sup>

In other words, the average value of bequests passed on by the “middle classes” (fractile P90–95) rose by a factor of roughly 3 between the century’s two endpoints, and, at the same time, the average value of bequests passed on by the “200 families” (fractile P99.99–100) fell by a factor of about 4. Quite logically, the ratio between the average bequest of the “200 families” (fractiles P99.99–100) and the average bequest of the “middle classes” (fractile P90–95)



## WAS THE “END OF THE RENTIERS” A TAX ILLUSION?

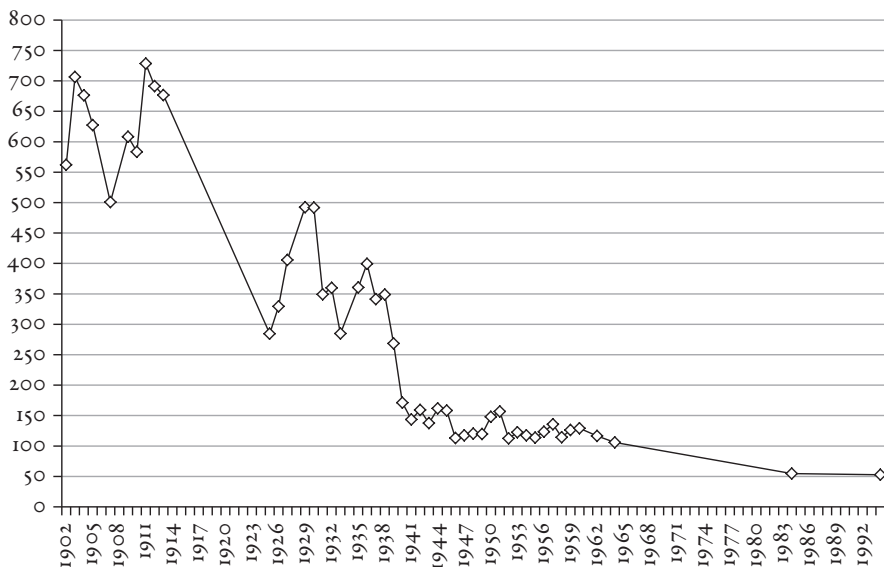


FIGURE 6-3. The ratio between the average bequest of the “200 families” (fractile P99.99–100) and the average bequest of the “middle classes” (fractile P90–95), from 1902 to 1994  
*Source:* Column P99.99–100(\*) / P90–95 of Table J-9 (Appendix J)

thus fell by a factor of roughly 12 between the century’s two endpoints: the ratio fluctuated around 600–650 at the beginning of the century, with the erratic movements previously noted, and with an average value of about 630 for the years 1902–1913 (220 million francs for the P99.99–100 fractile versus 350,000 francs for the P90–95 fractile); in the 1990s, this ratio is about 50–55 (barely 60 million francs for the P99.99–100 fractiles, versus 1.1 million francs for the P90–95 fractile) (see Figure 6-3).<sup>128</sup> As with the collapse of top incomes, it obviously should not be inferred from these figures that large fortunes no longer exist. Large fortunes never ceased to exist, as attested by the fact that each year in the 1990s, somewhere in the neighborhood of fifty bequests having an average value of 60 million francs each were declared in France; therefore it is hard to avoid speaking of “large” fortunes when it comes to bequests that are more than fifty times the size of those passed on by the “middle classes” (fractile P90–95), especially when those “middle classes” belong (by definition) to the 10 percent of deceased with the largest wealth holdings. Thus, the issue is not whether “large” fortunes disappeared (which is obviously untrue), but

rather an awareness of the fact that large fortunes, both in absolute terms (in constant francs) and relative to the society of their time, had reached frankly astronomical levels on the eve of the First World War. If by the end of the twentieth century the fifty largest bequests had regained their levels from the beginning of the century (relative to the average “middle class” [fractile P90–95] bequest), they would now be twelve times larger than actually are (720 million francs, rather than 60 million francs). In our view, these figures testify above all to the considerable size of the wealth holdings that can be accumulated and concentrated in a small number of hands in a world without taxes (or nearly so), as had been the case in the nineteenth century and until 1914.

In fact, for us, these results are the most convincing proof of the quite real nature of the transformations we observed in terms of income, as well as the plausibility of the interpretation we have proposed. Simply the fact that we found exactly the same long-term phenomenon with bequest tax returns that we did with income tax returns (very high rates of wealth increases for the “middle classes” [fractile P90–95], net reduction in wealth for the “200 families” [fractile P99.99–100]) is in itself extremely persuasive. Indeed, these two sources are highly independent of each other: the bequest declarations were submitted by heirs at the end of a lifetime of wealth accumulation, whereas the tax returns measure annual income flows. In particular, the opportunities for evasion (legal or illegal), though never entirely absent, are completely different in the two cases. In the case of the inheritance tax, the main legal exemption pertains to life insurance contracts. It cannot be ruled out that this exemption, which dates to the law of July 13, 1930, results in a slight exaggeration of the size of decline in very large bequests that actually took place between the century’s two endpoints. But as we have seen, the resulting bias could only be of relatively limited scope: we can estimate that life insurance contracts represent about 20 percent (at most) of very large wealth holdings.<sup>129</sup> Of course, the corresponding tax break is hardly trivial, especially when it concerns bequests of fortunes in the tens of millions of francs. But it is clear that this maximum markup of about 20 percent can in no way explain why the value of the fifty largest annual bequests at the end of the century was one-fourth what it was at the beginning of the century, and even less so why the ratio between the fifty largest bequests and the bequests of the “middle classes” (fractile P90–95) fell by a factor of 12.<sup>130</sup>

More generally, the magnitude of the transformations observed for bequest declarations simply seems too massive to be explained by evasion (legal or il-

legal). For example, even assuming that the best-off heirs at the end of the century manage to hide half the inheritances actually passed on to them (and assuming that their counterparts at the start of the century spontaneously and fully declared their inheritances to the tax administration), the average value of the fifty largest annual bequests still would have fallen by a factor of 2 (rather than 4) between the century's two endpoints, and the ratio between these fifty largest annual bequests and the bequests of the "middle classes" (fractile P90-95) still would have fallen by a factor of 6 (instead of 12). For such evasion to explain the reduction in wealth disparities between the P90-95 and P99.99-100 fractiles of the hierarchy of deceased, one would have to assume that the best-off heirs at the end of the century declared less than 10 percent of the inheritances they actually received (and that their counterparts from the beginning of the century had a 100 percent "rate of declaration"). Such an assumption seems especially unlikely given that, as with income tax returns, bequest tax fraud was, by every indication, actually greater at the beginning of the century than it was at its end, so the existence of fraudulent practices tends more to strengthen, rather than weaken, the results we have obtained from bequest tax returns. At the start of the century, the general impression was that bequest tax fraud became endemic as soon as the vote on the law of February 25, 1901, had taken place, and that the levels and numbers of large fortunes appearing in the statistical tables compiled by the tax administration from 1902 onward were thus artificially "low."<sup>131</sup> As with the interwar income tax returns, this general sentiment was no doubt excessive: in fact, it has always been more difficult to hide the components of an inheritance than the components of an income (it is impossible to hide a death, it is practically impossible to hide real estate, and securities need to be registered for the new owner to possess them securely), and it is likely that bequest tax fraud has always been relatively limited, even at the beginning of the century. Nevertheless, as with incomes, the opportunities for bequest tax fraud were objectively greater at the start of the century: the "non-inquisitorial" spirit of the era's tax system resulted in sharp limits on the investigatory powers of the tax administration, especially compared to the relatively extensive powers possessed by the late twentieth-century administration, which, in verifying the amounts of declared bequests, has access, among other things, to all the information held by the life insurance companies, banks, stock exchange companies, and so forth, that managed or guaranteed the assets of the deceased individual (in the event that one of their clients dies, all of these

establishments are required to contact and pass on to the tax administration all of the necessary information, on their own initiative).<sup>132</sup>

Let us add that the phenomenon of donations, which we have not discussed so far, also tends to strengthen our conclusions rather than weaken them. In general, the problems posed by donations are potentially extremely serious: the fact that some wealth holdings can be passed on (at least partially) via donations undertaken before death means that the amounts shown in bequest tax returns may be seriously understated (relative to fortunes that are actually passed on), and in a perfectly legal way. Yet this poses a much greater problem for the beginning of the century than for its end. Indeed, since the unification of the bequest and donation tax regimes—carried out by the Vichy government (law of March 14, 1942) and never challenged by later governments—the statistical tables compiled by the tax administration have covered both donations and bequests, so our estimates for the various fractiles of large bequests in the years 1942–1994 include not just bequests strictly speaking, but also all donations carried out by the deceased prior to their death (these were added to the bequests).<sup>133</sup> That was not the case in the 1902–1941 period, nor the 1902–1913 period in particular. Under the law of February 25, 1901, bequests and donations were, in fact, taxed entirely separately; the statistical tables compiled by the tax administration at the start of the century covered only bequests; and thus our estimates for this period do not take donations into account. All we know is that at the start of the century the overall volume of donations was far from negligible, but it is very difficult to say how this overall volume was distributed as a function of wealth passed on to heirs.<sup>134</sup> According to observers at the time, donations were very frequently used by wealthy taxpayers to escape the progressive inheritance tax adopted in 1901, which would mean that our estimates for the levels of large bequests in the years 1902–1913 are in fact seriously understated, and thus that the long-term collapse in very large bequests was actually even more massive than we have concluded.<sup>135</sup>

Besides allowing us to confirm the very real nature of the collapse and non-reconstitution of very high capital incomes, the results of our analysis of bequest statistics can also be used to refine the periodization and quantification of the phenomenon we observed at the level of income tax returns. It is particularly interesting to note that the overall magnitude of the phenomenon is significantly greater for bequests than it is for incomes. According to our estimates, the ratio between the average income of the P99.99–100 and P90–95 fractiles

of the income distribution fell by a factor of about 5 between the century's two endpoints, whereas the ratio between the average bequests passed on by the P99.99–100 and P90–95 fractiles of the hierarchy of deceased fell by a factor of about 12. This greater compression in wealth inequality is the result of the particularly massive collapse undergone by very large bequests: according to our estimates, the average income of the P99.99–100 fractile of the income distribution (expressed in 1998 francs) fell by barely 10–20 percent between the century's two endpoints (see Chapter 2, Figure 2-7), whereas the average bequest passed on by the P99.99–100 fractile of the hierarchy of deceased (expressed in 1998 francs) fell by a factor of about 4 (see Figure 6-2). How should we interpret the fact that the "200 families" (fractile P99.99–100) seem to have experienced a far more marked long-term collapse in terms of wealth than they did in terms of income, even though the incomes of this social group have always been made up mostly of income from their wealth holdings?

Of course, as is the case for the "middle classes" (fractile P90–95), one must be cautious with this type of comparison: the fractiles of the hierarchy of deceased do not perfectly coincide with the fractiles of the income distribution, and the wealth holdings of a given fractile, especially the wealth holdings of the deceased, can run several decades behind the incomes of the corresponding fractile. The fortunes passed on by the "200 families" (fractile P99.99–100) who died in the 1990s had been built up by individuals who lived through the Second World War, and whose incomes took a certain amount of time before they significantly exceeded the trough levels reached at the war's end. Recall, for example, that in the 1950s the average income of the P99.99–100 fractile of the income distribution (expressed in 1998 francs) was about 2–3 million francs, roughly one-fourth the level estimated for the beginning of the century (see Chapter 2, Figure 2-7). Thus, it is perfectly logical that the "200 families" (fractile P99.99–100) experienced a more marked collapse in terms of wealth at time of death than they did in terms of income, between the century's two endpoints. For the same reasons, it is not surprising that our estimates show the compression in wealth inequality continuing in the 1980s and 1990s (though at a slower pace) (see Figure 6-3), even though the 1980s and 1990s witnessed a new widening of income inequality: changes in wealth inequality always depend more on past shifts in income inequality than they do on current developments.<sup>136</sup> Bequest statistics can confirm major long-term shifts in the wealth distribution, but they provide only very indirect evidence when it comes to determining the

precise magnitude and periodization of changes in income inequality. In particular, it will be many years before the effects of the renewed upward trend in income inequality in the 1980s and 1990s register in the bequest statistics.

Moreover, the problem of asset valuation (for real estate and investment assets) means one must be suspicious of certain overly sudden changes in our estimates of the level of the various bequest fractiles. To convert the value of bequests from current francs to 1998 francs, we used the consumer price index, as we had done to convert incomes. This is probably the least bad method available, but it is far from perfect: it is acceptable over the long run, especially when comparing two periods characterized by a very high degree of monetary stability, as is the case for the twentieth century's two endpoints, but it can result in significant bias when examining short- and medium-term changes. In particular, it is certain that asset prices were artificially low (relative to consumption prices) at the end of the First World War and in the 1920s. That is particularly clear for real estate assets, which were severely hampered by the freezing of rents, whose levels in constant francs had experienced almost no increase since 1914. Nor was the chronic monetary and economic instability of the era very favorable to obtaining "correct" valuations for stocks and other investment assets. Thus, it is likely that the collapse in the value of bequests (expressed in 1998 francs) brought about by the First World War (see Figures 6-1 and 6-2) was in part "artificial," in the sense that it was probably explained in part by an exceptionally low level of asset prices, rather than by a "real" collapse in the volume of bequests (the purest example of a "real" collapse would be the "physical" destruction caused by the war). Obviously, the fact that the bequest statistics were interrupted in 1913 and did not resume until 1925 makes it no easier to resolve this question.

Nevertheless, the differences between the changes observed for incomes and those observed for bequests seem too massive to be explained by time lags or asset undervaluation. However long the time lags involved in the process of capital accumulation, it is hard to see why the average income of the "200 families" (fractiles P99.99-100) should have declined by barely 10-20 percent between the century's two endpoints, whereas the average bequest passed on by the "200 families" (fractile P99.99-100) should have fallen by a factor of 4 over the same period.<sup>137</sup> Likewise, however large the asset undervaluation prevailing after the First World War, it is hard to believe that at the end of the First World War and in the early 1920s the incomes of the "200 families" (fractile P99.99-100)

settled at a level barely below that which we estimated for at the beginning of the century (see Chapter 2, Figure 2-7), even as the value of bequests in the mid-1920s among the "200 families" (fractile P99.99–100) was less than one-fourth what it had been before the war (see Figure 6-2).<sup>138</sup> The most plausible hypothesis is that the long-term collapse in very high capital incomes was, in fact, even more massive than our estimates would lead one to believe, and that the explanation for this is that we have underestimated the level of top incomes at the start of the century (and thus the magnitude of the decline brought about by the First World War). What makes this hypothesis appear all the more plausible is that, lacking tax returns with which to obtain estimates consistent with the estimates that begin in 1915, we went out of our way to adopt a relatively "low" estimate for the level of top incomes in the years 1900–1910.<sup>139</sup>

Note, however, that the additional information provided by bequest statistics—which, by their nature, can never substitute for findings that could have been obtained only from pre-First World War income tax returns—do not undermine our initial conclusions: although the role played by the First World War in the process of the top-income collapse was probably less minor than our estimates of income levels might lead us to believe, that role still appears to have been secondary relative to the central role played by the crisis of the 1930s and, above all, the Second World War. In terms of bequest statistics, it is particularly striking to note that by the late 1920s, the ratio between the average bequest of the "200 families" (fractile P99.99–100) and the average bequest of the "middle classes" (fractile P90–95) had regained a level just below that observed before the war. In other words, the shock of the First World War had already been practically canceled out by the late 1920s, and it was only by the end of the 1930s crisis and the Second World War that the level of wealth inequality settled durably and structurally below its level at the beginning of the century (see Figure 6-3).<sup>140</sup> This fact seems particularly revealing, since this ratio is to a very large extent exempt from the problems of asset undervaluation previously discussed (since undervaluation applies to all bequests in the same way, at least to a first approximation). We may also note that the collapse in the average value of the fifty largest annual bequests (expressed in 1998 francs) caused by the Second World War was significantly more massive than the collapse brought about by the First World War,<sup>141</sup> which—setting aside the problem of short-term changes in asset prices<sup>142</sup>—seems consistent with the fact that destruction was greater in 1939–1945 than it was in 1914–1918.<sup>143</sup>



### 3.3. Were People Aware of This at the Time?

Were those who experienced the developments brought to light by this analysis of bequest statistics aware of these realities “in real time”? It is very difficult to answer this question, of course, given how diverse the opinions and perceptions of “contemporaries” have always been, and given the absence of sources that could measure them precisely. In the previous chapters, however, we have shown the extent to which the wealth collapse brought about by the crises of the 1914–1945 period left its imprint on social representations of inequality. Studying income tax legislation offered us some particularly convincing clues. For example, the fact that successive governments after the Second World War granted numerous tax breaks to capital income, to the point where such incomes became less heavily taxed than labor income—whereas the opposite balance had prevailed under the legislation drafted at the beginning of the century—is a particularly clear clue: after the wars and destruction, it had become clear that the fortunes of the past had largely disappeared, and that savings and the rebuilding of new wealth holdings now had to be encouraged.<sup>144</sup> Analyzing the tax brackets that have been in effect since the law of July 15, 1914, also showed us that after the Second World War, top brackets were set at structurally lower levels than in the interwar era and at the start of the century (relative to the average income of each period, but also in constant francs), which is living proof that very high capital incomes had largely disappeared from the social landscape.<sup>145</sup> Here, we would like to study the extent to which the same evolution can be seen for the size of the fortunes themselves (not just the incomes they produce): Did contemporaries express a clear awareness of the fact that the average value of the fifty largest annual bequests (expressed in 1998 francs) fell by a factor of 4 between the twentieth century’s two endpoints, from about 220 million francs at the start of the century to just 60 million francs in the 1990s?

As is the case for “high” incomes, we should not look to political rhetoric to illuminate this question, because it is extremely rare for politicians to risk giving figures that specify the level of wealth at which a fortune becomes “big.” On the other hand, the evolution of bequest tax brackets since the law of February 25, 1901, is an extremely valuable piece of historical evidence, and as is the case for incomes, tax law is pretty much the only thing that forces people to be precise about their thinking and stamp their somewhat abstract perceptions of their era’s inequalities onto concrete reality.

On the eve of the First World War, the top bracket of the progressive bequest tax schedule applied to bequests greater than 50 million francs of that time.<sup>146</sup> This bracket had been in effect since the law of March 30, 1902, which had built on the schedule first established in the law of February 25, 1901, by adding new brackets to it.<sup>147</sup> To get a sense of this 50-million-franc figure, it is perhaps useful to recall that francs from the beginning of the century must be multiplied by a factor of about 12 to get 1998 francs.<sup>148</sup> In other words, on the eve of the First World War, the top bracket of the bequest tax applied to fortunes greater than 1 billion 1998 francs. It must be remembered that bequest tax schedules have always been expressed in terms of "bequest shares," rather than the total value of a bequest (before it is divided among heirs).<sup>149</sup> Thus, if an inheritance was divided among several children, such a bequest would have to have a total value (expressed in 1998 francs) of several billion francs in order for the top bracket to apply.

In the late 1990s, the highest bracket of the progressive bequest tax—which was adopted by the law of December 29, 1983, in order to modify a schedule that was judged insufficiently progressive for very large bequests, and has never been modified since—applies to bequests (or rather, bequest shares) greater than 11.2 million francs: above 11.2 million francs, the marginal tax rate stops rising.<sup>150</sup> Between the century's two endpoints, therefore, the threshold of the top bequest tax bracket (expressed in 1998 francs) fell from 1 billion francs to 11.2 million francs, a nearly 100-fold decline, all in a country that had become far wealthier. These orders of magnitude ought to be kept in mind, because they show the extent to which the "large" fortunes that belonged to the social landscape at the beginning of the century were "larger" than those that legislators at the end of the century would permit themselves to stigmatize.

As was the case for income tax brackets, the facts examined here have a double significance. On the one hand, the decline in the threshold of the top bequest-tax bracket has obviously had a quite real impact on effective tax burdens: namely, in making the highest rates apply to fortunes that are significantly smaller than in the past, legislators have registered the fact that the fortunes of the past have to a large extent disappeared, and that more modest fortunes now have to be taxed heavily if one wants to obtain a suitable volume of tax receipts. On the other hand, this decline in the threshold of the top bequest-tax bracket also (and perhaps most importantly) has a symbolic dimension: this concerns the evolution of the wealth levels that successive governments have thought fit

to give a “public” existence. Indeed, at the beginning of the century, tax rates were, in any case, extremely low, even for large fortunes, and thus the symbolic dimension was key: as noted in the previous chapters, it was only after the First World War that the top rates of the bequest tax, like those of the income tax, reached their “modern” levels.<sup>151</sup> The marginal rate in effect before the First World War for bequests greater than 50 million francs (1 million 1998 francs) was only 5 percent (from 1902 to 1910), then 6.5 percent (starting in 1910) (whereas the marginal rate in the 1990s on bequests greater than 11.2 million francs is 40 percent).<sup>152</sup> In reality, at the beginning of the century, the marginal rate rose only mildly as a function of the size of the bequest. For example, between 1902 and 1910, the marginal rate on bequests between 1 and 2 million francs was already 3 percent, and the marginal rate on bequests greater than 50 million francs was only 5 percent.<sup>153</sup> Thus, the legislators’ objective was certainly not to “soak” very large fortunes, which were actually subject to tax rates not much higher than those on the fifty smallest fortunes. It was simply a matter of showing that large fortunes existed, that legislators were aware of this, and that they were including them in the tax schedule. As with the income tax, the bequest-tax brackets were reflections of an era: they were debated in Parliament, published in the press, all taxpayers affected by the tax in question (including the most modest) were led to reflect on them, and the fact that tax laws chose to display bequests greater than 50 million francs shows the extent to which very large fortunes fit naturally within the collective representations of inequality prevailing in France at the start of the century.

Conversely, the fact that governments at the end of the twentieth century refused to put fortunes of such astronomic size “on display” in the tax laws testifies to the fact that very large fortunes have, to a very large degree, disappeared from these representations: they are always present in a latent way, but no one dares any longer to point the finger at them explicitly. It is particularly striking to note that the wealth taxes (the *impôt sur les grandes fortunes*, IGF; then the *impôt de solidarité sur la fortune*, ISF) that were established and applied by the Socialist governments of the 1980s and 1990s have changed practically nothing about this state of affairs. The top bracket of the progressive IGF schedule instituted by the law of December 30, 1981, applied to fortunes greater than 10 million francs, the equivalent of barely 20 million 1998 francs.<sup>154</sup> In other words, in creating the tax on “large” fortunes that the Left had been demanding since the start of the twentieth century, the Socialist government that emerged from the

May 1981 elections was stigmatizing fortunes that were about 1 / 50 the size (expressed in 1998 francs) of those covered by the top bracket of the early twentieth-century bequest tax (20 million francs versus 1 billion francs). In the 1980s and 1990, new brackets to more heavily tax "very large fortunes" were added to the IGF schedule (then to the ISF schedule, starting from 1988), but the disparity was not seriously affected: at the end of the century, governments refused to stigmatize fortunes as large as those that appeared in the tax schedules at the beginning of the century.<sup>155</sup>

In fact, the long-term collapse in the size of the fortunes to which successive governments have chosen to give a "public" existence is significantly greater than the collapse of the fortunes themselves: the threshold of the top bracket of the bequest tax (expressed in 1998 francs) fell by a factor of about 100 between the two endpoints of the century (from 1 million francs at the start of the century to 11.2 million francs in the 1990s), but the average value of the fifty largest annual bequests fell by a factor of about 4 (from 220 million francs at the start of the century to 60 million francs in the 1990s). At the start of the century, legislators seemed unembarrassed about displaying astronomical fortunes in the texts of the laws, to the point where they were stigmatizing fortunes even "larger" than those that actually existed. At the end of the century, even the Socialist government that emerged from the May 1981 elections seemed embarrassed by the idea of "showing" fortunes of several hundreds of millions of francs in the tax laws, as if it had become inappropriate to put on display fortunes that everyone "knew" no longer existed.

The history of this transformation also shows that, as with incomes, it was the Second World War (and not the First World War) that represented the key turning point: in the interwar era, governments were not much more hesitant than their predecessors were at the beginning of the century to stigmatize very large fortunes, even though the latter had already been subject to the shock of the First World War. For example, in 1936, the Popular Front decided to create a new tax bracket on bequests (or rather on bequest shares) above 150 million francs,<sup>156</sup> the equivalent of about 550 million 1998 francs.<sup>157</sup> This bracket thus put on display fortunes whose levels were fifty times greater than the threshold of the top bequest tax-bracket of the late 1990s (11.2 million francs), and nearly thirty times higher than the threshold of the top bracket of the tax on "large" fortunes created in 1981 (about 20 million 1998 francs). It is particularly interesting to note that, as at the beginning of the century, this

“exhibitionism,” in the eyes of its promoters, had a symbolic dimension that was probably more important than its concrete effects of the tax burden on the fortunes in question. Although the Léon Blum government decided to raise the marginal rate on bequests greater than 150 million francs (in the direct line of inheritance) to 60 percent, the practical import of this new top marginal rate was in fact practically null, since the legislation of the time also included a system of “maximum effective rates” (maintained by the Popular Front) that could sharply limit the effects of the tax schedule’s “official” marginal rates (the “effective maximal rate” in effect for the direct line of inheritance was very slightly less than 60 percent).<sup>158</sup>

Finally, let us add that, as was the case for “top” incomes, this transformation in the categories used to stigmatize “large” fortunes has an importance that goes beyond the narrow question of the history of perceptions and representations of inequality; the evolution of “perceptions” has also had consequences for the statistical categories that different eras have produced, and that we have depended on in order to describe the “facts.” While the bequest brackets that the tax administration uses to tabulate bequest tax returns—like the income brackets it uses to tabulate income tax returns—have never been strictly identical to the brackets of the tax schedule, they have followed a similar trajectory, notably characterized by a genuine collapse in the level (in constant francs) of the top brackets.

For example, at the beginning of the century, the highest bracket used in tabulating bequest tax returns covered bequests greater than 50 million francs, just like the top bracket of the tax schedule. Thus, the statistical tables compiled and published by the tax administration at the time on the basis of those tabulations show the amount and number of bequests greater than 50 million francs (1 billion 1998 francs) declared each year, which confirms, moreover, that this top bracket played a mainly symbolic and “exhibitionist” role: only one bequest greater than 50 million francs (1 billion 1998 francs) was declared in 1903, three in 1904, three in 1905, zero in 1907, two in 1909, and so on.<sup>159</sup> These tabulations nevertheless allow us to estimate not only the average value of the fifty largest annual bequests, but also the average value of the twenty-five largest annual bequests, the five largest annual bequests, and so forth. The same is true for the interwar era.<sup>160</sup> On the other hand, the tabulations of bequest tax returns compiled since the Second World War do not permit such estimates, since the highest bracket usually includes several tens of bequests (except in the imme-

diate postwar period).<sup>161</sup> The top bracket used by the 1984 and 1994 studies in order to compile and publish tables by bequest bracket covers bequests greater than 10 million francs, which corresponds approximately to the threshold of the top bracket of the tax schedule (11.2 million francs), and which has proved sufficient in estimating with an acceptable degree of precision the average value of the fifty largest annual bequests, but it does not make it possible to go further than that.<sup>162</sup> In other words, very large bequests at the end of the century were not only smaller than those from the beginning of the century, but they were also far less well known, as if "showing" them risked causing their reappearance.

Moreover, the mere fact that annual and systematic tabulations of bequest declarations were definitively halted in 1964 is extremely revealing. We believe that to a large extent, the tax administration was merely adapting to changes in social demand, and that the abandonment of bequest statistics, far from being the result of a purely administrative decision, attests above all to a profound transformation in the way inequality has been perceived and represented in France over the twentieth century. At the start of the century, social inequality was perceived and represented through the prism of wealth inequality, and the bequest statistics published each year by the Ministry of Finance were the object of relatively intensive analysis: they were used in estimating total wealth in France, estimating the number of "millionaires," estimating the level of "top" incomes (which were still perceived as large capital incomes), and so forth.<sup>163</sup> Since the Second World War, inequality has been perceived and represented through the prism of the socioprofessional categories (*ouvriers, employés, cadres*, etc.): "large" fortunes and very large capital incomes play practically no role in these representations, so bequest statistics are no longer of much interest. Indeed, as we noted in the Introduction, bequest statistics have gone practically unanalyzed in France since the Second World War, which explains why we have no studies on the history of French wealth inequality covering the entire twentieth century.<sup>164</sup> In other words, the annual tabulations carried out by the tax administration after the war no longer really corresponded to the needs of society.

Examining the chronology and the publications of the finance ministry seems to confirm this interpretation. There is no doubt that the first interruption of bequest statistics in 1913 is explained by exceptional circumstances due to the war, rather than by a lack of interest in bequest declarations. When the tabulations resumed in 1925, the finance ministry made it clear that the interruption in the years 1914–1924 had been purely temporary, and that the production and

publication of bequest statistics would now resume its “normal” rhythm.<sup>165</sup> The circumstances of the 1964 “interruption” were quite different. It had already been decided in 1960 that annual tabulations would now only be carried out every two years (hence the gaps in 1961 and 1963). Then in 1965, when the tabulations of the 1962 and 1964 bequests were published, the finance ministry announced that it was planning to “reduce” the number of tables, and that it “would be grateful to its readers for their views on this cutback plan, as well as for any reasons that in their view might justify the continuation of this documentation” (“all correspondence should be addressed to the General Department of Taxation, 93 rue de Rivoli, Paris, 1<sup>er</sup>”).<sup>166</sup> It is likely that little was heard from the few remaining readers of this finance ministry publication, and that the ministry’s final decision was influenced by the impression that they were producing statistics that no one was using: thus the tabulations were never again carried out, and publication of the corresponding statistical tables definitively came to an end. This interpretation seems far more plausible than the official explanations given in the 1980s and 1990s to justify this abandonment of bequest statistics, which usually refer to “the burden they represented for the ministry’s staff.”<sup>167</sup> The “staff burden” had always been very heavy, of course, but it was probably lighter in 1964 than it had been at the beginning of the century or in the interwar era (only starting with the 1943 bequest tabulation was manual tabulation at the local level replaced with centralization of the declarations and machine analysis in Paris<sup>168</sup>), and it would have to be explained why a problem of resources would become decisive in the 1960s. The fact that statistics derived from the wealth tax (IGF, then ISF) were so neglected by the administration in the 1980s and 1990s—which still prevents us from studying the evolution of large wealth holdings as granularly as we would have liked—seems to flow from the same logic.<sup>169</sup>

Let us conclude by noting that, while the evolution of perceptions and depictions of inequality since the Second World War probably explains why bequest statistics were abandoned in 1964 (rather than the other way around), that statistical impoverishment may, in turn, have had an impact on the evolution of the depictions. Just as the structural reduction in the income brackets used to tabulate income tax returns ended up making top incomes in the 1980s and 1990s practically “invisible,”<sup>170</sup> the abandonment of bequest statistics means that it has become more difficult than it had in the past to study large wealth holdings. Before we revisit the problems posed by the measurement and



depiction of inequality at the dawn of the twenty-first century, which we will do in the Conclusion to this book, we must examine how the history of inequality in twentieth-century France, from the turn-of-the-century peak in inequality to the return of rising inequality at the end of the century, compares to foreign experiences, which will also allow us to better assess the relevance of the purportedly universal model described by the “Kuznets curve.”

## How Does France Compare with Foreign Experiences?

We now have a fairly good understanding of the history of income inequality in twentieth-century France. That history was characterized by a complex alternation between periods of falling inequality and periods of rising inequality (of which the most recent has taken place in the 1980s and 1990s), and certainly not by any “natural” or “spontaneous” tendency toward a reduction of inequality, contrary to the predictions of the “Kuznets curve.” Specifically, wage inequality, beyond its many short- and medium-term fluctuations, has been extremely stable in twentieth-century France. The only notable structural transformation concerns the collapse and nonreconstitution of very high capital incomes, and although there is every indication that this was indeed a real economic phenomenon rather than a tax illusion, the important point is that this evolution looks nothing like a “natural” or “spontaneous” economic process. The collapse of very large wealth holdings bears the stamp of the eminent political crises of the 1914–1945 periods, and the fact that such fortunes never regained their astronomical levels from the beginning of the century seems to be explained by the impact of the progressive income tax on the accumulation and reconstitution of large wealth holdings—the objective of that measure having always been to heavily tax the upper strata of the top 1 percent of the income distribution, rather than the “middle classes” (upper or otherwise), whose position vis-à-vis those with average incomes has always been considered legitimate.

What about other developed countries? Were the trends observed in France the product of a specific national history? Did the “Kuznets curve” never exist? This chapter will attempt to answer such questions. Let us be clear from the start that in the framework of this book, we have not attempted to carry out new analyses of the raw statistical materials available in foreign countries, and that the international comparisons presented in this chapter are based exclusively

on studies that have already been carried out in various countries. Given the noteworthy inadequacy of this literature, the comparative history of inequality offered here can be viewed only as a broad sketch.

First and foremost, we will see that the similarities between the different national histories of twentieth-century inequality seem to far outweigh the differences, and above all, these differences are consistent with the interpretive model we have proposed to explain the French experience (section 1). We then examine developments in inequality in the late nineteenth century and the pre-World War I period; these developments are of central importance for the notion of a spontaneous decline in inequality in the twentieth century, and we will see what tentative conclusions we can derive from the study of French and foreign experiences (section 2). Finally, in light of all these findings, we will revisit the question of the connection between inequality, redistribution, and economic development (section 3).

### *1. Generally Similar Experiences in the Twentieth Century*

As we noted in the Introduction, for the United States and most European countries (with the notable exception of the countries of southern Europe) we have estimates that allow us to study the evolution of the top-income share of total income over the twentieth century. Compared with the estimates we have carried out for France, however, these estimates suffer from a number of shortcomings. First, while our estimates cover every year of the 1915–1998 period (without exception), those available for other countries are generally not annual estimates; they often exist only for a few isolated years, which is inadequate for determining the precise dates at which various changes in the income distribution took place. In addition, whereas our estimates cover all high-income and very high-income fractiles, from the “middle classes” (fractile P90–95) to the “200 families” (fractile P99.99–100), the estimates available for other countries are generally limited to the top-decile share (taken as a whole) or the top 1 percent share (taken as a whole), and almost never go beyond the top 1 percent. This, too, is a serious shortcoming: our study of the French case has showed that only very high capital incomes experienced significant structural changes in the twentieth century, and we would not have been able to take stock of this key fact if we had not had estimates allowing us to isolate the upper strata of the

top 1 percent of the income distribution within the top 1 percent and the top decile. We should add that only for the United States and United Kingdom do we have estimates of long-term changes in wealth inequality. Finally, there is no country for which we possess satisfactory estimates of pre-WWII wage inequality (not even for the United States or the United Kingdom). Thus, the current state of the international literature on twentieth-century inequality prevents us from making comparisons that are as detailed as we would have liked. Nevertheless, we will try to show that the available estimates, reinterpreted in light of the French experience, do yield certain conclusions.

### 1.1. Top Incomes on the Eve of the First World War

We will proceed chronologically and begin by examining the situation that prevailed on the eve of the First World War. In the French case, we estimated that in the years 1900–1910 the share of total income going to the top decile (fractile P90–100) was 45 percent, that the share going to the top half-decile (fractile P95–100) was 34 percent, and that the top 1 percent share (fractile P99–100) was 19 percent.<sup>1</sup> We noted above<sup>2</sup> that these figures are likely slight overestimates, and we specifically noted that the top 1 percent share was actually (slightly) greater than 20 percent in early twentieth-century France. For context, recall that a 20 percent share of total income for the top 1 percent means that the best-off 1 percent of households have an average income that is twenty times the overall average. Also recall that the top-1 percent share was about 7–8 percent in the France of the 1980s and 1990s: the best-off 1 percent of households in the late twentieth century had an average income that is about seven–eight times the overall average, whereas that gap was about twenty times at the beginning of the century (the drop would be even greater if we were looking at disposable income rather than pretax income<sup>3</sup>). Was this very high degree of income concentration on the eve of the First World War specific to France, or were there countries where the upper classes took an even greater share of total household income?

Available estimates suggest that these orders of magnitude, and specifically the roughly 20 percent (or slightly more) of total income going to the top 1 percent of the income distribution, are in fact quite representative of the very high level of income inequality characterizing Europe at the start of the century. In Germany, genuinely progressive taxes on total income have existed since the

1850s and 1860s in several states (notably Prussia and Saxony), and these have made it possible to produce estimates for periods prior to the First World War. All available estimates indicate that the top 1 percent share of total income in the years 1901–1913 was about 19–20 percent, and that the shares going to the top decile and the top half-decile, along with the top 0.01 percent share, also stood at levels practically identical to those we estimated for France.<sup>4</sup> In the United Kingdom, Parliament finally agreed to introduce a “super-tax” in 1910—that is, a progressive tax on total income coming on top of the schedular-type taxes that had been in effect since 1842, and the statistics derived from this “super-tax” have made it possible to carry out estimates of the top-income share of total income for years immediately prior to the First World War. The level of income concentration these estimates indicate is highly comparable to that observed in France and the German states: on the eve of the First World War, the share of total income going to the top 1 percent of the British income distribution was slightly greater than 20 percent (this estimate is for the years 1911–1912).<sup>5</sup> Available estimates for Holland, Sweden, Denmark, and so forth, though very incomplete, also suggest that in the early twentieth century the shares going to the top 1 percent, the top half-decile, and the top decile in all of these countries stood at levels on the same order as those we have estimated for France in the years 1900–1910.<sup>6</sup>

These results are particularly interesting because they run counter to a number of prejudices that were highly widespread at the time. For example, in early twentieth-century France, it was extremely common to view the United Kingdom as having a far higher concentration of income: How could it be otherwise in a country that had not experienced the French Revolution, and where a small aristocratic minority still owned a considerable proportion of the kingdom’s lands? This argument was used, notably, by the republicans of the “center” and “center-right,” who were fiercely attached to the system of the “four old ladies” inherited from the French Revolution, to explain why the progressive income tax was less suited to republican France than to monarchical England: Since France was a country of “small property owners” and “infinitely scattered and dispersed fortunes,” what good would it do to create a tax that could be justified only if incomes were highly concentrated? Similar arguments were used to oppose the progressive inheritance tax,<sup>7</sup> as well as to reject the German example of taxation, along with the idea that the “inquisitorial” technique of income declarations could be suitable only for an “authoritarian”

country like Germany, and would be immediately rejected by a “free people” like that of France.<sup>8</sup>

In fact, from an economic point of view, there was nothing surprising about republican France having a concentration of income that was just as great as in the neighboring monarchies on the eve of the First World War, and specifically just as great as in the United Kingdom. As we noted in the previous chapters, by the early twentieth century fortunes invested in movable property had far surpassed landed fortunes in significance.<sup>9</sup> In other words, the very high incomes observed on the eve of the First World War flowed from new investment fortunes accumulated over the course of the nineteenth century, far more than from old landed fortunes. The question, then, is not whether land ownership was more concentrated in the United Kingdom than in France (which was obviously true, and which most likely remains true), but rather whether the concentration of investment securities produced by a century of “capitalist” accumulation was lower in France than in England, which is far from obvious. It is even less obvious given that the new fortunes had enjoyed a particularly favorable accumulation regime throughout the nineteenth century, and this had been the case in all European countries (whatever the form of their political regime), notably from the point of view of taxation: effective tax rates, in terms of both income and bequests, remained extremely low until 1914, even in republican France—and perhaps even more so in republican France than in other countries (except for the countries of southern Europe, as France was the last European country to introduce an income tax in its fiscal system).<sup>10</sup>

It is particularly interesting to note that the publication of statistics from tabulations of bequest declarations, coming shortly after the progressive bequest tax was created by the law of February 25, 1901, caused this vision of a France of “scattered fortunes” to be questioned. During the parliamentary debates of 1907–1908, supporters of the income tax frequently cited statistics to show that France was not the country of “small property owners” that their opponents liked to describe. Joseph Caillaux himself read these statistics out to the deputies, and after noting that these very large bequests declared each year in France reached truly astronomical levels in their numbers and amounts, he concluded, “We have been led to believe and to say that France was the country of small fortunes, of wealth infinitely scattered and dispersed. The statistics provided to us by this new bequest system oblige us to be distinctly more modest. . . . Gentlemen, I cannot hide that these figures have, in my mind, al-

tered a few of the preconceived ideas to which I referred a moment ago, that they have moved me to certain reflections. . . . The fact is that a very small number of individuals own the greatest part of the wealth in this country" (ap-  
 plause on the far Left and on the Left).<sup>11</sup> Indeed, judging from the estimates of the various fractiles of large bequest levels that we have obtained from our analysis of these bequest statistics, and comparing the results to available estimates for the United Kingdom, we see that the degree of concentration that characterized French wealth in the early twentieth century stood at levels comparable to those observed across the channel (at least to a first approximation),<sup>12</sup> which seems consistent with our results on the concentration of income.

However, the available literature does not allow us to go beyond this general observation: the estimates we have for the different countries are more than sufficient to conclude that the concentration of income prevailing on the eve of the First World War was very high in all European countries, they are sufficient to conclude that these levels of concentration were approximately the same in the different countries (with a top 1 percent share of total income of roughly 20 percent in all European countries for which estimates exist), but they are notably inadequate for carrying out fine-grained comparisons between countries. In particular, it is completely impossible to use these estimates to determine precisely whether the United Kingdom was more or less unequal than the various German states on the eve of the First World War, the position of France vis-à-vis both United Kingdom and the German and Scandinavian countries, and so forth. First of all, since the available estimates generally do not go beyond the top 1 percent (fractile P99–100) (except for Prussia and Saxony), they do not allow us to make completely reliable comparisons between income levels within the upper strata of the top 1 percent. This is an important limitation: the French case showed us that the top 1 percent of the income distribution combines highly diverse social groups, and that only at the level of the top one-thousandths—and even the top ten-thousandths—do we encounter owners of large fortunes living mostly off their wealth income. A fine-grained comparison of the early twentieth-century income levels of these thousandths and ten-thousandths in France, the United Kingdom, Germany, and so on, might reveal interesting differences between countries. For example, it is possible that at the beginning of the century the United Kingdom was not significantly more unequal than France at the level of the top 1 percent (taken as a whole), but that it was more unequal if we were to look specifically at the upper strata of the top



1 percent: given the current state of the literature, we have no grounds to say so, but we have no grounds to say the opposite either (although the observed similarity at the level of the top 1 percent, taken as a whole, suggests that any disparities vis-à-vis the top thousandths and ten-thousandths could not exceed certain limits).

Most importantly, since the estimates we have for different countries were carried out by different authors, it is uncertain whether they are entirely consistent with each other. On certain points, therefore, the differences are very difficult to interpret: for example, the available estimates show top 1 percent shares that are slightly below 20 percent for the various German states (about 19–20 percent), and slightly greater than 20 percent for the United Kingdom (about 20–22 percent),<sup>13</sup> but it is impossible to say whether this difference—which in any case is relatively small—is genuinely significant. The imprecision inherent in such estimates obviously applies to the income levels for the various top-income fractiles,<sup>14</sup> but it also applies to the level of total income (or average income) used in calculating the various top-income fractiles' shares of total income.<sup>15</sup> In addition, the estimates available for years prior to the First World War are often relatively old, and the methods used to resolve these various technical problems are not always known with the necessary precision.<sup>16</sup> That does not mean such international comparisons are by their nature impossible to carry out precisely. It simply means that, to carry out fine-grained comparisons, it would be necessary to start by going back to the raw statistical materials available in the different countries, and then meticulously reanalyzing all of these national sources, so as to obtain estimates that are as consistent as possible.

For the same reasons, it is difficult to make totally reliable comparisons between the concentration of income prevailing in the United States on the eve of the First World War and that prevailing in the European countries based on currently available estimates. According to the estimates carried out by Kuznets using statistics from American tax returns, which began to be compiled starting with the 1913 introduction of the income tax in the United States, the top 1 percent share of total income in the United States was about 14–15 percent in 1913–1914.<sup>17</sup> Of course, the gap between this roughly 14–15 percent share estimated by Kuznets for the United States and the shares of around 20 percent estimated for the top 1 percent in all the European countries is relatively large, and thus it is tempting to take it as significant. Recall as well that our analysis of French tax statistics gave us top 1 percent shares of about 18–20 percent for the

years 1915–1919 (and about 17–19 percent for the 1920s) (see Chapter 2, Figure 2-14), a significantly higher level than that which Kuznets attributes to the United States for 1913–1914. Furthermore, the idea that income concentration on the eve of the First World War was lower in the new countries (the United States, but also Australia, Canada, etc.) than in the Old World would be consistent with the conclusions reached by the very first economists who attempted to use tax statistics to carry out this kind of international comparison.<sup>18</sup> We should add that such a conclusion would be fairly reasonable from an economic point of view: the populations of the United States and the other ex-British colonies were far from having stabilized by the eve of the First World War, so it would seem logical that the fortunes accumulated by the new migrants over a few decades would be less concentrated than those accumulated over a century by the capitalists of old Europe.

Such a conclusion would be relatively fragile, however. Indeed, Kuznets' estimate is far from perfectly consistent with the estimates we have for the different European countries. In particular, it is not perfectly consistent with the estimates we carried out for France: there are important differences between the method Kuznets used in moving from the raw tax statistics to his final estimates—a method he deserves great credit for having laid out in an extremely detailed way in his voluminous 1953 work—and the methods we applied to the French data.<sup>19</sup> Here again, in order to carry out detailed comparisons, it would be necessary to go back to the raw statistical materials produced by the American and European tax administrations and reanalyze them using methods as consistent as possible across the different countries: given the current state of the literature, it cannot be ruled out that the United States at the beginning of the century was actually only slightly less unequal than the European countries of the same era.

In any event, even assuming that the smaller degree of income concentration in the United States suggested by Kuznets's estimate corresponds to a real difference vis-à-vis the European countries, which is probably the most plausible hypothesis, the important point is that we certainly should not conclude from this that in the early twentieth century the United States was a highly equal country: the myth of the egalitarianism of settler societies, like the French myth of a "country of small property owners," had already been largely demolished by the eve of the First World War. Recall, for example, that the top 1 percent share of around 14–15 percent that Kuznets attributed to the United

States of 1913–1914, which may be an underestimate, is still twice as high as the roughly 7–8 percent share for the top 1 percent that we estimated for the France of the 1980s and 1990s (see Chapter 2, Figure 2-14): the early twentieth-century United States was probably less unequal than the early twentieth-century European countries, but it was much more unequal than European countries at the end of the century. The fact that the supposed egalitarianism of settler societies was indeed already dead by the beginning of the twentieth century is also confirmed by the data we have on wealth holdings themselves: setting aside problems of comparability and consistency, these estimates seem to indicate that the concentration of wealth on the eve of the First World War was only slightly lower in the United States than it was in France and the United Kingdom.<sup>20</sup> In other words, setting aside problems of comparability and consistency, the major fact is that industrial development and very light taxation everywhere favored a very rapid accumulation of new investment fortunes and a very high degree of wealth concentration over the course of the nineteenth century and up to 1914—and this was the case both in the United States and republican France as well as in the other European countries.

### 1.2. Top Incomes Confront the Crises of the “First Twentieth Century”

Let us now move on to how top incomes fared through the world wars and the crisis of the 1930s. First and foremost, we will note an altogether remarkable phenomenon: in every country for which estimates are available, we observe, without exception, that top incomes underwent a significant decline in their share of total income over the 1914–1945 period. This finding is perfectly logical. All of the countries under consideration were subjected to the world wars and the crisis of the 1930s, and, as we discussed extensively in the French case, it is hardly unexpected that the destruction, bankruptcies, inflation, and general turbulence endured by the productive structure in the wake of these shocks should have been bad for wealth owners, and thus for very large incomes, which in all capitalist countries have always been primarily very large capital incomes. It is true that the crises of the 1914–1945 period did not affect all countries in the same proportions. But the important point is that the differences observed between different countries are entirely consistent with the interpretive model we proposed to explain the French experience: the countries where wars

brought about the greatest turbulence—and in particular, the countries where physical destruction arising from the wars was most massive—were also the countries where the collapse in top incomes was the greatest. Moreover, in every country for which we have adequate estimates, without exception, there is every indication that the decline in the top-income share observed over the 1914–1945 periods was explained preponderantly by a very sharp decline in the topmost incomes. This finding, which is entirely consistent with what we showed based on our detailed estimates for France, suggests that the decline in inequality in the 1914–1945 years was, in all countries, and not just France, a phenomenon limited primarily to losses experienced by wealth owners, rather than a more general phenomenon of declining inequality over the entire income distribution. Clearly this conclusion is very important when it comes to the question of the “spontaneous” nature of the decline of inequality, and other authors, starting with Kuznets, have advanced different conclusions. We will try to show here that our conclusion flows from the figures themselves (starting with Kuznets’s), and we will revisit the reasons for this disagreement below.<sup>21</sup>

Let us start with the case of the United States, which has been the most widely studied. The estimates Kuznets undertook, using statistics from American tax returns for the 1913–1948 years, do indeed cover all years of the 1913–1948 period, so they make it possible to follow very precisely how the various episodes of this tumultuous period affected top incomes. Moreover, Kuznets sought with painstaking care to compile rigorously consistent series, so the trends he found may be considered extremely reliable. Generally speaking, the problems of comparability just discussed above pertain far more to levels than to trends: it is often difficult to compare the levels of the top-fractile shares of total income in different countries to within a few percentage points, but changes over time, especially when they are drawn from consistent estimates carried out by a single author (as with Kuznets’s estimates for the United States and our estimates for France), may be compared with a certain degree of confidence.

First, Kuznets’s estimates show that the share of total income going to the top 1 percent of the American income distribution (fractile P99–100) experienced a very large decline over the 1913–1948 period: the top 1 percent share fell from about 14–15 percent in 1913–1914 to about 8–9 percent in 1947–1948.<sup>22</sup> This decline was due mainly to the Second World War years: the top 1 percent share, which was about 12–13 percent at the end of the First World War, had

climbed to levels of about 14–15 percent by the end of the 1920s, very close to those observed in 1913–1914; the crisis of the 1930s brought about further erosion, but the top 1 percent share was again about 12–13 percent by the late 1930s and up to 1940–1941, before falling over the next few years to levels of about 8–9 percent, reached in 1944–1945, and subsequently levels were relatively stable up to 1947–1948.<sup>23</sup> Thus, we see that the decline in the top 1 percent share observed in the United States, like the decline observed in France, looks nothing like a linear and continuous process moved by irrepressible economic forces: the decline took place over very specific years, and the interwar era appears to have been an extremely volatile one from the point of view of income inequality, with rising periods and falling periods.

Unfortunately, in contrast to studies we undertook for France, Kuznets did not attempt to estimate the evolution of the income shares going to the upper strata of the top 1 percent (fractiles P99.5–100, P99.9–100, and P99.99–100): his estimates do not go beyond the top 1 percent (fractile P99–100).<sup>24</sup> Since later authors who studied the history of income inequality in the United States over the 1913–1948 period were content to use the series that Kuznets constructed in 1953 (no one seems to have tried to reanalyze the raw tax data),<sup>25</sup> we have no estimates other than Kuznets's, so it is impossible to say precisely how the income shares going to the upper strata of the top 1 percent evolved over the 1913–1948 years. Kuznets's estimates do, however, show that the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99) of the American income distribution, like their French counterparts, were practically unaffected by the decline in income inequality that hit the top 1 percent. Indeed, we observe that the share of total income going to the P95–99 fractile of the American income hierarchy stood at approximately the same level in 1947–1948 as in 1913–1914: both world wars led to an erosion in the relative position of the “upper-middle classes” (fractile P95–99), but the erosion caused by the First World War had been reversed by the early 1920s, and the erosion caused by the Second World War, which reached its maximum intensity in 1944–1945, had already been reversed to a very large extent by 1947–1948.<sup>26</sup> Ultimately, more than 90 percent of the significant decline in the share going to the top half-decile (fractile P95–100) between 1913–1914 and 1947–1948 is explained by the decline in the share going to the top 1 percent (fractile P99–100).<sup>27</sup> Kuznets's estimates also show that the erosion in the relative position of the “middle classes” (fractile P90–95) vis-à-vis the average income between 1913–

1914 and 1947–1948 was practically insignificant compared to the large decline that hit the top 1 percent.<sup>28</sup> The fact that the “middle classes” (fractile P90–95) of the American income distribution managed to get through the crisis of the 1930s and the Second World War without any lasting effect on their position vis-à-vis the average is also confirmed by estimates of income inequality based on income surveys carried out in the 1930s and at the end of the Second World War, which are especially convincing because they are completely independent from Kuznets’s.<sup>29</sup>

Other indications lend support to the idea that the compression of inequality that took place in 1913–1948, like that observed in France over the same period, is explained mainly by losses experienced by wealth owners. Kuznets’s estimates, like all of the estimates we possess for the composition of income in the various capitalist countries, confirm, first of all, that very high incomes are made up more of capital income than of labor income, and specifically that it is within the top 1 percent of the income distribution that wages stop being the majority and dividends take on their fullest importance.<sup>30</sup> In other words, it was the income fractiles composed mainly of capital income (especially dividends) that experienced a structural decline in their levels over the 1913–1948 period, not the fractiles below, which were made up mainly of wages. It is also extremely revealing to note that, according to Kuznets’s estimates, only the top 1 percent saw its share of total income decline over the course of the 1929–1932 deflation, whereas the share going to the percentiles immediately below continued to grow until 1932.<sup>31</sup> These opposite trends, which correspond very precisely to what we observed for France (with the difference being that in the United States, deflation came to an end in 1933 with the devaluation, not in 1936 as was the case in France; in both cases this shows up clearly in the tax returns),<sup>32</sup> are explained by the fact that only recipients of very high incomes living on dividends and business profits bore the brunt of the deflationary recession, whereas the incomes immediately below—which depend much more on wage income than on variable incomes—benefited from their relative nominal rigidity and their low exposure to the risk of unemployment (compared to workers with lower wages, notably blue-collar workers).

The estimates by Kuznets and later authors also confirm that the decline in very high capital incomes corresponds to an economic phenomenon that is quite real rather than a tax illusion: specifically, taking into account all capital incomes recorded by the American national accounts (including undistributed

business profits), not just those declared to the income tax, can explain only a trivial fraction of the decline in very high incomes observed over the 1930s and the Second World War.<sup>33</sup> Finally, available estimates for the evolution of wealth inequality in the United States show that the decline in very high capital incomes that took place over the 1913–1948 period was indeed due to a structural decline in the level of very large wealth holdings, not to a transitory dip in the return to those wealth holdings: the capital-income share of business value-added—which, as in France and all other countries, has been characterized by a very high degree of long-term stability<sup>34</sup>—did experience an exceptionally sharp drop during the Second World War years,<sup>35</sup> which we also observed in France.<sup>36</sup> But the key point is that this momentary decline in the macroeconomic weight of capital income would not have had lasting effects on income inequality if the wealth holdings themselves had not become structurally less concentrated after the crisis of the 1930s and the Second World War.<sup>37</sup>

Several important conclusions can be drawn from the American experience. First, the fact that we found exactly the same phenomena in the American data as those uncovered by our analysis of the French sources—for both the overall change over the 1914–1945 period and the details of short-term movements—is extremely reassuring; it does not seem possible to question the reality of these shifts. Most importantly, the American experience shows that the shocks borne by wealth holders as a result of the world wars and the 1930s crisis cannot be chalked up solely to the physical destruction arising from the wars: the United States was subject to practically no such destruction (at least with respect to its national territory), and yet we observe a structural collapse in very large wealth holdings and very high capital incomes over the 1914–1945 period, especially over the Second World War years. As was the case for France, it is very difficult to determine the exact role played by the various explanatory factors.<sup>38</sup> Recall, however, that in the United States, as in all European countries, the Second World War led to very high inflation. And inflation always has a very large equalizing effect on wealth: anyone owning fixed-income securities, or any kind of credit assets, sees the value of their wealth holdings decimated as irremediably as if their assets had been subject to physical destruction; meanwhile, anyone who has only debt sees a significant improvement in their wealth situation. Likewise, the bankruptcies brought about by the 1930s crisis, which were especially numerous in the United States, particularly in the banking



sector, necessarily brought about the disappearance of a significant number of investment fortunes that had been built in the past. It should also be noted that the impact of the wars themselves cannot be neglected; although the United States did not see combat or destruction on its national territory, its productive apparatus was subject to massive disturbances, especially during the Second World War, when the American economy was wholly mobilized around military imperatives. Such disturbances inevitably helped make the redistribution caused by bankruptcy and inflation deeper and more permanent, as old businesses that had barely recovered from the depression often saw their traditional markets disappear for many years, while new businesses that were more able to meet the needs of the war economy prospered.

At the same time, the comparison of Kuznets's estimates for the United States with our estimates for France demonstrates unambiguously that the collapse of the 1914–1945 period was far more pronounced in France. This is also extremely reassuring: if we had observed a bigger decline in very high incomes in the United States, even though France was much more directly affected by the conflagrations of 1914–1918 and 1939–1945, the consistency of our interpretation of the facts would have been seriously called into question. According to Kuznets's estimates, the top 1 percent share of total income in the United States fell from about 14–15 percent in 1913–1914 to about 8–9 percent in 1947–1948, a decline of about 40 percent. If we look at the impact of the Second World War, we see that the top 1 percent share fell from about 12–13 percent at the end of the 1930s to about 8–9 percent in 1947–1948, a decline of about 30 percent. According to our estimates for France, the top 1 percent share of France's total income fell from about 20 percent (or slightly more) on the eve of the First World War to about 7.5 percent at the end of the Second World War (see Chapter 2, Figure 2-14), which corresponds to an almost threefold decline. If we look at the impact of the Second World War, we see that the top 1 percent share fell from about 15 percent in the 1930s to 7.5 percent at the end of the war (see Chapter 2, Figure 2-14), falling by half. In other words, all wealth holders were subjected to the shocks of the "first twentieth century," but the shocks borne by the capitalists of the Old World were significantly heavier than those borne by the capitalists of the New World. Moreover, these results concerning income are perfectly consistent with the trends observed for wealth holdings themselves: if we compare the results of our analysis of bequest statistics

to similar estimates available for the United States, we see that very large French wealth holdings experienced a significantly more marked collapse over the 1914–1945 period than their American counterparts experienced.<sup>39</sup>

The estimates available for European countries other than France confirm this interpretation. Unfortunately, when it comes to the United Kingdom we have only a few isolated estimates, so it is impossible to study changes in top incomes year-by-year: statistics from the “super tax” have been used to carry out estimates of income inequality for the years 1911–1912, but these tax statistics have never been systematically analyzed for the interwar period (only those for 1929 and 1938 incomes have been properly analyzed), and we only have more or less regular estimates starting from 1949. Nevertheless, available estimates do yield a certain number of findings. First, we observe that the top-income share of total income declined significantly in the United Kingdom between 1911–1912 and 1949, and that this decline is mainly explained by a large decline in the share going to very high incomes: the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99) of the British income distribution, like their French and American counterparts, do not seem to have been durably affected by the shocks of the 1914–1945 period, and by the end of the Second World War their shares of total income had returned to levels practically identical to those from before the crises.<sup>40</sup> In addition, when it comes to the collapse in very high incomes, we see that the situation of the United Kingdom stands at an intermediate point between France and the United States: the top 1 percent share of total income in the United Kingdom fell from about 20 percent (or slightly more) in 1911–1912 to about 18 percent in 1929, 17 percent in 1938, and 10–11 percent in 1949,<sup>41</sup> which means that the decline was significantly greater than in the United States, but significantly less marked than in France.

The intermediate position occupied by the United Kingdom seems perfectly consistent with the interpretation given earlier in this section. Britain’s territory did not experience the combat that devastated large parts of France’s territory, but it was still subject to far greater destruction than American territory, notably in the bombing campaigns of the Second World War. We may also note that, as in France and the United States, the crisis of the 1930s and above all the Second World War seem to have played a far more decisive role than the First World War: by the late 1920s, the top 1 percent of the British income distribution had returned to a level just below where it had stood on the eve of the First

World War.<sup>42</sup> Finally, we should add that wealth data seem to confirm the United Kingdom's intermediate position: available estimates show that over the 1914–1945 period, very large British wealth holdings experienced a greater collapse than their American counterparts did, but the collapse was not as severe as that of their French counterparts.<sup>43</sup>

Now let us consider the case of Germany. As with the United Kingdom, available estimates unfortunately cover only a few isolated years, and to study the impact on Germany of the crises of the 1914–1945 period, we have estimates covering only the years 1913, 1926, 1928, 1932, 1934, 1936, and 1950.<sup>44</sup> As with the United Kingdom, however, this information does give us to a sense of the main developments in this period. First of all, here, too, we observe that the collapse of top incomes affected only the topmost incomes: the “middle classes” (fractiles P90–95) and “upper-middle classes” (fractiles P95–99) of the German income distribution, like their French, American, and British counterparts, managed to get through the “first twentieth-century” without any lasting effect on their position vis-à-vis the average income, and by 1950 their share of total income had returned to practically the same level it had stood at in 1913.<sup>45</sup> On the other hand, the topmost incomes experienced a particularly massive collapse: according to available estimates, the top 1 percent of the German income hierarchy saw its share fall from about 19–20 percent in 1913 to just 8 percent in 1950.<sup>46</sup> This, therefore, was a significantly larger drop than that observed in the United States or the United Kingdom, and it was very close to that observed in France. Clearly, we do not have estimates for Germany for the years 1944–1945, and there is every reason to believe that by the end of the Second World War, topmost German incomes had experienced an even more marked collapse than those of their French counterparts, and that they had already strongly recovered between 1944–1945 and 1950.<sup>47</sup> In fact, it is likely that no other country saw its wealth accumulation “counter” reset to zero, or saw such a flattening of wealth inequality as profound as that experienced by Germany at the end of the Second World War.<sup>48</sup>

The available estimates also show that the chronology of Germany's history of inequality in 1914–1945 contains certain unique characteristics, and these seem quite consistent with the specificities of Germany's economic and political history. Indeed, we observe that topmost German incomes experienced a particularly sharp initial drop following the First World War and the hyperinflation of the 1920s, and that the first years of Nazism led to a significant recovery

in the top-income share of total income before the Second World War brought about the decisive drop.<sup>49</sup> In other words, the traditional contrast between the 1920s, years of recovery, especially for topmost incomes, and the 1930s, when business profits and thus topmost incomes bore the brunt of the economic crisis—a contrast we observe in all other countries—seems to a great extent reversed in Germany. Given the obvious historical interest in these issues and the extreme complexity of this period's economic and political chronology, which only be understood properly only by using annual estimates covering the various top-income and topmost-income fractiles, it goes without saying that these developments warrant further study in and of themselves. That would require that all available tax statistics for the 1914–1945 period should finally be systematically analyzed. In particular, it would be essential to have estimates that break out the upper strata of the top 1 percent (fractiles P99.5–100, P99.9–100, and P99.99–100): as with the United States and the United Kingdom, the shortcomings of the currently available estimates for Germany mean that we are forced to assume, by analogy with what we observed in the French case, that the collapse of the top 1 percent of the income distribution was explained preponderantly by the collapse of the upper strata of the top 1 percent (that is, by the collapse of the social groups that live mainly from very large capital incomes); this hypothesis is by far the most plausible, but it obviously merits confirmation.

For the other European countries—that is, essentially the countries of northern Europe (in a broad sense, thus including Holland)<sup>50</sup>—the available estimates are generally even more meager than they are for the United Kingdom and Germany, and it would be fatuous to try to undertake a precise comparison of the different national trajectories. It would obviously be of great interest to be able to say how the experiences of top incomes in Holland, Sweden, Denmark, and other countries in the crises of 1914–1945 differed from the French, American, British, and German experiences just examined above; the extent to which the magnitude of collapse experienced by top incomes in the Nordic countries was closer to the Franco-German case or the Anglo-American case, and so on. But the current state of the literature unfortunately does not permit such fine-grained comparisons.<sup>51</sup> However, the studies published in these different countries do show several key regularities. First, in all countries for which estimates are available (Holland, Sweden, Denmark, Finland, and Norway), we observe, without exception, that top incomes in the 1914–1945 period experienced

a very large decline in their share of total income, and the orders of magnitude were quite comparable to those observed in other countries.<sup>52</sup> Second, wherever these estimates allow us to distinguish among the different strata of the top decile, we observe that the decline in the top-decile share was explained mainly by a very large decline in the share going to the upper strata of the top decile (and, in all likelihood, by the collapse in the upper strata of the top 1 percent).<sup>53</sup> This result suggests that in the Nordic countries, as in all the other countries, the compression of inequality that took place over the 1914–1945 years was a phenomenon that chiefly concerned recipients of very large capital incomes and wealth owners, rather than a more general phenomenon of declining inequality affecting the entire income distribution.

Let us add finally that the estimates available for Holland have the advantage of covering all years of the 1914–1939 period. This allows us to observe that the initial years of the First World War were marked by a rise in the top-income share of total income (with a peak in 1916), and that it was only starting from 1917–1918 that the equalizing effects of the war began to be felt.<sup>54</sup> This is an interesting fact, and it was also found in the United States and France. In both cases, the top-income share of total income rose until 1916, then fell starting from 1917–1918.<sup>55</sup> The most plausible interpretation of this regularity was already suggested when we studied the French case:<sup>56</sup> after a century of total price stability, it is likely that the inflation brought about by World War I first led to a widening of income inequality (with wages being increased very little, and business profits benefiting immediately from the rise in prices), at least in the very first years of the conflict, before wage indexation was instituted and the equalizing effects ended up dominating. Estimates carried out in the interwar era based on German tax data seem to confirm the validity of this interpretation: the First World War initially deepened inequality, until hyperinflation ended up decimating wealth and compressing the income distribution.<sup>57</sup>

### 1.3. Top Incomes and Progressive Taxation

Thus, at the end of the Second World War, following the shocks to wealth holders of the 1914–1945 years, topmost incomes in all developed countries were significantly below their levels from the eve of the First World War. How did the situation evolve after 1945? Are there countries where wealth concentration regained its level of the beginning of the century, or do we observe that

the shocks of the “first twentieth century” were not reversed anywhere? Does the explanation we proposed to account for the French experience—namely, the dynamic impact of the progressive income tax (and bequest tax) on capital accumulation and the reconstitution of large wealth holdings—seem relevant for all countries?

To study how inequality has evolved in the different Western countries since 1945, we must first distinguish the *Trente Glorieuses* period from the 1980s and 1990s, because the last two decades of the century represent a major turning point in most countries, and especially in the United States and United Kingdom. We will proceed chronologically and begin with the *Trente Glorieuses*.<sup>58</sup>

First let us recall that for France, the period from the late 1940s to the late 1970s—apart from the vagaries of short- and medium-term movements, notably due to fluctuations in wage inequality (rising inequality until 1968, then a sharp decline starting from 1968)—was characterized by relative stability in the top-income share of total income, or even a slight decline. In 1977–1978, the top-decile share of total income was slightly below its 1947–1948 level,<sup>59</sup> and the same was true for the shares going to the various fractiles that make up the top decile and the top 1 percent, including the highest fractiles.<sup>60</sup> We find the same stability (with a slight downward trend, more or less marked depending on the country) in every country for which estimates are available, without exception. In the United States, the position of the various top-income fractiles vis-à-vis the average income seems to have been completely “frozen” from 1944–1945, and the levels observed for the various fractiles’ shares of total income were almost completely unchanging from the 1950s to the 1970s.<sup>61</sup> In the United Kingdom, throughout the *Trente Glorieuses*, we observe a steady and relatively large downward trend in the top-income share of total income.<sup>62</sup> In Germany, the various top-income fractiles saw their incomes grow at the same rate as the average from 1950 to the 1970s, but with a slight narrowing of the differential at the end of the period, which is quite comparable to what we observed in France after 1968.<sup>63</sup> In Holland, Sweden, and Denmark, we again observe that the shares of total income going to the various top-income fractiles were practically unchanging over the *Trente Glorieuses*, aside from a slight downward trend, again showing up toward the end of the period.<sup>64</sup> Again, the estimates we possess for the various countries are far from perfect, but there is no doubt about the overall trend.

Compared to the chaos of the 1914–1945 period, the *Trente Glorieuses* thus appears as a relatively stable period in the history of income inequality. The stability in the lower strata of the top decile of the income distribution should not be surprising, and we saw that in all countries the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99) managed to get through the crises of the 1914–1945 years without seeing any real effect on their position vis-à-vis the average income, so it is not surprising that the same was true in the relatively “pacified” years of the *Trente Glorieuses*. The stability of the topmost incomes within the top 1 percent is much more interesting. First, the fact that the collapse of the topmost incomes stopped as soon as the war had ended and economic stability had been regained confirms that this phenomenon was closely connected to very specific historical circumstances, not to any “natural” or “spontaneous” economic process.<sup>65</sup> Most importantly, in no country did the topmost incomes manage during the *Trente Glorieuses* to make up the ground they had lost in the 1914–1945 years, even partially. This is extremely striking. Clearly, something changed in the developed capitalist countries between 1914 and 1945: after the crises, income hierarchies appear to have been frozen in stone, and it seems to have become impossible for wealth holders to accumulate and reconstitute fortunes comparable to those from the beginning of the century.

As we noted when we examined the French case,<sup>66</sup> it would be presumptuous to claim the ability to prove that the growing weight of taxes on topmost incomes and owners of large wealth holdings was the sole factor that made it structurally more difficult to accumulate very large fortunes after the 1914–1945 period. Also, long-term estimates of the average tax rates actually owed by the various top-income fractiles—which we carried out for the French case, and which allowed us to gauge the impact of the income tax on conditions for accumulating and rebuilding large fortunes—apparently do not exist for any other country, so it is impossible for us to undertake a precise comparison of the dynamic impact of progressive taxation in the various countries.<sup>67</sup> More generally, our examination of the French case showed that changes in the “details” of tax legislation and tax schedules often revealed a great deal about how collective representations of inequality themselves changed, and it would be very interesting to be able to study these changes in an explicitly comparative way: How did the various national histories and the shocks of the 1914–1945



period give rise to different perceptions of the “200 families,” the “middle classes,” the notion of a “top” income, and so forth? Unfortunately, there is very little research devoted to the history of progressive taxation in the different countries,<sup>68</sup> and a study gathering systematic information on the evolution of legislation and the corresponding political debates in the various developed countries over the course of the twentieth century would far exceed the scope of this book.

Let us note, however, that all of the information we possess suggests that the overall evolution observed in France was quite representative (at least to a first approximation). Specifically, in every country it was the First World War that seems to have led to the “invention” of the top marginal rates of several dozen percentage points to which we have long since become accustomed, whereas the main result of the Second World War was to stabilize these “modern” tax rates and make them permanent. In other words, the 1914–1945 period was not only a period of crises in all capitalist countries, and for the capitalists themselves in particular, but it was also the period in which these same countries put in place a new wealth-accumulation regime, based on the idea that individuals who got rich would now have to hand over a substantial percentage of their incomes (and of their wealth at the time of their death) to the collectivity. Given this common experience, it is not surprising that top incomes in all of these countries followed generally similar trajectories. While it is impossible to prove it with certainty, we think that the development of this progressive tax regime was the main factor explaining why during the *Trente Glorieuses* the topmost incomes were nowhere able to make up the ground that they had lost in the years between 1914 and 1945.

Let us add that while a more precise comparative study would no doubt bring out interesting national specificities, very large capital incomes have always, and in all countries, been the privileged target of the income tax. In particular, we should not be misled by the fact that there are countries in which almost the entire population owes income tax (for example, in the United States, the share of taxable households exceeded 80 percent by the Second World War).<sup>69</sup> In practice, recipients of low incomes always pay a relatively small fraction of their income to the income tax, often smaller than the fraction owed for other taxes in other countries (for example, the VAT tax or payroll taxes in France), and the weight of the income tax, in all countries, only be-

comes truly substantial at the level of the upper strata of the top decile (or even the upper strata of the top 1 percent) of the income distribution.

We should also point out that the 1914–1945 period led to strongly progressive taxation for the highest incomes not only in France, Germany, and the Nordic countries (which will hardly surprise a French reader), but also in the Anglo-Saxon countries (which perhaps will be more surprising). Indeed, in the 1980s and 1990s, it became common to view the United States and United Kingdom as a sort of “tax haven” for wealthy taxpayers, with only weakly progressive taxes. In fact, not only did top income earners in the Anglo-Saxon countries enjoy a far less privileged tax situation at the end of the twentieth century than was sometimes imagined, but the lesser degree of tax progressivity across the Channel or the Atlantic was an extremely recent phenomenon dating only to the 1980s and 1990s; during the *Trente Glorieuses*, the income tax was actually even more progressive in the United States and United Kingdom than it was in France, especially for very large capital incomes. In the United States, the top marginal rate of the income tax created in 1913 was originally 7 percent. But, as in France, this “reasonable” rate would not last long: it was increased several times during the First World War, and by 1918 it reached the “unheard of” level of 77 percent. The marginal rate on the highest incomes fluctuated constantly during the interwar era, then rose to 94 percent in 1942, as part of the “Victory Tax” adopted immediately after Pearl Harbor. From 1945 to 1964, the top marginal rate of the federal income tax schedule was 91 percent, and then dropped to 70 percent from 1964 to 1981—an “official” level that was frequently made heavier by multiple “exceptional” surtaxes (the top marginal rate was often 77 percent rather than 70 percent between 1964 and 1981), and this does not even take into account additional taxes levied by the different American states. In France, the marginal rate levied on the highest incomes never reached such levels in a lasting way.<sup>70</sup> Then, after the election of Ronald Reagan as president, the top marginal federal income tax rate was cut to 50 percent in 1981 and to 28 percent in 1986, before being increased to 39.6 percent in 1992, after the election of Bill Clinton. At the end of the twentieth century, the highest income tax rate was thus about 40 percent in the United States, versus 54 percent in France.

In the United Kingdom, the overall trajectory was similar: the marginal rate on the highest capital incomes was raised to 98 percent after the Second

World War, and it was only after the election of Margaret Thatcher that this rate fell below 80 percent (the top marginal rate was reduced from 83 percent to 75 percent in 1979, then to 60 percent in 1984, and ultimately to 40 percent in 1988, and it has not been altered since).<sup>71</sup> Thus, in the immediate postwar period, as well as most of the *Trente Glorieuses*, very high capital incomes in the United States and the United Kingdom were subjected to marginal rates of about 80–90 percent (and even 98 percent in the United Kingdom). Clearly, such rates must have had a major dynamic effect on opportunities for capital accumulation and the reconstitution of large fortunes.

It may also be noted that the explanatory model proposed here—though quite widely neglected by most economists, in our opinion for bad reasons, as we will see in section 2.1—has actually been advanced by some scholars.<sup>72</sup> In particular, Lampman, the author of a vast 1962 study of the evolution of wealth inequality in the United States that was based on an analysis of American bequest statistics from the years 1922–1956, arrived at the same conclusion as us. After noting that very large wealth holdings in the United States had been durably and structurally much smaller since the Second World War than they were in the 1920s and the beginning of the century, and after examining various explanations and available information, Lampman concluded that the most likely scenario was that the dizzying rise in top income tax rates transformed the short-term shock caused by the 1930s crisis and the Second World War into a permanent shock: once the income tax began to levy extremely substantial shares of the largest incomes every year, it became practically impossible for owners of large wealth holdings to regain fortunes of a size comparable to those of the past, unless they consumed nothing and saved practically all of their disposable income for several generations.<sup>73</sup>

The same mechanism has also been used to account for the specificities of the British experience. Indeed, it is striking to note that the United Kingdom is the only country in which the top-income share of total income experienced a large decline over the course of the *Trente Glorieuses* (rather than a slight downward trend). Moreover, this large decline, which was particularly rapid in the 1950s and continued at a more modest pace during the 1960s and 1970s, was, in this case, too, solely attributable to very high incomes. The “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99) continued their legendary stability, and their share of total income underwent practically no decline between the late 1940s and late 1970s; at the same time, the share going

to the top 1 percent experienced a very significant decline, falling from about 11 percent of total income at the end of the Second World War to about 7.5–8 percent in the late 1950s and 6 percent in the 1970s,<sup>74</sup> a level below that observed in France in the same period (whereas the reverse was true in the immediate postwar years<sup>75</sup>). This episode is especially interesting in that it is the only known example of a prolonged decline in the topmost-income share unfolding gradually and in peacetime.<sup>76</sup>

But the United Kingdom is also the country that established the most heavily progressive taxation for large wealth owners at the end of the Second World War: the marginal rate on the highest capital incomes rose to 98 percent, and the inheritance tax was also considerably increased. In the 1950s and 1960s, the marginal rate on the largest bequests was always at or above 80 percent in the United Kingdom, which is especially high given that the bequest tax in Anglo-Saxon countries has always been based on the principle of “freedom of testament,” and thus on identical tax rates for bequests in the direct family line and those passed on to nonrelatives, as opposed to France, notably, where bequests in the direct family line have always enjoyed far lower tax rates.<sup>77</sup> In practice, with such rates, wealth holdings above a certain size become destined for elimination, as surely as with physical destruction or expropriation. Atkinson and Harrison, authors of a vast 1978 study of the evolution of wealth inequality in the United Kingdom based on an analysis of British bequest statistics from the years 1923–1972, came to the same conclusion: after noting that large wealth holdings continued to lose ground over the 1950s and 1960s—which is entirely consistent with the trends observed for incomes<sup>78</sup>—and after examining various explanatory factors, they conclude that the weight of the inheritance tax probably explains a good part of the observed facts.<sup>79</sup> Thus, in all likelihood it was the very high degree of tax redistribution put in place across the English Channel after the Second World War that explains the very sharp reduction in wealth inequality observed in the United Kingdom during the *Trente Glorieuses*.

Where does the turning point of the 1980s and 1990s fit into our interpretive model? Let us start by pointing out the facts. In France, as we have seen, the decline in income inequality had come to a halt in 1982–1983, and since then the shares of total income going to the various top-income fractiles have been characterized by a slight upward trend.<sup>80</sup> The experience of Germany and the Nordic countries has been similar: in all these countries, the (slight) downward trend in inequality came to an end between the late 1970s and the early 1980s,

and income disparities experienced a (slight) upward trend over the 1980s and 1990s.<sup>81</sup> In fact, the only countries where inequality began to rise in a clear and massive way in the 1980s and 1990s were the United Kingdom and, above all, the United States. In the United Kingdom, the topmost incomes seem to have made up the ground they had lost over the three previous decades within a space of two decades, so that their share of total income in the late 1990s stood at a level close to what it was at the end of the Second World War.<sup>82</sup> In the United States, where very high incomes had stabilized their position during the *Trente Glorieuses*, the 1980s and 1990s brought income concentration to levels close to those observed in the interwar era and the beginning of the century.<sup>83</sup> In other words, it was the 1980s and 1990s that made the Anglo-Saxon countries the highly unequal countries we know today. By the end of the twentieth century, the United Kingdom, which had stood at the same level as the Scandinavian countries in the early 1970s, had become the most unequal European country; the United States, which in the early 1970s had been at the average of the European countries, had become the most unequal country in the Western world.<sup>84</sup>

First and foremost, this turning point in the 1980s and 1990s means the definitive abandonment of any notion that the advanced phases of capitalist development are characterized by an irrepressible tendency toward declining inequality. However one analyzes the equalizing phase that took place in all countries over the first half of the twentieth century, and the phase of widening inequality observed mainly in the United States and the United Kingdom in the late twentieth century, the evidence must be faced: the “Kuznets curve” is dead and buried. From our point of view, the turning point of the 1980s and 1990s above all confirms the decisive impact of the progressive income tax on inequality formation. The fact that the only two countries where the tax burden on the wealthy was massively and suddenly reduced over the 1980s and 1990s were also the only two countries where inequality suddenly began to rise in a huge and unmistakable way is clearly not a coincidence: just as high tax rates hamper the rebuilding of large fortunes, a sharp decline in tax rates allows considerable wealth holdings to be accumulated very rapidly, and the income from these wealth holdings contributes to a rise in pretax inequality, and thus to a further rise in the savings capacities of the individuals in question, and so on. Again, it is impossible for us to measure the precise magnitude of this dynamic effect of income taxes on savings capacities, and thus on future wealth and in-

come inequality. But a number of indications suggest that this mechanism played just as important a role in the 1980s and 1990s as in previous periods.

First, we should make it clear that it would be pointless to try to account for all of the changes observed since the 1970s by referring solely to the issue of very high capital incomes and the rebuilding of large fortunes. Indeed, the turning point of the 1980s and 1990s was an extremely complex phenomenon, whose effects were felt at every level of the income distribution, and it is quite clear that other factors also played an important role. Indeed, many studies have shown that wage inequality underwent a generalized widening in the United States and United Kingdom over the 1980s and 1990s, and that this phenomenon—affecting the entire wage distribution, from the first decile to the tenth decile—had begun by the 1970s, even before the “conservative revolution” carried out by Reagan and Thatcher.<sup>85</sup> It is hard to see the theory of “skill-biased technical change,” which was advanced by many American economists in the 1990s to explain this continual widening of the wage distribution,<sup>86</sup> as a satisfactory explanation, because to a large extent it amounts to assuming the conclusion (namely, since wage inequality has increased, it must be because the most skilled have become more productive and the least skilled less productive). Nevertheless, the theory does have the virtue of underscoring that the process observed in the 1980s and 1990s had deep and apparently universal causes: it is a fact that in all so-called industrialized countries, not just the Anglo-Saxon countries, the crisis of the traditional industrial sectors and the process of “deindustrialization,” which had begun in the United States by the late 1960s and reached all European countries over the course of the 1970s, hit different categories of workers unequally and led to an expansion of inequality (either with respect to wages or to employment). In the United States and the United Kingdom, the growth of wage inequality was exacerbated by the collapse of unions and the abandonment of the minimum wage. In the countries of continental Europe, the maintenance of a high minimum wage and a very high degree of collective control over wage scales allowed wage inequality to grow only slightly over the 1980s and 1990s (which already represents a significant rupture vis-à-vis earlier trends),<sup>87</sup> but these countries did not manage to escape a sharp increase in unemployment and underemployment, and only rapid growth in unemployment benefits and social transfers prevented income inequality from rising significantly.<sup>88</sup> Thus, according to the theory, the inegalitarian turn of the 1980s and 1990s was the “natural” result of the turbulence

experienced by the productive systems of the developed countries starting in the 1970s. The “new industrial revolution,” marked by the decline of the traditional sectors that had made the *Trente Glorieuses* period what it was, and by the advent of a services and information-technology society, inevitably encouraged the growth of inequality, at least initially.

However, while there is probably some truth to this explanation, it is important to add that it can explain only part of the phenomenon we have observed. Indeed, we find that only to a limited degree was the very sharp increase in income inequality in the United States in the 1980s and 1990s explained by a general rise in wage inequality; instead, it was explained preponderantly by the dizzying growth in the share of total income going to the topmost incomes, which are mainly based on capital income rather than wages. The available estimates are extremely clear on this point: the position of the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99) of the American income distribution vis-à-vis the average income has risen only slowly since the 1970s (although the contrast with the most modest fractiles, whose position declined, is quite real), and 90 percent of the increase in the top decile’s share of total income in the United States in the 1980s and 1990s has been explained by a very sharp increase in the share going to the top 1 percent.<sup>89</sup> We also have estimates showing that the lower strata of the top 1 percent were affected by this phenomenon far less than were the top tenth and the top hundredths of a percent of the American income distribution, whose shares of total income have literally exploded.<sup>90</sup> The estimates we have for the United Kingdom are not as detailed, but by every indication the rise in the top-income share across the Channel in the 1980s and 1990s was also explained mainly by a very large rise in topmost British incomes.<sup>91</sup>

Ultimately, in the late 1990s the top 1 percent of the American income distribution seemed to have regained a share of total income close to that which it held at the beginning of the twentieth century. According to the latest available estimates, the share of total income going to the top 1 percent, which was about 8–9 percent from the late 1940s to the late 1970s, was about 15 percent in 1998, a level equivalent to the 14–15 percent that Kuznets estimated for the United States in 1913–1914.<sup>92</sup> By comparison, recall that the share of total income going to the top 1 percent had been about 7–8 percent in France in the 1980s and 1990s, almost the same as the level observed at the end of the Second World



War.<sup>93</sup> The roughly 15 percent share of total income attained by the American top 1 percent at the end of the century was still below the levels estimated for the European countries at the beginning of the century (about 20 percent of total income for the top 1 percent): the United States became significantly more unequal than Europe over the course of the twentieth century, but it did not seem to have reached the peaks of inequality encountered in the Old World on the eve of the First World War.<sup>94</sup> Let us add that American recipients of very high incomes paid practically no taxes at the beginning of the century, and that taxes had not totally disappeared in the United States at the end of the century: if we look at disposable income rather than pretax income, we see that the share of total income going to the topmost incomes in the late 1990s stood at a significantly lower level than that estimated by Kuznets for the years 1913–1914.<sup>95</sup>

The fact that the rise in American inequality observed over the course of the 1980s and 1990s was so concentrated among the topmost incomes does not, of course, mean that the phenomenon is explained solely by the new opportunities for rebuilding large fortunes (and thus very high capital incomes) presented by the sudden and massive reduction in the tax burden on wealthy taxpayers. For example, it may be objected that the very sharp rise in American top incomes in the 1980s and 1990s was in part a cyclical phenomenon: periods of rapid growth are usually favorable for top incomes, and the economic conditions of the 1980s and 1990s were particularly favorable, especially for wealth holders, whose incomes were boosted by the very strong performance of stock markets and business profits. Also, it would appear that as a share of income, wages grew extremely rapidly within the upper strata of the top 1 percent of the U.S. income distribution over the 1980s and 1990s (although capital incomes remained preponderant): the new “200 families” of late twentieth-century America were to a significant extent made up of “super managers” who benefited from the explosion of compensation paid by large American companies to their executives, not just of wealth holders who, thanks to tax cuts, managed to rebuild fortunes and capital incomes that were structurally larger than those of previous decades.<sup>96</sup>

However, the available estimates concerning the evolution of wealth inequality show that incomes were not alone in becoming more concentrated. The concentration of American wealth ownership increased considerably over the 1980s and 1990s, and in the late 1990s, very large wealth holdings as a share

of total household wealth—which had been relatively stable from the late 1940s to the mid-1980s—appeared to have almost regained their level from the interwar era.<sup>97</sup> In other words, the phenomenon witnessed in late twentieth-century America was indeed a structural process of accumulation of very large fortunes, not just a short-term spike in income inequality. In part, these large fortunes belong to the new “super managers” and the new entrepreneurs of the American economy, but the key point is that such large wealth holdings probably could not have been accumulated so quickly without the tax cuts of the 1980s: the new wealth accumulation regime amplified and—most importantly—made permanent what, with the top marginal rates of around 80–90 percent of the 1950s and 1960s, would no doubt have been limited to a temporary increase in income inequality.<sup>98</sup>

## *2. Did the Decline of Inequality Begin Before 1914?*

Probably the main lesson of the facts we have just examined is that inequality apparently never declined in a “spontaneous” way in the twentieth century. In all developed countries, the long-term compression of inequality seems to have been the result of the shocks experienced by wealth owners over the 1914–1945 period, the effects of which were made permanent by the growth of the progressive taxation, at least until the 1980s and 1990s.

Hence the question: Are there historical examples of inequality durably and structurally declining in a spontaneous way? Was inequality already starting to decline before 1914, or was it not until the outbreak of the crises of the “first twentieth-century” that the wealth produced by capitalism became less concentrated? The stakes of this question are obviously considerable: in one case, capitalism is capable of mending itself; in the other case, only conscious interventions or outside shocks can make it less unequal.

First, we must try to understand why and on what basis many economists, starting with Kuznets in the 1950s, advanced the thesis that the shocks of the 1914–1945 period merely accentuated a phenomenon of spontaneously declining inequality that was taking place anyway over the first half of the twentieth century, even in the absence of those shocks (section 2.1). We will then see that the very high degree of politicization of the debate requires us to view the

work that economists of the late nineteenth and early twentieth centuries devoted to the evolution of nineteenth-century inequality with the greatest caution (section 2.2). Finally, we will see what the few available data permit us to say about the evolution of inequality in the nineteenth century (section 2.3).

### 2.1. Were the Shocks of the 1914–1945 Years Only the Tip of the Iceberg?

As the literature currently stands, the “tip-of-the-iceberg” theory seems to lack any real basis: the estimates we have for the different countries, reinterpreted in the light of the French experience, lead us to believe that, in all developed countries, not just in France, the compression of inequality observed over the first half of the twentieth century was essentially limited to the shocks experienced by wealth owners in the years 1914–1945. However, Kuznets, who in 1953 was the first to demonstrate that inequality had declined over the first half of the twentieth century, adopted the “tip-of-the-iceberg” theory,<sup>9</sup> and this interpretation, made famous by the idea of the “Kuznets curve,” was subsequently widely taken up, notably by Jeffrey Williamson and Peter Lindert, authors of an important 1980 work of synthesis on the history of American inequality. According to this theory, the decline of inequality observed between the years 1910–1920 and the 1950s cannot be reduced to the effects of the violent shocks caused by the two world wars and the crisis of the 1930s (destruction, inflation, bankruptcy, etc.), which were said to have played a merely supplementary role. Rather, the decline of inequality had much “deeper” causes (the “submerged” part of the iceberg), and merely reflected the more general phenomenon of a spontaneous tendency toward declining inequality that characterizes the advanced phases of capitalist development, and which would have happened in any case, even in the absence of those shocks. In its most extreme form, the “Kuznets curve” did not survive the 1980s: given the very sharp rise in inequality observed in the United States and United Kingdom in the 1980s and 1990s, no one any longer seeks to defend the idea that developed countries have an irrepressible tendency toward declining inequality. Still, the turn that took place in the 1980s and 1990s does not tell us whether the phase of declining inequality observed over the first half of the twentieth century was spontaneous or not, and the more recent events have not really led to any questioning of the

dominant interpretation of the 1914–1945 years, but the “tip-of-the-iceberg” theory continues to have widespread support among economists.<sup>100</sup> How can we explain this divergence from our own interpretation?

We should first repeat that we do not consider our interpretation as certain or untouchable; to our mind it is the most plausible one, but the notorious shortcomings of available estimates imply a degree of caution. Only for France, in fact, do we possess all the elements that allow us to affirm with certainty that the decline of inequality that took place over the first half of the twentieth century was explained solely by the shocks experienced by wealth holders. On the one hand, our French estimates allow us to show that the decline of top incomes was not only limited to the top 1 percent of the income distribution, but it was limited, even preponderantly, to the upper strata of the top 1 percent—that is, to those social groups for whom capital income takes on its greatest importance. As we have noted, there is every indication that the same is true in other countries: everywhere we have observed that the decline in the top-decile share of total income was mainly explained by a very sharp decline in the share going to the top 1 percent, and it is likely that if we had estimates allowing us to break out the upper strata of the top 1 percent separately, we would obtain the same results that we obtained in France. In the absence of such estimates, however, it is impossible to be completely certain.

Most importantly, in examining the French case it was by studying wage inequality and its evolution over the twentieth century that we were able to confirm that the compression of income inequality that took place over the first half of the century was due solely to the losses experienced by very high capital incomes in the 1914–1945 years; this conclusion was already suggested by the high degree of long-term inertia in the shares of total income going to the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99), but to firm up our conclusions it was important to examine wage inequality as such and to observe that it had indeed been very stable over the long run.<sup>101</sup> In fact, our results for wage inequality were probably the most interesting results we were able to produce from the data analyzed in this book (results on par with those concerning the collapse of the “200 families”): we found that the disparities between the wages of the highest-paid 10 percent of wage earners, the highest-paid 5 percent of wage earners, the highest-paid 1 percent of wage earners, and so on, vis-à-vis the average wage—and indeed, the disparities between the highest-paid wage-earning fractiles and the lowest-paid fractiles—

actually changed hardly at all over the long run in twentieth-century France.<sup>102</sup> In particular, shifts in the wage distribution brought about by each of the two world wars were purely temporary, and in both cases past wage hierarchies were reconstituted within the space of a few years.<sup>103</sup> In other words, if wealth holders had not experienced profound shocks over the 1914–1945 years, income inequality would have returned to its pre-World War I level after the Second World War.<sup>104</sup>

Unfortunately, we do not have estimates of the long-term evolution of wage inequality comparable to those we carried out for France for any other country (not even for the United States and United Kingdom). In every country, the few existing wage-inequality estimates for periods prior to the Second World War are based only on comparisons of wages received by a few categories of “typical workers” (laborers, skilled blue-collar workers, engineers, civil servants, etc.), usually with no precise information on the numbers of such workers or their representativeness, as opposed to comparisons of average wages received by the various fractiles of the wage distribution.<sup>105</sup> As we saw when we examined the French case, under no circumstances do such comparisons of “typical workers” provide a reliable measurement of the long-term evolution of wage inequality (let alone a basis for rigorous comparisons between countries): only estimates of the wage distribution expressed in terms of fractiles can yield robust conclusions.<sup>106</sup> In the current state of the literature, therefore, it is impossible to say with certainty whether the facts we have uncovered for France have more general applicability. It is possible that there are countries in which wage inequality underwent a degree of compression over the first half of the twentieth century, and it cannot be ruled out that such a compression was explained in part by “deep” economic causes (rather than by temporary shocks due to wars and inflation), in which case, for the countries in question, this phenomenon would represent the “submerged part” of the iceberg of declining inequality observed with respect to overall incomes. Only new estimates of the long-term evolution of wage inequality in the different countries, like those we carried out for France, would allow us to clarify this point.

Let us note, however, that this hypothetical “submerged part” of the iceberg would, in any case, be of a far smaller magnitude than the “tip” of the iceberg. In every country for which estimates are available, we have observed that the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99)—which in all countries have always been the realm of the “high-wage

workers”—managed to get through the twentieth century without any lasting or structural impact on their position vis-à-vis the average income. More specifically, in all countries at the end of the Second World War, the “middle classes” (fractile P90–95) and “upper-middle classes” (fractile P95–99) very quickly regained their pre-World War I share of total income. Thus, it would be very surprising if this high degree of long-term stability were not also found at the level of the wage distribution (at least to a first approximation). We may also note that these social groups are, in all countries, characterized not only by a high degree of stability of their shares of total income, but also by shares of total income whose levels hardly differ between countries: for example, in every country for which we have estimates, the “middle classes” (fractile P90–95) have a share of total income that has always gravitated around 10–11 percent,<sup>107</sup> which means that these households have always had incomes about 2–2.2 times higher than the average income. All of this suggests that the interpretation we have given concerning the stability of the French wage distribution is in fact of relatively general applicability; wage inequality seems to be determined largely by the same meritocratic concerns in all countries, and these concerns do not seem to have experienced any notable long-term transformation, at least compared to the spectacular changes observed with respect to very high capital incomes.<sup>108</sup>

It is also striking to note that the advocates of the “tip-of-the-iceberg” theory have never really tried to muster empirical evidence that would validate their theoretical interpretation. In particular, the circumstances in which Kuznets ended up proposing his theory suggest that purely political considerations were far from totally absent, because the idea that it was only the crises of the 1914–1945 years that allowed capitalism to become less unequal was, by all evidence, not to everyone’s taste. In his monumental 1953 work, Kuznets was careful not to go further than his findings would allow: he laid out in an extremely detailed and rigorous fashion how he had analyzed the American tax statistics from the years 1913–1948, and he left for later analysis the issue of the causes and scope of the very large decline in the top-income share of total income that his estimates had uncovered.<sup>109</sup> Indeed, Kuznets had obviously noticed that only very high incomes had collapsed, and that the central question was whether the dynamic impact of the progressive income tax would cause the shocks experienced by wealth owners to become permanent: he explicitly mentioned this mechanism, and he even estimated the evolution of the savings

capacities of recipients of very high incomes.<sup>110</sup> Then, in December 1954, in his presidential lecture for the meeting of American Economic Association in Detroit, Michigan, Kuznets decided to adopt a totally different (and far more ambitious) interpretation of the results from his 1953 book; it was this lecture, published in 1955 under the title “Economic Growth and Income Inequality,” that would give birth to the theory of the “Kuznets curve.”

It is interesting to read this 1955 text, because it reminds us of the sharp political tensions of the Cold War era—tensions so sharp that even an economist as rigorous as Kuznets could not be totally insensitive to them. The only data Kuznets had were those from his 1953 book, along with a few scattered estimates for the United Kingdom and Germany, and these estimates tended to indicate that, as in the United States, the decline of inequality was mainly the result of the shocks experienced by wealth owners over the 1914–1945 years.<sup>111</sup> Indeed, Kuznets began by explaining that policy interventions, notably in the form of inflation (a powerful wealth-equalizing force) and highly progressive income and inheritance taxes, could be a key mechanism for reducing inequality, and that absent such interventions, inequality could even tend to rise indefinitely due to a cumulative process leading to a growing concentration of wealth among a small fraction of the population (only recipients of very large capital incomes have the means to save, thus intensifying the initial concentration of wealth and the resulting income, and so on).<sup>112</sup> Then, in the second part of his lecture, Kuznets ventured to draw his colleagues’ attention to a totally different theory: the idea that, in fact, the internal logic of economic development, independent of any policy intervention or external shock, was for inequality to rise during the initial stages of industrialization (because only a minority are in a position to benefit from the new wealth created by industrialization), before spontaneously beginning to decline during the advanced stages of development (a larger and larger fraction of the population moves into the most remunerative sectors, hence a spontaneous reduction of inequality).<sup>113</sup> These “advanced stages,” he said, began in the late nineteenth or early twentieth century in the industrialized countries, so the decline of inequality that took place in the United States over the 1913–1948 years may have merely testified to a more general phenomenon that could, in theory, be experienced by all countries at some point, including the underdeveloped countries currently mired in poverty and decolonization: thus the facts Kuznets uncovered in his



1953 book suddenly became a very powerful weapon. Kuznets was perfectly aware of the highly speculative nature of such a theory. As he himself made clear, “this is perhaps 5 percent empirical information and 95 percent speculation, some of it possibly tainted by wishful thinking.”<sup>114</sup> Yet, in presenting such an optimistic theory in his presidential address to American economists—who clearly were quite inclined to believe in and disseminate the good news delivered by their prestigious colleague—Kuznets knew that he would have an enormous influence, and so the “Kuznets curve” was born. Moreover, to be certain that everyone understood what this entailed, Kuznets took care to clarify the stakes surrounding these optimistic predictions; they were, quite simply, “the future prospect of underdeveloped countries within the orbit of the free world.”<sup>115</sup> To a very great extent, then, the theory of the “Kuznets curve” was a product of the Cold War.

Obviously, the high political tensions of the time have eased since the 1950s, and it would be absurd to accuse all of the economists who took up Kuznets’s theory of having allowed themselves to be guided only by the defense of the “free world.” Yet it must be pointed out that nothing in the studies that have been carried out in the United States since the 1950s has really demonstrated that the 1913–1948 decline of inequality uncovered by Kuznets was due to anything other than the shocks experienced by wealth owners during the two world wars and the crisis of the 1930s. It is especially impossible for us to adhere to the conclusions advanced by Williamson and Lindert in their 1980 study—which is nevertheless the principal attempt at empirical validation of the “Kuznets curve” and which has strongly influenced international thinking on the question (no comparable study has ever been carried out in the European countries where the idea of the “Kuznets curve” has often been taken up by simple analogy with the American case).<sup>116</sup>

In the preface to their book, Williamson and Lindert announce their objective very clearly: their goal is to show that the decline of inequality that took place in the United States over the first half of the twentieth century was not explained solely by the “obvious” factors—the crisis of the 1930s, the inflation brought about by the wars, and the wars themselves—but rather the decline of inequality also had much “deeper” economic causes, namely, a structural decline in pay disparities arising from skill, which itself was due to long-term changes in the structure of technical progress and demography.<sup>117</sup> Of course, Williamson and Lindert do not try to deny that the “depression-war-inflation”

trio played an important short-term role, especially when it came to the collapse experienced by wealth owners, or that the increase in the tax burden on wealthy taxpayers might have limited opportunities for the rebuilding of large fortunes.<sup>118</sup> But, in line with the objective laid out in the preface, their work was devoted entirely to moving beyond this obvious explanation: Williamson and Lindert barely examine the case of the topmost incomes at all (likewise for capital income in general),<sup>119</sup> and their study mainly consists of gathering macroeconomic and demographic data to explain why pay disparities underwent a large structural decline over the first half of the twentieth century. As it turns out, their thesis was that technical progress in the United States was much more capital-intensive until the early twentieth century, which favored the highest-skilled workers (whose productivity was augmented by the new machines) and was a disadvantage to the least-skilled workers (who were the most vulnerable to replacement by machines), and then that the pace of capital accumulation sharply declined starting from 1910–1920, which made possible a compression of the wage disparities associated with these different skill levels.<sup>120</sup> According to Williamson and Lindert, this process pertaining to the evolution of labor demand was strengthened concomitantly by the evolution of labor supply: the decline of the birth rate and a sharp decline of immigration, phenomena that were particularly massive in the interwar United States, also helped improve the relative position of the least-skilled workers starting from 1910–1920.<sup>121</sup> The mechanisms that Williamson and Lindert describe are not exactly the same as those cited by Kuznets, but they resemble them on one key point: in both cases, the decline of inequality was part and parcel of the internal dynamics of capitalism, and the fundamental conclusion was that it would have happened anyway, even in the absence of the shocks of 1914–1945, and independently of any political intervention.<sup>122</sup>

In and of themselves, there is nothing far-fetched about the mechanisms Williamson and Lindert describe. In particular, on the face of it, it is entirely plausible that the immigration quotas of the interwar era may have had a significant impact on wage inequality, and, more generally, that the demographic shocks caused by the frequent fluctuations in American immigration policy over the twentieth century may have led to structurally more volatile levels of wage inequality in the United States (especially compared to a country like France, which is characterized by a very high degree of demographic stability). For example, many studies have shown that the extensive opening of the

borders in late twentieth-century America explains a nontrivial portion of the increase in wage inequality observed in the 1980s and 1990s (though clearly not the majority of it).<sup>123</sup> The problem is that the initial observation upon which Williamson and Lindert base their analysis is in fact extremely fragile: Williamson and Lindert do not cite any estimates of the American wage distribution expressed in terms of fractiles, and the notion that American wage inequality underwent a structural decline between the years 1910–1920 and the 1950s is based solely on the fact that wage ratios between a few categories of “typical workers” (ratios between the wages of skilled blue-collar workers and laborers, or engineers and skilled blue-collar workers, etc.), declined between those two dates.<sup>124</sup> The most recent American studies have to a greater extent been based on estimates in terms of fractiles, but those estimates cover only periods after the Second World War, and earlier periods are always discussed using the same “typical worker” comparisons. As we noted, no one seems to have tried to carry out estimates of the interwar or early twentieth-century U.S. wage distribution in terms of fractiles, which means there is no way of knowing precisely how American wage inequality actually evolved over the first half of the century.<sup>125</sup>

Recall that, given the continual increase in the proportion of skilled workers, it is quite logical that ratios of the kind studied by Williamson and Lindert should have a downward trend, without this telling us anything precise about the actual evolution of the wage distribution (to say nothing of the problems posed by the frequent changes of definition for the categories—such as “laborers,” “skilled blue-collar workers,” and “engineers”—that the two authors used). In France, ratios expressed as the (average salary of high-level white-collar workers) / (average salary of blue-collar workers) also underwent a continual and extremely marked decline throughout the twentieth century, both during the first half of the century and since the 1950s. And yet ratios between the wages of the highest-paid 10 percent of workers, the highest-paid 5 percent of workers, the highest-paid 1 percent, etc., on the one hand, and the average wage or low-level wages on the other hand, absolutely did not decline over those periods; in fact, all these ratios remained extremely stable.<sup>126</sup> The same may well be true for the United States, and it cannot be ruled out that American wage hierarchies took a bit longer than those in France to recover from the shocks of the 1914–1945 years (perhaps because those shocks were exacerbated by the structural effects of the new immigration policy instituted in the interwar era), but this also must be demonstrated.<sup>127</sup> Given the current state of

research, the ratios used by Williamson and Lindert yield no firm conclusions, and it is hard not to draw a parallel between their approach and that adopted by Fourastié for France—recall that it was by relying exclusively on a few ratios of the type expressed as (wages of senior judicial officials) / (wages of laborers) that Fourastié tried to argue in favor of the idea of an irrepressible decline of inequality).<sup>128</sup> The “depression-war-inflation” trio, however obvious it may be, seems relatively difficult to leave behind, and the “submerged part of the iceberg” still remains submerged.

## 2.2. The “Social Question” at the Dawn of the Twentieth Century: The Problem of Bad Faith

However surprising the misjudgments of Kuznets, Fourastié, or Williamson and Lindert may be, especially given that the misjudgments were coming from otherwise extremely rigorous economists, they are nothing compared to the genuine bad faith one encounters from most of the late nineteenth-century and early twentieth-century economists who studied the question of the evolution of inequality. We think it is interesting to dwell a bit on those studies. Apart from their own historical interest, these studies testify to the poverty of the statistical apparatus of the time, which gave rise to all manner of excesses, and which, as a consequence, have made it extremely difficult to study the evolution of wage inequality in the nineteenth century and up to 1914 in a rigorous fashion, as we will see in this section.

The most emblematic example of the bad faith we would like to discuss here is probably that of Paul Leroy-Beaulieu. What makes this case especially interesting is that Leroy-Beaulieu was not just anybody: he was professor of political economy at the Collège de France, chief editor of *L'Économiste français*, author of many frequently republished treatises of the era (including his *Traité de la science des finances*, as well as his *Précis d'économie politique*), and probably the most influential French economist of the late nineteenth and early twentieth centuries. In 1881, he published a heavy tome of nearly 600 pages, with the promising title: *Essai sur la répartition des richesses et sur la tendance à une moindre inégalité des conditions*. In this book, which went through multiple editions in the 1880s and up to the early 1910s,<sup>129</sup> Leroy-Beaulieu set out to prove that all was well, and that nothing should be done that might disturb this happy equilibrium. The overall tone was set from the very beginning of the preface:

For some time, there has been much talk of what we like to call the social question. A great many people have proposed what they believe to be solutions. Among the least imaginative and the most skeptical-minded, there is hardly anyone who does not say "something must be done." The word "socialist" has once again become fashionable and less feared. . . . Everyone appears to be convinced that, governed by natural laws alone, the distribution of wealth operates very poorly and very inequitably in modern societies. "The rich get richer and the poor get poorer," it is written. . . . These complaints are of concern to us. They have moved us to undertake a scientific and experimental study of the laws that govern the distribution of wealth in modern society and the natural effect of these laws. We submit the results of our observations to the reader.<sup>130</sup>

Leroy-Beaulieu then announces his conclusions:

Disparities of wealth and, above all, of income, are less than is thought, and these disparities are on the decline. . . . We are emerging from what I have called "the chaotic period of large-scale industry," the period of transformation, of suffering, of improvisation. . . . These troubles are of a temporary nature: while they have not yet all disappeared, they are in the course of disappearing. Modern society is resuming its march toward a condition that will be characterized by a much lesser degree of inequality of condition. The social question, insofar as it can be resolved, will be resolved on its own, gradually, by the constant action of the great economic causes which have been at work for a number of years. Any revolutionary action of the state to hasten this movement could only hinder and delay it. Such is the conclusion that follows from this book. We have gathered, and submit to the reader, a rather large number of facts and observations so that he may judge for himself the truth of our assertions.<sup>131</sup>

After such an introduction, we expected to find in Leroy-Beaulieu's book a mass of facts and information showing at least approximately—not necessarily even very convincingly—that disparities in wealth, "and above all in income," were on the decline in the France of his era. Yet Leroy-Beaulieu's book contains no data of any kind that might lead to such a conclusion. For example, Leroy-

Beaulieu cites with satisfaction tax statistics from the “four old ladies” according to which the number of buildings had risen by 35 percent between 1822 and 1876 and the number of doors and windows by 80 percent, “even as the population grew by only 20 percent”:<sup>132</sup> these are quite interesting figures, which show that the number and quality of dwellings indeed improved greatly over a half-century, but it goes without saying that this tells us nothing precise about the evolution of inequality. Leroy-Beaulieu also notes that the number of paupers receiving aid grew by 40 percent in France between 1837 in 1860, even as the number of welfare offices nearly doubled.<sup>133</sup> Aside from the fact that it would be quite optimistic to deduce from these figures that the actual number of paupers had declined (which Leroy-Beaulieu does not hesitate to do), it is obvious that any decline in the number of poor people provides no information about the evolution of income disparities between the poor and the rich. The whole book is full of such statistical solecisms: from beginning to end, Leroy-Beaulieu offers dubious interpretations of figures that are, by their nature, unable to establish the conclusion announced with great fanfare in his preface. The fact that such a renowned economist could have stooped so far speaks volumes about the obsessive fear of collectivism that prevailed at the time.

Of course, Leroy-Beaulieu was not responsible for the poverty of the statistical apparatus of his time or the fragile nature of the materials to which he had access: in the late nineteenth and early twentieth centuries, France had no statistics bearing directly on incomes, so it was extremely difficult to write a book about “the tendency toward a lesser degree of inequality of condition.” But, aside from the fact that nothing obliged him to write such a book, or to announce that he was prepared to prove “scientifically and experimentally” that wealth and income gaps were on the decline, it must be pointed out that Leroy-Beaulieu did not actually try to analyze the few statistics that might have allowed him to measure the evolution of inequality. In particular, Leroy-Beaulieu cites statistics from the progressive income tax in Prussia, but he does not attempt to use them to study the evolution of income concentration (if he had done so, he would have realized that top incomes were rising structurally faster than the lowest incomes in late nineteenth-century Prussia, as we will see). In Leroy-Beaulieu’s demonstration, the Prussian statistics are mentioned only to argue that the number of very high incomes was “infinitesimal” (Leroy-Beaulieu limits himself to observing that there were only a few hundred taxpayers in the highest brackets used by the Prussian administration in their tax-return tabulations).<sup>134</sup>

By definition, such a “theory” hardly lends itself to falsification. One merely has to go high enough in the scale of incomes, and there will always be an “infinitesimal” number of very high incomes; such ideas make sense only if one carries out comparisons over time, which our distinguished professor at the Collège de France refrained from doing.<sup>135</sup> And it was in this same “experimental and scientific” spirit that Leroy-Beaulieu mobilized all of the tax statistics of his time: statistics from the income tax that had been in effect briefly during the U.S. Civil War, statistics from certain Swiss cities, statistics from the schedular taxes in the United Kingdom, statistics from the real estate and personal-property taxes in effect in France, and so on. All of these materials are discussed solely in order to show that the number of very high incomes was “infinitesimal,” and “much smaller than is usually imagined” (without elaborating on the meaning of the term “usually”).<sup>136</sup>

In fact, contrary to what its title and preface might lead one to believe, the objective of Leroy-Beaulieu’s book was not to prove that inequality was diminishing (Leroy-Beaulieu was perfectly aware that he was unable to prove such a hypothesis), but rather to convince the reader that inequality was less significant “than is usually imagined.” To do this, Leroy-Beaulieu uses two key arguments: on the one hand, the argument about the “infinitesimal” number of very high incomes, and on the other hand, the idea that industrial development had brought about very rapid growth in the purchasing power of workers. In fact, all the estimates we have today confirm that such growth did take place over the course of the nineteenth century: in real terms, working-class wages appear to have stagnated over the first half of the nineteenth century, before doubling between 1850 and the start of the twentieth century.<sup>137</sup> To be sure, this is not a small detail in the economic and social history of nineteenth century France; this simple fact allowed Leroy-Beaulieu and all of the liberal economists of the time to dismiss every socialist who advanced the thesis of “immiseration.”<sup>138</sup> It may also be pointed out that, to a great extent, the stagnation of working-class living standards we observe up to the mid-nineteenth century explains why all economists, even the most faithful defenders of free enterprise, have always accepted the idea that the initial stages of industrialization were accompanied by an increase in inequality (the “chaotic periods of large industry,” according to Leroy-Beaulieu).<sup>139</sup> The problem, obviously, is that the doubling of working-class purchasing power over the second half of the nineteenth century in no way allows us to conclude that inequality declined over the course of this



second phase.<sup>140</sup> It all depends on the evolution of the volume of production and business profits, the structure of the labor force, and so forth, and above all it depends on the evolution of the distribution of profits: if property in capital became increasingly concentrated, it is quite possible that incomes also became increasingly concentrated, even in a scenario in which wages were observed to be growing faster than profits at the macroeconomic level.<sup>141</sup> Leroy-Beaulieu did not trouble himself with such caveats; he deliberately maintained a certain ambiguity between, on the one hand, what he was able to show, namely, the improvement in absolute terms in the conditions of the poorest workers (or at least industrial workers), and on the other hand, what he claimed to show, namely, “the tendency toward a lesser degree of inequality of condition.”

What makes Leroy-Beaulieu’s approach especially interesting is that it is extremely representative of the way in which liberal economists in the late nineteenth and early twentieth centuries sought to respond to the socialists. In particular, the few income distribution estimates carried out at the time were all undertaken in the same spirit followed by Leroy-Beaulieu: the point was not to prove that inequality was on the decline (which available data could not do), but simply to show that there were “very few” large incomes, and that it was therefore truly futile to stoke envy and jealousy by attaching too much importance to the issue of redistribution. Let us therefore mention the particular case of Clément Colson, a renowned early twentieth-century economist, who in 1903 set out to correct the income distribution estimates carried out by the Finance Ministry staff in 1896 in the context of the Doumer bill to create a general income tax (which was taken up almost unchanged in the second Caillaux bill of 1907). These estimates had deliberately understated the weight of very high incomes so as to obtain revenue forecasts that could not be accused of excessive optimism: Colson’s aim was to show that, even with a more realistic estimate of the actual weight of “very high incomes,” the share of total French income going to the latter was still relatively low, especially compared to the large bulk of total income going to “middling incomes” and “small incomes” (these terms are Colson’s, and it hardly needs saying that they can always be defined so as to confirm the assertion in question, which itself was defined without any precise comparison).<sup>142</sup>

Let us also mention the case of Alfred Neymarck, the former president of and at the time still a very eminent member of the Statistical Society of Paris, who in 1911 used bequest statistics to show that the number of millionaires and

large *rentiers* was much smaller “than is usually imagined,” and that millions of honest and hard-working small savers owned the vast majority of national wealth, despite what the propaganda of the CGT and the socialists might lead one to believe.<sup>143</sup> Given the obvious partisanship of all of these economists, it goes without saying that all of these estimates must be taken with extreme caution: besides the fact that they provide no information about the evolution of inequality over time, there is every reason to think that the purely statistical estimates these authors provided tended to understate the weight of very high incomes.<sup>144</sup> It also appears that this attitude was not limited to French economists, and that the income distribution estimates carried out in the early twentieth century in other industrialized countries also tended to understate the magnitude of the highest incomes.<sup>145</sup> We should add that this unfortunate habit never entirely disappeared (though the collapse of very high incomes following the crises of 1914–1945 explains why understating their magnitude became politically less urgent than before). For example, the income distribution estimate that Alfred Sauvy published for the year 1929 in his *Histoire économique de la France entre les deux guerres*—without any sources or methods indicated—grossly underestimated the number and amounts of very high incomes.<sup>146</sup> Here again, there is no doubt about the motive; Sauvy was so concerned to show that “taxing the rich” had not resolved the economic and social problems of the interwar era that he was willing to bend the truth however he needed to in order to reach that conclusion.<sup>147</sup>

It is also useful to recall how Vilfredo Pareto’s work figured within the anti-collectivist milieu of the late nineteenth and early twentieth centuries. In his famous 1896 article titled “The Wealth Distribution Curve,” Pareto was content merely to lay out in a purely technical manner what would later become “Pareto’s law”: namely, that the wealth distribution curves described by the tax statistics of his time could be described by relatively simple mathematical formulas with an acceptable degree of precision (he used statistics from the income taxes of Prussia, Saxony, and various Swiss and Italian cities, statistics from the personal property tax in France, etc.), and he carefully refrained from drawing the slightest political conclusion from this.<sup>148</sup> But very soon afterward, Pareto would lay out what, according to him, was the deep meaning of his discovery: the fact that the wealth distribution curve was described so well by mathematical formulas proved that inequality obeys “natural” laws, and that as a result it would be futile to challenge it by redistributing wealth (“The distri-

bution of income is not caused by chance”).<sup>149</sup> His bad faith was obvious. Contrary to what Pareto claimed, the statistics he had analyzed in no way showed that inequality was immutable, but simply that the distribution curves observed in practice could be described by a small number of parameters, and there was nothing preventing those parameters—which are of essentially technical interest (though that is quite something in itself)<sup>150</sup>—from differing significantly over time and space. Ultimately, after having explained at length that inequality was remarkably stable, Pareto could not resist arguing in favor of the notion that there was a “tendency toward a lesser degree of inequality of condition”: because the data he had access to could not yield this result, he illustrated his claim by referring to the book that his distinguished colleague Leroy-Beaulieu had published in 1881, and which, as we have said, contained no information that could support such a conclusion.<sup>151</sup>

We should add that the poor state of the era’s statistical apparatus could truly authorize any conclusion. Notably, we may point to the work published by the Viscount d’Avenel in 1909, and modestly titled *The Rich over 700 Years* (*Les riches depuis 700 ans*).<sup>152</sup> The viscount, who clearly was far less persuaded of the benefits of industrial development than were Leroy-Beaulieu and his liberal colleagues, set out to prove that the nineteenth century had brought a considerable degree of wealth and income inequality, incomparably more than that observed in previous centuries. D’Avenel ran through the various monarchs in French history, from Saint Louis to Louis XVI, compared their situation to that of Rothschild and other big capitalists of his day, and concluded that the fortunes these capitalists had accumulated far surpassed those possessed by the kings and princes of the past (“the ultrarich of today are ten times richer than those of feudal times, and six times richer than those of the Old Regime”).<sup>153</sup> It hardly needs saying that such comparisons tell us nothing precise about the actual evolution of wealth inequality “over 700 years”: d’Avenel was content merely to lay out a series of individual examples (usually with no indication as to the sources used), and thus it is quite hard to know how representative those examples are and whether they mean what the author says they do.<sup>154</sup> D’Avenel also argues that wage and pay inequality had grown very rapidly over the nineteenth century, and he explains that it was only in the public sector that the highest compensation levels had grown less rapidly than the wages of blue-collar workers or domestic workers. This was easily offset by the explosion of compensation paid out to the executives and engineers of banks and industrial enterprises,

which, he claimed, had risen far more rapidly than the lowest wages.<sup>155</sup> Obviously, the information d'Avenel provides is much too fragmentary to allow us to infer from it that wage hierarchies had actually expanded over the nineteenth century; to do so would require gathering precise and systematic data on both the various wage levels and the numbers of workers who received them. However, d'Avenel's interpretation of the deteriorating trend in the position of senior civil servants (that is, as an exception, not the rule) warrants attention, because it is the exact opposite of the interpretation that Leroy-Beaulieu had proposed in 1881: Leroy-Beaulieu had not failed to notice this declining trend, and he wanted to see in it a more general phenomenon of declining wage inequality (though without attempting to gather precise data on wage inequality in the private sector).<sup>156</sup> Given the current state of research, it is impossible to decide between d'Avenel and Leroy-Beaulieu and to say whether wage inequality rose or fell in nineteenth century France.<sup>157</sup> We should simply keep in mind that, in an era when anecdotes often stood in for statistics, it was possible to argue anything and its opposite, all while citing the same data.

### 2.3. What Do We Know about the Evolution of Inequality in the Nineteenth Century?

The fact that so many economists argued without any serious evidence that there had been a declining trend in inequality in the late nineteenth and early twentieth centuries obviously does not mean that such a phenomenon did not happen. Even accepting that the decline of inequality in the developed countries over the first half of the twentieth century was mainly explained by the shocks to wealth holders in the crises of 1914–1945—by far the most plausible interpretation of the facts, as we have already said—we cannot rule out that there had been phases of spontaneously declining inequality before the outbreak of the First World War. What can be said about the evolution of inequality in the nineteenth century and the very first years of the twentieth century?

First, we must stress once again how fragile the available statistical materials are, mainly because progressive income taxes were introduced in many countries only on the eve of the First World War (1910 in the United Kingdom, 1913 in the United States, 1914 in France). As a result, the statistics derived from those taxes cannot tell us about the spontaneous evolution of income

concentration at the start of the twentieth century (nor, by that token, in the nineteenth century). An examination of the German case is particularly interesting from this point of view, since the precocious introduction of a progressive income tax in many of its states has made possible estimates of income concentration going back to the 1870s. The results are extremely clear: they show that a rising trend in income inequality took place in Germany over the decades prior to the First World War. According to available estimates, the top 1 percent share of total income in Saxony rose from 16–17 percent in the 1870s to about 18–19 percent in the 1880s and 1890s, and to 19–20 percent in the 1900s and 1910s.<sup>158</sup> According to the data, the concentration of income was always slightly less in Prussia than in Saxony, but the overall evolution was similar: the top 1 percent share of total income rose from about 15 percent in the 1870s to about 18–19 percent in the 1900s and 1910s.<sup>159</sup> Of course, in neither case was this an explosion of inequality. By way of comparison, recall that the top 1 percent share of total income in France fell from about 20 percent to just over 7.5 percent over the thirty years from 1914 to 1945,<sup>160</sup> and that in Germany the collapse over the same period was at least as pronounced.<sup>161</sup> Nevertheless, the trend observed in Saxony and Prussia between the 1870s and the 1900s and 1910s is significant: in both cases, incomes clearly tended to become increasingly concentrated, slowly but surely, over the nearly half-century between the war of 1870 and the war of 1914.

It is particularly revealing to note that this phenomenon of rising income concentration apparently took place among only the very high incomes of the top 1 percent (and probably, for the most part, those of the upper strata of the top 1 percent): according to available estimates, the shares of total income going to the “middle classes” (P90–95) and “upper-middle classes” (P95–99) were extremely stable in Saxony and Prussia between the 1870s and the 1900s and 1910s.<sup>162</sup> This finding suggests that it was very large capital incomes that were taking a growing share of national income in Germany in the years 1870–1910, not incomes of high-wage workers.<sup>163</sup> The fact that only the topmost incomes had benefited from this process of growing concentration was actually noticed as early as the 1920s by a Soviet economist, Procopovitch, who inferred from this observation that the decades leading up to the First World War in Germany had been a period of “plutocratic development.”<sup>164</sup> In other words, growing income concentration was the mechanical result of a process of growing accumulation and concentration of property in capital among a minuscule

fraction of the population: a large initial wealth holding makes it possible to undertake new projects and carry out large investments, which bring in large incomes that can then be reinvested so as to increase the initial wealth holding, and so on; inversely, anyone who does not have capital at the outset is excluded from the astonishing wealth creation brought about by industrial development (or at least benefits from it in far smaller proportions than the wealthiest segments of the population).

To be sure, the German tax statistics of the 1870–1945 period warrant systematic reanalysis to clarify certain points that are poorly understood at present.<sup>165</sup> Nevertheless, given the current state of the literature, Procopovitch's judgment from the 1920s cannot be dismissed: Germany experienced a lasting and spontaneous increase in inequality over this period, and it seems that only the crises of the "first twentieth-century" put an end to this trend toward "plutocratic development." What makes the German experience especially interesting is that Germany is the only country for which we have estimates for the nineteenth century, and the available estimates for the various countries in the twentieth century do not provide any example of a lasting and spontaneous phase of declining inequality. Under these circumstances, it is extremely tempting to conclude that in the absence of any state redistribution or outside shock, the spontaneous tendency of inequality in a capitalist economy is to rise indefinitely (at least up to a certain threshold).

Of course, it is very difficult to say whether the results for late nineteenth-century and early twentieth-century Germany obtain for other developed countries as well. Indeed, we should keep in mind that German industrialization was both late and extremely rapid, and the years 1870–1910 correspond precisely to the period in which Germany swiftly caught up to the other industrialized countries. If industrial takeoff and rapid capital accumulation in new sectors are indeed forces that lead spontaneously to a growing concentration of income and wealth, it could be supposed that the phase of rising concentration observed in Germany in the years 1870–1910 arose from the specificities of German history, and that no phase of this kind took place in the other countries, or at least that the process of rising income and wealth concentration (Leroy-Beaulieu's "chaotic period of large industry") came to an end earlier in the other countries. In France and in the Anglo-Saxon countries, the 1870–1910 period looked more like a phase of stabilizing inequality, with inequality reaching a sort of plateau, or perhaps even a phase of spontaneous decline in

inequality, a happy phase that Germany, too, would have ended up experiencing naturally a few decades later if the First World War had not rapidly accelerated the process.

However, the few data available, however fragile, suggest that the specificity of the German experience should not be exaggerated. In particular, we feel it is important to stress that the thesis of German particularity has too often been accepted without genuine empirical verification, especially by Anglo-Saxon authors.<sup>166</sup> In the United Kingdom, available estimates of the evolution of wealth inequality show that wealth holdings became increasingly concentrated over the nineteenth century, and there is no basis for asserting that this long-term trend experienced a genuine slowdown over the 1870–1910 period.<sup>167</sup> It is possible that British wage inequality widened over the first half of the nineteenth century before stabilizing over the course of the second half (or even declining slightly), but this thesis, too, would have to be confirmed.<sup>168</sup> The situation is similar for the United States: the few available estimates show, above all, that wealth in the New World was much more concentrated in the late nineteenth century than it had been in the late eighteenth century, but is very difficult to go further than this general observation and to sharpen the periodization.<sup>169</sup> The data do not allow us to rule out the possibility that a stabilization of inequality (or even a slight decline) took place in the Anglo-Saxon countries in the late nineteenth and early twentieth centuries, but this, too, must be demonstrated.

What data do we have for France? First and foremost, we have the results of the vast study of French wealth holdings in the nineteenth century carried out under the direction of Adeline Daumard. To carry out this study, Daumard and her colleagues compiled representative samples from the individual bequest declarations preserved in government archives, which, among other things, allowed them to estimate the change in the numbers and levels of large bequests over the nineteenth century. The statistics that Daumard and her colleagues compiled for the nineteenth century inevitably suffer from certain shortcomings when compared to the bequest statistics that the tax administration has compiled since 1901, and which we used to study the evolution of French wealth inequality over the twentieth century.<sup>170</sup> In particular, it was obviously impossible for a team of scholars to tabulate all bequest declarations submitted in France: Daumard and her colleagues had to limit themselves to samples, and those samples covered only bequest declarations submitted in Paris and a few



large provincial cities (Lyon, Lille, Bordeaux, and Toulouse). Likewise, it would have been far too cumbersome to construct annual samples, so the study covered only a few isolated years: for bequest declarations submitted in Paris, for example, the study looked at the years 1820, 1847, and 1911. Nevertheless, this source is of great interest, especially because the results it obtained were extremely clear. In Paris, as well as all of the cities studied, the size of large bequests grew far more rapidly over the nineteenth century than did smaller bequests, so the concentration of wealth among the deceased observed for the early twentieth century was significantly greater than it had been a century earlier.<sup>171</sup> Since the study covered only a few isolated years, it is very difficult to refine the periodization. Still, the results obtained by Daumard and her colleagues seem to invalidate the notion that inequality stabilized over the last third of the nineteenth century: for example, in Paris, the concentration of wealth among the deceased was essentially the same in 1820 and in 1847; it was between 1847 and 1911 that small- and medium-sized bequests lost ground vis-à-vis large requests.<sup>172</sup>

We also have estimates derived from the “TRA” study, whose objective was to study the fates, throughout the nineteenth century, of the descendants of about 3,000 married couples between 1803 and 1832 whose names began with the letters “TRA.” Bequest declarations were one of the main sources used to study the fortunes of these family lines, so the study allows us to measure the evolution of wealth inequality in nineteenth-century France. These estimates, too, are far from perfect, since the number of observations was too small to allow a completely reliable study of very large bequests. Qualitatively, however, the results leave no doubt: the latest available estimates show a significant trend toward greater inequality of wealth in nineteenth-century France.<sup>173</sup> What makes these results especially interesting is that they are entirely consistent with those obtained by Daumard and her colleagues, and that these two studies (the “TRA” study and Daumard’s study) were based on completely independent samples of bequest declarations. The estimates from the “TRA” study also show that the widening of wealth inequality among the deceased was relatively steady between the years 1800–1810 and 1880–1890, with no apparent tendency toward stabilization at the end of the period, let alone a decline.<sup>174</sup>

The estimates we carried out using the bequest statistics compiled by the French tax administration since 1901 also show that the early years of the twentieth century hardly look like a period of declining inequality. Our estimates show that wealth inequality was, rather, tending to increase over the years

1902–1913, and certainly not to decline.<sup>175</sup> However, it must be emphasized that our estimates, like those from Daumard’s study and the “TRA” study, examine bequest declarations submitted during the year in question: we cannot rule out that wealth inequality among the entire population declined (or at least stabilized) in the late nineteenth and early twentieth centuries, and that it was only wealth inequality among the deceased that actually continued to rise up to the years 1913–1914.<sup>176</sup>

Let us also note that the fact that French wealth became more concentrated over the course of the nineteenth century obviously does not mean that d’Avenel was right; it is likely that the French Revolution—especially given the land redistribution and hyperinflation—led to a significant decline in wealth inequality, and thus that the concentration of wealth under the Old Regime was significantly greater than it was in the years 1810–1820, and perhaps even greater than in the early twentieth century. This thesis seems to be confirmed by estimates carried out recently by Christian Morrisson and Wayne Snyder. These two scholars analyzed tax documents from the eighteenth century that were kept in the archives for the purpose of the poll tax (*capitation*), and they obtained an extremely interesting estimate of the income distribution prevailing in France in 1780. According to their estimate, the share of income going to the top decile of the income distribution was about 50–55 percent on the eve of the revolution, a level even higher than that estimated for the years 1900–1910 (about 45 percent).<sup>177</sup> Morrisson and Snyder conclude from this that the revolution probably led to a very sharp decline in the top-decile share of total income, with the share then once again reaching very high levels over the course of the nineteenth century. This interpretation seems entirely plausible.

However, it is much more difficult for us to follow Morrisson and Snyder when they attempt to show that inequality reached its long-term peak in the 1860s, before declining slightly during the 1870–1910 period. It is possible that such a phenomenon took place, but the data gathered by Morrisson and Snyder cannot prove it. Their conclusion is based on an estimate of the top-decile share of total income for the 1860s that is slightly higher than their estimate for the 1900s and 1910s, suggesting that by the 1860s income concentration had almost regained its 1780 level, and then spontaneously declined slightly over the last third of the nineteenth century. The problem is that the estimate for the 1860s is based mainly on macroeconomic data: such data can yield only very rough estimates of income inequality expressed in terms of fractiles, and it is impossible

to say whether the discrepancy between that estimate and the estimate for the 1900s and 1910s (itself a very rough estimate)—a discrepancy that in any case is relatively small—is actually significant.<sup>178</sup>

In order to clarify this point and achieve a better understanding of the spontaneous evolution of inequality in France at the dawn of the twentieth century, we have attempted to analyze the statistics derived from the personal property tax and the real estate tax. These statistics are obviously not perfect for our purposes, and it goes without saying that the results cannot give a definitive answer to the question that interests us here. First, these statistics cover rental values rather than incomes: the personal property tax was calculated as a function of the rental value of the taxpayer's principal residence (whether the taxpayer was a renter or owner), and the real estate tax was calculated as a function of the rental value of the real estate property that the taxpayer owned (whether that property was rented out or reserved for the owner's use). Meanwhile, these rental values were reassessed only every 10–15 years, and the administration compiled detailed statistics during these reassessments only for the city of Paris; no comparable statistics exist for the entire national territory, so it would be necessary to go back to the individual tax assessments preserved in the archives in order to construct national statistics.<sup>179</sup> As a result, we used only the rental-value statistics compiled for the city of Paris during the assessments of built-up properties organized by the tax administration in 1889, 1901, and 1911.<sup>180</sup> The statistics that were compiled in connection with the personal property tax have thus allowed us to estimate the evolution in the share of the total rental value of Parisian dwellings accounted for by the 10 percent of households living in the dwellings with the highest rental values (the “best-housed” 10 percent of households), the best-housed 1 percent of households, the best-housed 0.1 percent, and so on. Likewise, the statistics compiled regarding the real estate tax have allowed us to estimate the share of the total rental value of Parisian dwellings accounted for by the best-off (in terms of rental value) 10 percent of real estate owners, the best-off 1 percent of real estate owners, the best-off 0.1 percent of real estate owners, and so forth (unfortunately these statistics from the real estate tax were not compiled in 1911, so we have only two data points: 1889 and 1901).<sup>181</sup>

It cannot be ruled out that the measures of inequality obtained in this way give a biased picture of the changes that took place: for example, it could be imagined that incomes were becoming less and less concentrated, but that rich

HOW DOES FRANCE COMPARE WITH FOREIGN EXPERIENCES?

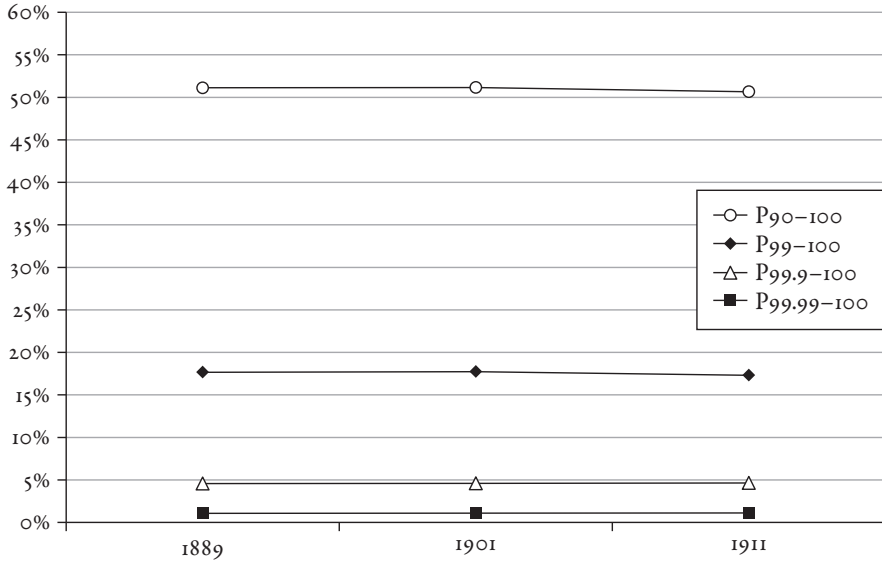


FIGURE 7-1. The share of total rental value accounted for by fractiles of the best-housed households, in 1889, 1901, and 1911

Source: Columns P90-100, P99-100, P99.9-100, and P99.99-100 from Table K-5 (personal property tax) (Appendix K)

Parisians continued to live in dwellings as luxurious (relative to the average dwelling) and to own real estate properties as large (relative to the average real estate property) as in the past. But it must be noted that before the First World War and the adoption of rent-control policies, rental values were probably a fairly good indicator of affluence. It would be highly surprising if a significant decline in income inequality took place in the late nineteenth and early twentieth centuries, and that such a phenomenon did not show up in rental values (at least partially). And yet the results show complete stability in the inequality of Parisian rental values over the years 1890-1910. The number of dwellings and the level of rents grew significantly, but disparities between the best-housed Parisians and the rest of the Parisian population were practically unchanged: in 1889, 1901, and 1911, the share of total rental values going to the best-housed 10 percent of households was about 51 percent, the share going to the best-housed 1 percent of households was about 17.5 percent, and so on (see Figure 7-1). We see the same stability when looking at real estate property. The share of total rental

## FRANCE AND THE KUZNETS CURVE

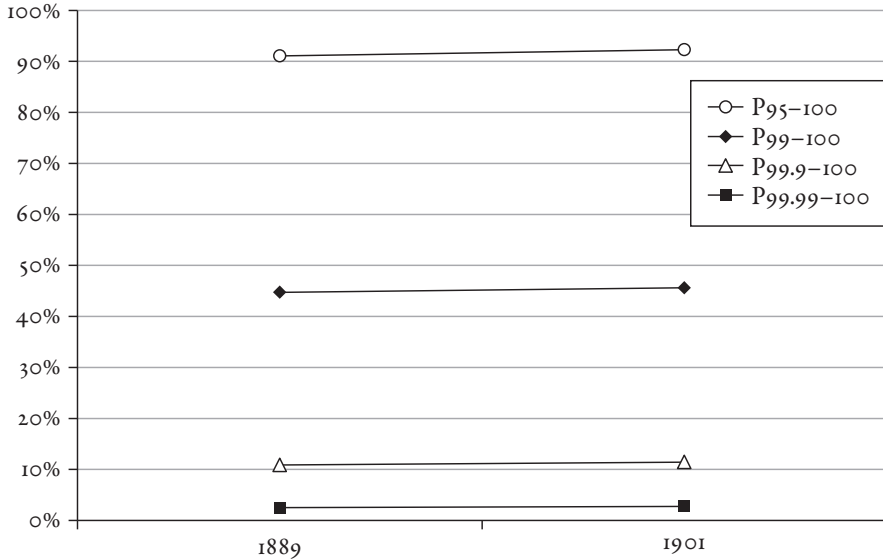


FIGURE 7-2. The share of total rental value accounted for by big property owners in Paris, in 1889 and 1901

Source: Columns P95-100, P99-100, P99.9-100, and P99.99-100 from Table K-5 (real-estate tax [2]) (Appendix K)

value going to the various fractiles of big Parisian property owners was practically the same in 1889 and in 1901, and we even observe a slight increase in the share going to the highest fractiles (see Figure 7-2).<sup>182</sup> These results do not allow us to completely invalidate the notion of a trend toward declining inequality in late nineteenth- and early twentieth-century France, but they do confirm that the hypothesis remains to be demonstrated.

Thus we see that estimates currently available for the nineteenth century and the early years of the twentieth century are far too rare and fragile for us to claim that they yield any certain conclusions. Nevertheless, a number of significant findings emerge from these estimates. First, the best-established fact unquestionably concerns the phase of rising inequality: in every country examined here (Germany, the United Kingdom, the United States, and France),<sup>183</sup> income and wealth distributions seem to have widened significantly over the nineteenth century. Second, it is possible that many countries experienced a degree of stabilization of inequality in the late nineteenth and early twentieth

century, but in the current state of the literature it is impossible to say precisely when and in what circumstances such a “hyper-inegalitarian plateau” might have been reached. Finally, it cannot be ruled out that in certain cases inequality declined slightly in the late nineteenth and early twentieth centuries, but it remains to be demonstrated, as the existence of such a phase of spontaneously declining inequality has not been proven for any country. In any case, it seems clear that any such hypothetical decline of inequality was of extremely small magnitude compared to the collapse experienced by very high incomes over the 1914–1945 years: without the crises of the “first twentieth-century” and without the growth of progressive taxation, it is likely that the capitalist countries would not have strayed from the peak inequality observed on the eve of the First World War anytime soon.

### 3. *Inequality, Redistribution, and Economic Development*

As we discussed at length in this chapter, the chief finding from the comparative history of inequality is that the “Kuznets curve” does not exist: the idea that a natural and irrepressible tendency toward declining inequality is at work in the advanced stages of economic development does not withstand scrutiny in any country. Inequality of wealth, and consequently inequality of the capital income that flows from it, are characterized more by a natural tendency to rise, and only outside shocks or state interventions—with the progressive income tax standing chief among these—seem to have been able to radically reverse this natural movement. As for wage inequality, it tends to be characterized more by a lack of a trend: in all likelihood, the results obtained for France—namely, a very high degree of long-term stability in wage inequality punctuated by multiple short- and medium-term fluctuations—are of much more general in scope and validity.

Examining the different national experiences also allows us to study the reverse causality: What is the impact of inequality and redistribution on economic development? Indeed, it is extremely striking to note that all developed countries experienced a very sharp compression of wealth inequality in the years 1914–1945, and that the same countries experienced a period of very rapid growth during the *Trente Glorieuses*. We may add that the countries where the “resetting” of the capital-accumulation “counters” was most radical, starting

with Germany and France, were also those where growth was the fastest over the decades that followed the Second World War (in all likelihood, the same holds for Japan<sup>184</sup>). It is obviously impossible to infer the existence of a causal link from this correlation, because many other factors may explain the very rapid growth of the *Trente Glorieuses* (a process of catch-up relative to prior periods, an acceleration of technical progress, a rise in education and skill levels, etc.).

However, from an economic point of view, the idea that the flattening of wealth inequality that took place in the 1914–1945 period might have injected dynamism into the developed economies of the postwar era seems perfectly plausible and reasonable. By accelerating the decline of old capitalist dynasties that monopolized access to capital and power, the “resetting” of the capital-accumulation counters could only have fostered the emergence of new generations of entrepreneurs. In fact, our analysis of tax returns showed that such an acceleration of the process of turnover among economic elites did in fact take place following the shocks of the 1914–1945 years: in the immediate postwar era, the topmost income fractiles in France were composed mainly of mixed incomes received by entrepreneurs, rather than the traditional dividends received by capitalists.<sup>185</sup> More generally, the large-scale redistribution of wealth brought about by inflation undermined all positions that had been acquired in the past, which is a good thing for economic growth. Anyone (individuals or firms) who had investment projects and had heretofore accumulated only debts saw the value of those debts reduced to nothing and could move ahead more freely after the Second World War; inversely, anyone who did not know how to use their money and had accumulated financial claims lost their assets. Recall, too, that this was exactly how Keynes conceived of inflation: as early as the early 1920s, Keynes had explained very clearly that “the hereditary transmission of wealth and control over firms” was at the root of “the decadence of capitalism,” and that inflation could bring about a redistribution of wealth and the elimination of *rentiers*, and thus could redynamize capitalism.<sup>186</sup>

According to this theory, excessively high levels of wealth inequality thus have a negative effect on growth and economic development, since such inequality causes key decisions (on new investments, the creation of new firms, etc.) to be concentrated within a small fraction of the population and excludes a fair number of those who have worthwhile projects. For the same reasons, a progressive tax on income and bequests, by preventing wealth inequality from



becoming too high and too hereditary, could have a positive impact on growth. If that is the case, the legitimacy of such taxes would be hard to dispute, because heavily progressive taxes not only stop the most blatant inequalities that capitalism generates (or at least reduce them very significantly), but also inject dynamism into economic development. Clearly, this is only a hypothesis, however, and there is enough uncertainty around it for bitter political conflicts always to find a foothold. Indeed, it would be extremely difficult to demonstrate the validity of such a theory in a completely rigorous way that would be acceptable to everyone: growth always depends on a very large number of factors, and it is often impossible to isolate one factor or another. Let us merely note that by every indication, the very high degree of tax progressivity that prevailed in all of the developed countries during the *Trente Glorieuses* did not prevent them from experiencing exceptionally rapid growth. We may also mention a recent Canadian study, according to which, all else being equal, countries where hereditary fortunes control a larger share of companies tend to grow less rapidly.<sup>187</sup>

In any event, this theory centered on the impact of wealth inequality on growth seems more realistic to us than the theory developed in France by the so-called Regulation school. According to that theory, which we discussed when presenting the major stages of French growth in the twentieth century,<sup>188</sup> the crisis of 1929 was caused by the fact that wages in the 1920s had been growing structurally less rapidly than production (hence the idea of a “crisis of overproduction”), and conversely, the *Trente Glorieuses* would not have been possible without the adoption after the Second World War of a new “mode of regulation,” based, among other things, on steady and standardized wage growth. Collective bargaining agreements and public intervention finally brought about a situation in which the growth of wages was indexed to the growth of production and benefited all levels of the wage hierarchy in equal proportions, so that the consumption demand of various groups grew at the same pace as the supply from the productive system, thus guaranteeing stable growth.<sup>189</sup> This theory is plausible at first glance, but it does not seem consistent with the observed facts. First, as we have already noted, the wage share of business value-added was extremely stable in the twentieth century (both in France and in all the other countries), and the 1920s were not an exception to this general rule. This was also true on the eve of the First World War and in the 1990s: the wage share of value-added in the 1920s stood at around 65 percent,

and even tended to rise slightly in 1928–1929.<sup>190</sup> In other words, wages that grow at the same pace as production do not seem to have been a postwar innovation. Moreover, as we have seen, the 1950s and 1960s hardly appear to have been a period of stability in the wage distribution; in fact, quite the contrary: wage inequality grew sharply during this period, and it was only after 1968 and the 1970s—that is, in the twilight of the *Trente Glorieuses*—that the wage distribution compressed sharply in France.<sup>191</sup>

Generally speaking, given the very high degree of long-term stability in the wage-profit split and in wage inequality, it seems unlikely that such inequalities caused structural changes in the growth regime. In France, and most likely in all developed countries, the real transformation that capitalism underwent over the twentieth century concerned inequality in the ownership of capital, and thus it is rather from that quarter that any impact of inequality on growth and economic development should be sought.

# Conclusion

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## Top Incomes in France at the Dawn of the Twenty-First Century

### *1. A Century of Inequality in France*

Inequality in France declined in the twentieth century. But, contrary to what some theories may lead us to believe, this reduction in inequality hardly resembled a natural or spontaneous economic process. In particular, it is extremely striking to note that wage inequality, aside from its many short- and medium-term fluctuations, actually remained practically unchanged over the long run. For example, the best-paid 10 percent of wage earners always had an average wage about 2.5–2.6 times the average for the overall population, the best-paid 1 percent of wage earners always had an average wage around 6–7 times the average wage of the overall population, and so on. The various forms of human labor were utterly transformed between the century's two endpoints, and average purchasing power multiplied by a factor of about 5, yet the pay hierarchy remained the same. This impressive stability should probably be viewed not just as an adjunct to permanent disparities of skill and training, but also alongside the very broad consensus around wage hierarchies that has always existed: wage inequality has never really been called into question by any political movement.

The fact that income inequality nevertheless declined in the twentieth century is due mainly to the shocks experienced by very high capital incomes. Extremely large wealth holdings (and the very high capital incomes that flow from them) experienced a genuine collapse following the crises of the 1914–1945 period (wartime destruction, inflation, and the bankruptcies of the 1930s), and the decades that have followed 1945 still have not allowed those fortunes and incomes to regain the astronomical levels reached on the eve of the First World War. The most convincing explanation has to do with the dynamic impact of progressive taxation on the accumulation and reconstitution of large fortunes. The very high degree of wealth concentration observed in the early twentieth century

## CONCLUSION

was, in effect, the product of a century of accumulation in peace: over the 1815–1914 period, fortunes could accumulate without fear of either income tax or inheritance tax (before 1914, the highest tax rates reached only trivial levels). After the shocks of the 1914–1945 period, the conditions for accumulating large fortunes were utterly transformed: the top rates of income and inheritance taxes reached extremely high levels (the rates on the highest incomes exceeded 90 percent by the 1920s), and it became physically impossible to regain wealth levels comparable to those that had prevailed before the shocks. The magnitude of the transformations thus engendered deserve to be emphasized. According to our estimates, the gap between the top 0.01 percent of incomes (which in practice have always been preponderantly capital incomes) and the average income was about five times greater in the early twentieth century than it has been since 1945. We should be clear that it is not capital income as such that has disappeared; rather, its concentration has sharply declined. The overall distribution of national income between labor income and capital income was stable in France over the course of the twentieth century, and it was its distribution that evolved in a completely different way (the distribution of labor income remained practically unchanged, whereas that of capital income was sharply compressed).

Let us add that there is no support for the idea that inequality had already started to decline before the outbreak of the First World War. In the absence of the 1914–1945 shocks, France probably would not have left behind the peak levels of inequality of the early part of the century anytime soon. In particular, it was not until the human and financial traumas brought on by the world wars and the 1930s crisis that fiscal redistribution assumed decisive importance. That does not necessarily mean we should view the reduction of inequality as having been a result of chance events on the battlefields or the stock exchanges. There is no reason why we cannot view the crises of 1914–1945 as an endogenous response to the intolerable inequality that characterized capitalism at the beginning of the century. But it goes without saying that this question far exceeds the scope of our current inquiry.

### *2. Is a Return to the Nineteenth Century Possible?*

The events studied in this book are not of merely historical interest; they can also illuminate our understanding of the present and future world. Of course,

## CONCLUSION

at the end of this inquiry it is highly tempting to play the predictions game, to venture a forecast of how inequality will evolve over the decades to come. The comparative historical evidence presented in Chapter 7 may provide some clues. In all developed countries, very large wealth holdings were mostly decimated over the 1914–1945 years. But the United States, in addition to having started from a lower level and having experienced fewer profound shocks than Europe, stands out because of its very rapid turnaround in the 1980s and 1990s: in those two decades, American inequality seemed to have regained its levels from before the First World War. Why should the European countries, and France above all, end up not following the American trajectory in the early decades of the twenty-first century, and return instead to the very high degree of wealth and income concentration that prevailed in the late nineteenth and early twentieth centuries?

Of course, such predictions are extremely risky. Indeed, our detailed examination of the French case has shown that the history of income inequality was highly unpredictable. In addition to the main scenario, which involved the shocks of the 1914–1945 years and the nonreconstitution of very high capital incomes, this twentieth-century history was also characterized by numerous reversals, which were often closely connected to the vagaries of politics and economic growth, and it is quite difficult to guess what form they will take in the twenty-first century. In particular, we have seen that wage inequality in the twentieth century, despite its high degree of long-term stability, experienced complex alternations between phases of compression and phases of widening, and that the turning points in this history were often the same as those of France's general history: in addition to the two world wars, both of which led to large-scale compressions in wage hierarchies that were quickly reversed in both postwar periods, the dates 1936, 1968, and 1982–1983 also represent significant turning points in the history of twentieth-century French wage inequality. So far, these upward and downward fluctuations in wage inequality have always offset one another over the long run, and it is only the transformations experienced by capital income and its distribution that have had a structural impact on income inequality. Nevertheless, such fluctuations can have a significant impact on income inequality in the short- and medium-term, and they often have very a strong effect on contemporaries. It would be highly surprising if we did not end up observing the same type of fluctuations in the twenty-first century, and it would be presumptuous to claim the ability to predict them.

## CONCLUSION

Despite our uncertainties about income inequality in the future, there is some objective basis for the idea of a return to the trends of the nineteenth century. First, the transformation of productive systems seen in the developed countries at the turn of the third millennium—characterized by the decline of traditional industrial sectors and the development of a services and information technology society—probably tends to favor a rapid increase in inequality, though we obviously lack the historical perspective to appreciate their true impact (all eras have seen old sectors decline and new ones emerge). The particularly rapid growth of the new sectors is probably a kind of growth that will permit the accumulation of considerable fortunes in a relatively brief space of time. This phenomenon has already been observed in the United States in the 1990s, and it is hard to see why it would not overtake Europe.

Perhaps most importantly, in the early twenty-first century the reconstitution of very large wealth holdings—of a level comparable to those of the late nineteenth and early twentieth centuries—is greatly facilitated by the general decline in marginal tax rates on the highest incomes. It is obviously much easier to build up (or rebuild) large wealth holdings when top marginal rates are 30 percent or 40 percent (or even much lower when some incomes enjoy special exemptions) than when those top rates are 70 percent or 80 percent, as was the case during the *Trente Glorieuses* (or when rates are even higher, as in the Anglo-Saxon countries notably). In the United States, and to a lesser extent in the United Kingdom, there is no doubt that the increase in wealth inequality in the 1980s and 1990s was greatly facilitated by very large tax cuts on the highest incomes since the 1970s. In France and in Continental Europe, the political and ideological conjuncture was different at first: whereas Anglo-Saxon opinion quickly interpreted the economic crisis of the 1970s as an admission that the interventionist policies put in place after the Second World War had failed (starting with progressive taxation), European opinion for a long time refused to call into question the institutions associated with the golden age of the *Trente Glorieuses*. But this great transatlantic gap has become narrower. Besides the fact that stagnating purchasing power led to a degree of rejection of income taxes everywhere in the 1980s and 1990s, the (real or supposed) existence of increasingly mobile capital and “super managers” at the dawn of the twenty-first century is a powerful factor pushing countries to line up in favor of lower taxes for the incomes in question. We might add that the collapse of the

## CONCLUSION

Soviet bloc probably helped to make the idea of highly progressive taxation appear excessively egalitarian and unfashionable.

Ultimately, then, all factors seem to point to the early years of the twenty-first century as boom times for wealth owners. But it is difficult to say how long this economic and intellectual conjuncture will last: the experience of the twentieth century suggests that societies that are too obviously unequal are inherently unstable. Studying the past century also leaves one with the impression that too much concentration of capital can have negative consequences in terms of economic efficiency, and not just in terms of social justice. It is quite possible that by accelerating the decline of old capitalist dynasties and encouraging the emergence of new generations of entrepreneurs, the flattening of wealth inequality that took place during the 1914–1945 period helped to make Western economies more dynamic during the *Trente Glorieuses*. Progressive taxation has the virtue of preventing the reemergence of situations analogous to those that prevailed on the eve of the First World War, and in the long run its dislocation could cause a degree of economic sclerosis. Such hypotheses are very far from proven, but it seems to us that they deserve to be taken seriously.

### 3. *The Fever and the Thermometer*

Let us conclude by noting that, if such a return to the inequality of the nineteenth century were to come about, French society would, statistically, be highly ill-equipped to gauge it. When it comes to observing high incomes and large wealth holdings, France's public statistical apparatus has been much poorer in the late twentieth and early twenty-first centuries than it was in the interwar era and the 1950s and 1960s, and perhaps even poorer than it was in the very first years of the twentieth century. At the dawn of the twenty-first century, the French government no longer produces any regular statistics on inheritance (which it did from 1902 to 1964, when it published the results of extremely detailed tabulations of tax returns, notably covering very large bequests), and the annual statistics compiled from tax returns since 1915 no longer allow the evolution of very high incomes to be followed with the same precision as before (publication of these statistics has also stopped, which has made accessing them more difficult). The wealth taxes created in the 1980s and 1990s



## CONCLUSION

(the IGF, then ISF) have not helped this state of affairs at all: today it is impossible for an ordinary citizen to find out how the level and distribution of taxable wealth has evolved, for the simple reason that the government does not publish any regular statistics on the subject (other than the overall amount of wealth in question and the total number of taxpayers).

We have tried to show that this statistical impoverishment, far from being the result of chance or administrative negligence, is actually a testament to a profound transformation in society's demand for representations of inequality: that is, a vision centered around wealth inequality and the existence of very large fortunes has been replaced by one based on socioprofessional categories, which accords merely a symbolic place to wealth owners or recipients of very high incomes. After 1945, the figure of the capitalist or the *rentier*, so present in early twentieth-century and interwar society, gave way to that of the *cadre*. This evolution was the result of a collective awareness of the collapse of large fortunes after the crises of the 1914–1945 years, as individuals living off their wealth became far less numerous and far less opulent than in the past; to a great extent they have disappeared from the social landscape. But while this shift in representations did have some unquestionable objective basis, it has nonetheless been terribly excessive: large wealth holders never completely disappeared, and above all, the new statistical categories that these new representations helped to forge mean that any return to the realities of the past will have become extremely difficult to gauge.

These difficulties are further exacerbated by the evolution of tax legislation, because the proliferation of special tax regimes favoring capital income has made it increasingly cumbersome to account for all the supplementary incomes of the individuals in question (some of these incomes do not even have to be declared). Initially, these special regimes were designed as a response to the shocks experienced by wealth holdings and wealth incomes over the 1914–1945 years: after the Second World War, granting tax relief to capital income became acceptable and even desirable, since it was no longer a question of handing out favors to large fortunes, which had been annihilated by the crises, but rather of encouraging the emergence of new classes of savers and accelerating the pace of reconstruction. But the trend continued in the 1980s and 1990s, and there is no sign of it being over (one thinks, notably, of the tax cut for stock options adopted in early 2000 by the Jospin government). This second phase has no real economic

## CONCLUSION

justification, and it is mainly the result of the tax competition engaged in by various developed countries.

Despite these difficulties of a statistical nature, we can be relatively certain that at the dawn of the twenty-first century, top incomes and top wealth holdings are still very far from regaining the place that they held on the eve of the First World War. As we have noted, however, we cannot rule out that the trend toward greater inequality observed in the 1980s and 1990s will assume more formidable proportions in the early decades of the twenty-first century. Such a phenomenon would then warrant accurate and open analysis, if only to make possible a democratic debate based on reliable information. In general, we hope to have demonstrated in this book that, however one views the question of redistribution, it is a healthy thing to show inequality as it exists.



# The Raw Statistical Tables Compiled by the Tax Administration from Income Tax Returns (1915–1998 Tax Years)

This appendix gives a detailed description of the form and evolution of the raw statistical tables that the tax administration has compiled based on tax returns since the creation of the income tax; these tables constitute the central source analyzed in this book (the methodology used in moving from these raw materials to the income inequality estimates discussed in the book is laid out in Appendix B). We will distinguish between the “distribution” tables (section 1), the “composition” tables (section 2), the “capital gains” tables (section 3), and the other tables (section 4).

## *1. The Distribution Tables (1915–1998 Tax Years)*

### *1.1. The General Form of the Distribution Tables*

Since the inauguration of the income tax in France by the law of July 15, 1914, and its first implementation for the incomes of 1915 (declared in 1916), the tax administration each year has undertaken a tabulation of all the tax returns filed by taxpayers, which has made it possible to compile and publish two main series of statistical tables, which we will call the “distribution” tables and the “composition” tables.<sup>1</sup> The precise name of the progressive tax on total income for which liable taxpayers filed these tax returns changed over time: the general income tax, or *impôt général sur le revenu* (IGR) for the 1915–1947 tax years; then the *surtaxe progressive de l'impôt sur le revenu des personnes physiques* (IRPP) for the 1948–1958 tax years; and finally, simply, the IRPP for the 1959–1998 tax years). But the general form of the statistical tables compiled by the tax administration on the basis of the corresponding tax returns has remained the

same.<sup>2</sup> The distribution tables show the distribution of taxpayers by income bracket, that is, the number of taxpayers and the total amount of income declared within each of a certain number of brackets of taxable income. The composition tables show the composition of income by income bracket, that is, the number and amount of the various types of incomes (wages, investment incomes, farm profits, etc.) declared by taxpayers within each of a given number of taxable income brackets.

The distribution tables have been compiled by the tax administration every year since the 1915 tax year, even during the years of the Second World War, and in Table A-1 we have reproduced the raw data corresponding to the 1915–1998 tax years. These are the raw data that allowed us to estimate the shape of the income distribution and the levels of the various top-income fractiles for the entire 1915–1998 period (see Appendix B, section 1). The raw data reproduced in Table A-1 were recopied directly from the tables published by the tax administration, with no adjustments made.<sup>3</sup>

The income brackets used by the tax administration in tabulating and ranking the tax returns are *ad hoc* brackets, which the administration has adjusted on a more or less regular basis since 1915 (see Table A-1), and they have no direct relationship to the brackets used in the rate schedules of the progressive income tax. In particular, it will be noted in Table A-1 that while the top income brackets used by the tax administration between the 1920s and the 1960s were adjusted more or less regularly to take inflation and the growth of real incomes into account (the top bracket is made up of a few hundred taxpayers per year in both the 1920s and the 1960s), the level (in current francs) of the top brackets almost never changed subsequently. Already in 1961 the highest bracket used in the tables compiled by the tax administration covered taxpayers with annual incomes greater than 500,000 francs (363 taxpayers at the time), and it still covered taxpayers with annual incomes greater than 500,000 francs in 1998 (240,125 taxpayers), following a period during the 1969–1983 tax years when the top bracket started at 400,000 francs. The result is that in 1961 the top bracket used by the tax administration included 0.002 percent of the total number of tax units (taxable and nontaxable combined), and over the whole period from the 1915 tax year to the 1970s it seldom included more than 0.01 percent, yet in the sense of “buying my underground or any means of suicide because it is 1990s,” it included more than 0.7 percent (see Appendix E, Table B-1). The practical result of this nonadjustment of the

## APPENDIX A

TABLE A-1

*The raw statistical tables compiled by the tax administration  
on the basis of income tax returns  
(1915-1998 tax years)*

1915			1916		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
5,000	78,206	584,908	3,000	182,673	985,383
10,000	38,581	477,067	8,000	75,963	734,116
15,000	17,163	299,140	12,000	35,437	486,973
20,000	9,243	209,121	16,000	19,655	352,224
25,000	14,722	497,782	20,000	32,771	894,840
50,000	5,123	342,698	40,000	9,201	443,775
100,000	1,596	216,724	60,000	3,868	265,108
200,000	629	183,293	80,000	2,271	200,850
500,000	131	171,696	100,000	2,665	323,079
Total	165,394	2,982,429	150,000	1,695	324,041
			250,000	941	318,604
			500,000	414	525,463
			Total	367,554	5,854,454
1917			1918		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
3,000	272,866	1,680,634	3,000	310,074	1,927,675
10,000	99,584	1,371,153	10,000	116,233	1,601,635
20,000	46,514	1,407,543	20,000	52,251	1,619,725
50,000	12,184	825,572	50,000	14,068	971,042
100,000	5,810	848,896	100,000	6,204	933,582
250,000	1,227	416,599	250,000	1,264	469,346
500,000	515	588,884	500,000	474	515,016
Total	438,700	7,139,282	Total	500,568	8,038,022

(continued)

TABLE A-I  
(continued)

1919			1920		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
6,000	148,316	1,260,332	6,000	330,801	2,723,446
10,000	219,025	3,263,489	10,000	404,399	5,769,529
20,000	71,846	1,776,400	20,000	108,710	2,711,851
30,000	52,583	1,935,480	30,000	71,470	2,728,004
50,000	31,405	2,028,188	50,000	39,647	2,797,624
100,000	12,139	1,695,228	100,000	15,304	2,101,760
200,000	3,113	755,671	200,000	3,700	881,227
300,000	1,785	679,098	300,000	2,147	823,517
500,000	761	514,734	500,000	893	605,402
1,000,000	229	538,203	1,000,000	273	732,887
Total	541,202	14,447,326	Total	977,344	21,875,246
1921			1922		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
6,000	395,261	3,113,008	7,000	236,697	2,013,580
10,000	468,055	6,614,617	10,000	487,001	6,943,614
20,000	122,076	2,988,422	20,000	144,191	3,512,096
30,000	73,054	2,822,707	30,000	86,692	3,288,192
50,000	40,369	2,777,522	50,000	47,145	3,238,622
100,000	14,152	1,946,515	100,000	17,201	2,326,537
200,000	3,424	824,506	200,000	4,034	969,294
300,000	1,893	715,980	300,000	2,399	919,276
500,000	822	553,189	500,000	1,053	712,936
1,000,000	224	489,750	1,000,000	243	567,051
Total	1,119,330	22,846,216	Total	1,026,656	24,491,597
1923			1924		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
7,000	268,545	2,224,492	7,000	329,042	2,822,374
10,000	558,419	7,977,793	10,000	694,441	9,836,003
20,000	174,985	4,269,295	20,000	218,908	5,213,389
30,000	108,443	4,121,315	30,000	134,896	5,084,413
50,000	58,840	4,103,335	50,000	74,269	5,022,716
100,000	21,549	2,948,513	100,000	25,124	3,403,017
200,000	5,521	1,336,646	200,000	6,141	1,476,647
300,000	3,254	1,228,071	300,000	3,490	1,315,176
500,000	1,352	894,400	500,000	1,220	809,877
1,000,000	377	827,571	1,000,000	297	668,198
Total	1,201,285	29,931,431	Total	1,487,828	35,651,809



1925			1926		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
7,000	422,639	3,645,414	7,000	573,806	4,838,427
10,000	936,620	12,946,616	10,000	1,297,051	18,571,936
20,000	286,953	7,155,976	20,000	362,818	8,779,135
30,000	165,578	6,499,658	30,000	198,740	7,572,864
50,000	86,015	5,823,404	50,000	102,127	6,956,688
100,000	28,429	3,849,815	100,000	36,890	4,955,354
200,000	6,664	1,616,297	200,000	8,837	2,132,195
300,000	3,803	1,424,131	300,000	5,348	1,993,056
500,000	1,533	1,042,413	500,000	2,363	1,522,364
1,000,000	363	785,042	1,000,000	670	1,524,276
Total	1,938,597	44,788,765	Total	2,588,650	58,846,295

1927			1928		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
7,000	605,404	5,123,113	10,000	1,071,976	16,099,155
10,000	1,478,518	21,116,140	20,000	485,089	11,779,680
20,000	434,153	10,488,866	30,000	254,080	9,587,209
30,000	227,028	8,599,043	50,000	115,411	7,871,040
50,000	104,549	7,086,334	100,000	39,196	5,319,034
100,000	35,303	4,803,282	200,000	9,522	2,310,409
200,000	8,504	2,088,102	300,000	5,994	2,258,065
300,000	5,288	2,030,767	500,000	2,822	1,890,612
500,000	2,464	1,663,551	1,000,000	862	1,864,716
1,000,000	755	1,642,313	Total	1,984,952	58,979,919
Total	2,901,966	64,641,511			

1929			1930		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
10,000	923,458	13,737,806	10,000	1,043,409	15,449,106
20,000	516,740	12,590,355	20,000	581,904	14,195,918
30,000	295,023	11,110,510	30,000	332,336	12,525,126
50,000	128,498	8,556,414	50,000	134,428	9,043,793
100,000	40,582	5,560,235	100,000	40,550	5,499,917
200,000	9,755	2,356,185	200,000	9,101	2,301,819
300,000	5,841	2,178,968	300,000	5,584	2,091,878
500,000	2,552	1,692,381	500,000	2,376	1,573,539
1,000,000	821	1,751,759	1,000,000	702	1,458,269
Total	1,923,270	59,534,613	Total	2,150,390	64,139,364

(continued)

TABLE A-I  
(continued)

1931			1932		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
10,000	1,428,995	19,603,469	10,000	1,309,383	18,014,747
20,000	332,019	8,023,099	20,000	313,024	7,580,215
30,000	126,712	4,364,425	30,000	121,691	4,187,909
40,000	61,328	2,732,696	40,000	58,247	2,596,148
50,000	89,591	6,061,437	50,000	83,425	5,619,793
100,000	28,622	3,881,559	100,000	25,597	3,448,661
200,000	10,778	3,156,259	200,000	9,118	2,642,485
500,000	1,625	1,073,375	500,000	1,294	858,562
1,000,000	494	1,014,169	1,000,000	391	734,392
Total	2,080,164	49,910,487	Total	1,922,170	45,682,911
1933			1934		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
10,000	1,299,857	17,896,917	10,000	1,195,011	16,469,797
20,000	320,173	7,748,048	20,000	286,786	6,937,659
30,000	124,409	4,285,601	30,000	107,213	3,690,822
40,000	58,883	2,623,079	40,000	51,288	2,287,322
50,000	82,799	5,568,881	50,000	73,700	4,973,007
100,000	24,416	3,287,558	100,000	22,004	2,972,521
200,000	8,299	2,402,568	200,000	7,555	2,194,973
500,000	1,223	805,701	500,000	1,081	718,672
1,000,000	349	733,049	1,000,000	309	599,973
Total	1,920,408	45,351,401	Total	1,744,947	40,844,744
1935			1936		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
10,000	1,117,576	15,416,607	10,000	746,093	11,325,585
20,000	267,177	6,473,978	20,000	485,955	12,011,084
30,000	96,946	3,476,203	30,000	178,497	6,220,127
40,000	48,818	2,178,627	40,000	80,085	3,605,761
50,000	72,355	4,880,170	50,000	79,720	4,836,584
100,000	21,434	2,886,470	75,000	28,602	2,470,144
200,000	7,101	2,048,320	100,000	21,273	2,576,059

1935			1936		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
500,000	1,040	686,833	150,000	13,693	2,774,475
1,000,000	352	728,736	300,000	3,718	1,494,167
Total	1,632,799	38,775,944	600,000	721	534,802
			1,000,000	402	872,351
			Total	1,638,759	48,721,139

1937			1938		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
10,000	1,058,886	15,959,496	10,000	1,286,018	19,606,729
20,000	674,930	16,783,321	20,000	817,292	20,436,880
30,000	255,559	8,905,986	30,000	328,979	11,235,337
40,000	107,518	4,846,688	40,000	135,920	6,105,883
50,000	102,039	6,174,199	50,000	123,195	7,523,695
75,000	37,134	3,213,483	75,000	43,972	3,853,953
100,000	28,128	3,405,291	100,000	32,732	4,019,836
150,000	18,219	3,707,298	150,000	20,635	4,197,312
300,000	4,877	1,952,323	300,000	5,283	2,042,946
600,000	932	704,328	600,000	942	715,917
1,000,000	510	1,201,399	1,000,000	505	1,082,098
Total	2,288,732	66,853,812	Total	2,795,473	80,820,586

1939			1940		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
10,000	880,715	13,650,386	10,000	822,815	12,673,557
20,000	644,023	16,049,047	20,000	555,015	13,814,097
30,000	274,709	9,562,217	30,000	230,043	8,027,495
40,000	116,037	5,198,141	40,000	102,706	4,614,886
50,000	99,153	5,980,083	50,000	94,574	5,724,298
75,000	34,457	2,971,216	75,000	32,798	2,839,368
100,000	28,198	3,414,054	100,000	24,659	2,995,833
150,000	18,232	3,677,959	150,000	15,135	3,058,549
300,000	5,402	2,165,403	300,000	3,989	1,599,969
600,000	1,116	826,216	600,000	762	569,982
1,000,000	576	1,263,637	1,000,000	334	612,491
Total	2,102,618	64,758,359	Total	1,882,830	56,530,525

(continued)

APPENDIX A

TABLE A-I  
(continued)

1941			1942		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
10,000	1,128,646	17,599,706	10,000	2,179,674	32,716,063
20,000	813,738	20,258,088	20,000	833,844	20,645,885
30,000	355,777	12,415,391	30,000	346,663	12,120,448
40,000	158,677	7,116,993	40,000	163,144	7,341,030
50,000	145,595	8,805,005	50,000	87,657	4,828,326
75,000	53,125	4,583,033	60,000	54,093	3,526,516
100,000	26,661	2,981,041	70,000	36,492	2,744,327
125,000	15,316	2,100,542	80,000	25,994	2,216,339
150,000	15,325	2,635,602	90,000	19,682	1,877,019
200,000	11,449	2,766,170	100,000	26,849	2,947,809
300,000	6,712	2,671,468	120,000	16,890	2,190,839
600,000	1,299	953,379	140,000	11,274	1,689,171
1,000,000	544	1,012,729	160,000	7,743	1,313,463
Total	2,732,864	85,899,147	180,000	5,689	1,080,589
			200,000	5,069	1,076,729
			225,000	3,662	869,451
			250,000	2,655	696,764
			275,000	2,132	613,392
			300,000	1,628	507,618
			325,000	1,291	435,489
			350,000	982	356,895
			375,000	769	298,005
			400,000	2,087	935,847
			510,000	2,089	1,385,075
			1,010,000	444	792,566
			Total	3,838,496	105,205,655

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1943			1944		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
20,000	996,285	24,721,029	20,000	1,231,431	30,871,588
30,000	436,278	15,218,967	30,000	637,380	22,277,519
40,000	217,639	9,790,565	40,000	331,489	14,917,441
50,000	118,892	6,546,543	50,000	190,876	10,510,790
60,000	70,460	4,585,787	60,000	116,162	7,560,062
70,000	46,375	3,487,847	70,000	72,827	5,473,237
80,000	31,588	2,691,135	80,000	47,545	4,048,082
90,000	23,654	2,253,459	90,000	32,642	3,108,153
100,000	32,000	3,507,520	100,000	40,552	4,441,956
120,000	19,524	2,532,958	120,000	23,766	3,083,780
140,000	13,000	1,948,051	140,000	15,014	2,243,445
160,000	9,086	1,544,141	160,000	10,054	1,706,222
180,000	6,410	1,217,205	180,000	6,906	1,311,409
200,000	5,690	1,207,983	200,000	5,904	1,253,047
225,000	4,145	984,143	225,000	4,188	993,324
250,000	2,846	746,612	250,000	3,015	790,836
275,000	2,356	676,717	275,000	2,203	633,059
300,000	1,687	525,814	300,000	1,544	482,442
325,000	1,238	417,597	325,000	1,249	421,506
350,000	997	361,075	350,000	928	336,274
375,000	809	313,270	375,000	743	287,886
400,000	2,097	948,550	400,000	1,891	851,860
520,000	1,785	1,208,292	520,000	1,450	975,389
1,020,000	429	787,888	1,020,000	292	461,317
Total	2,045,270	88,223,148	Total	2,780,051	119,040,624

1945			1946		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
40,000	401,169	19,564,291	40,000	673,978	34,318,423
60,000	261,228	18,134,585	60,000	711,016	49,594,157
80,000	223,212	20,040,250	80,000	583,622	52,394,330
100,000	389,037	47,493,190	100,000	1,094,209	135,313,298
150,000	217,215	42,839,352	150,000	864,544	172,040,865
300,000	34,502	12,727,727	300,000	150,370	55,871,043

(continued)

APPENDIX A

TABLE A-I  
(continued)

1945			1946		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
500,000	8,228	4,913,019	500,000	41,151	24,648,196
750,000	2,408	2,061,103	750,000	13,833	11,849,626
1,000,000	1,485	1,791,710	1,000,000	9,462	11,431,761
1,500,000	866	2,264,454	1,500,000	6,648	18,029,050
Total	1,539,350	171,829,681	Total	4,148,833	565,490,749
1947			1948		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
100,000	233,724	25,717,592	120,000	421,469	56,904,127
120,000	169,058	22,576,172	150,000	440,515	76,924,344
150,000	654,819	143,436,562	200,000	614,993	153,607,011
300,000	305,114	113,619,141	300,000	809,198	307,746,337
500,000	75,445	45,040,287	500,000	272,916	166,662,805
750,000	22,960	19,629,347	800,000	77,193	73,783,621
1,000,000	14,872	17,920,749	1,200,000	35,719	53,509,549
1,500,000	8,405	16,744,317	2,000,000	10,741	25,806,347
3,000,000	2,056	10,251,958	3,000,000	5,269	19,753,958
Total	1,486,453	414,936,125	5,000,000	2,210	18,925,641
			Total	2,690,223	953,623,740
1949			1950		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
150,000	589,711	103,619,932	170,000	270,336	49,924,000
200,000	870,911	216,679,295	200,000	540,450	130,948,000
300,000	1,249,790	478,834,033	300,000	1,195,413	469,969,000
500,000	480,000	294,315,512	500,000	602,074	361,324,000
800,000	133,124	126,937,605	750,000	250,344	228,426,000
1,200,000	58,745	87,978,695	1,200,000	97,492	157,031,000
2,000,000	17,483	42,034,930	2,500,000	19,889	66,286,000
3,000,000	8,875	33,333,845	5,000,000	6,088	53,792,000
5,000,000	4,575	39,744,791	Total	2,982,086	1,517,700,000
Total	3,413,214	1,423,478,538			

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1951			1952		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
220,000	670,837	184,017,000	220,000	770,188	214,782,000
350,000	802,994	391,359,000	350,000	1,034,271	502,158,000
600,000	636,274	462,007,000	600,000	897,501	653,250,000
900,000	311,305	346,486,000	900,000	469,738	524,312,000
1,500,000	101,646	201,305,000	1,500,000	156,185	309,187,000
3,000,000	22,395	89,094,000	3,000,000	33,165	131,972,000
6,000,000	4,356	33,161,000	6,000,000	6,279	46,850,000
10,000,000	1,956	33,982,000	10,000,000	2,872	47,888,000
Total	2,551,763	1,741,411,000	Total	3,370,199	2,430,399,000
1953			1954		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
220,000	729,082	201,312,000	220,000	714,797	197,281,000
350,000	945,970	460,813,000	350,000	948,409	461,723,000
600,000	804,633	586,107,000	600,000	832,499	606,798,000
900,000	424,632	473,953,000	900,000	439,381	490,903,000
1,500,000	148,918	295,971,000	1,500,000	161,102	321,186,000
3,000,000	32,988	130,953,000	3,000,000	36,543	145,171,000
6,000,000	6,101	45,603,000	6,000,000	6,664	49,762,000
10,000,000	2,845	48,437,000	10,000,000	3,044	52,742,000
Total	3,095,169	2,243,149,000	Total	3,142,439	2,325,566,000
1955			1956		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
350,000	1,119,910	543,927,000	350,000	1,302,429	630,225,000
600,000	1,027,680	750,776,000	600,000	1,242,148	909,473,000
900,000	568,225	635,736,000	900,000	709,480	792,663,000
1,500,000	204,584	406,666,000	1,500,000	250,655	498,861,000
3,000,000	45,967	182,414,000	3,000,000	57,769	229,596,000
6,000,000	8,330	62,035,000	6,000,000	10,439	77,767,000
10,000,000	3,747	65,395,000	10,000,000	4,437	78,414,000
Total	3,764,936	2,865,979,000	Total	4,400,880	3,449,380,000

(continued)



TABLE A-I  
(continued)

1957			1958		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
600,000	1,412,829	1,040,628,000	600,000	1,619,743	1,205,212,000
900,000	931,445	1,044,715,000	900,000	1,249,900	1,403,529,000
1,500,000	334,847	665,432,000	1,500,000	445,910	881,660,000
3,000,000	74,994	298,123,000	3,000,000	95,155	377,197,000
6,000,000	13,415	99,991,000	6,000,000	16,500	122,839,000
10,000,000	3,508	41,879,000	10,000,000	4,109	52,773,000
15,000,000	1,107	18,199,000	15,000,000	1,325	22,621,000
20,000,000	731	17,466,000	20,000,000	878	20,916,000
30,000,000	464	23,848,000	30,000,000	513	26,783,000
Total	4,430,176	3,963,875,000	Total	4,984,390	4,809,532,000
1959			1960		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
600,000	1,396,359	1,039,204,100	6,500	1,503,490	12,110,891
900,000	1,271,853	1,440,198,700	9,750	1,293,359	15,849,311
1,500,000	520,801	1,034,037,900	16,250	517,176	11,069,286
3,000,000	112,922	447,723,100	32,000	123,368	5,239,554
6,000,000	20,272	151,014,000	64,000	21,633	1,680,983
10,000,000	5,237	62,615,200	100,000	7,258	864,053
15,000,000	1,590	27,208,100	150,000	2,169	371,729
20,000,000	1,044	24,978,800	200,000	1,412	338,257
30,000,000	640	32,626,000	300,000	911	463,253
Total	5,044,969	4,992,646,900		5,455,992	57,076,201
1961			1962		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
10,000	1,284,338	15,527,508	10,000	1,541,867	18,712,455
15,000	473,304	8,117,594	15,000	601,599	10,313,873
20,000	318,075	7,624,779	20,000	406,684	9,742,948
30,000	179,756	7,163,713	30,000	221,607	8,821,963
60,000	34,731	2,592,008	60,000	42,164	3,143,353
100,000	11,887	1,554,373	100,000	14,763	1,937,205
200,000	1,765	423,509	200,000	2,056	492,127
300,000	784	291,650	300,000	931	344,039
500,000	363	307,016	500,000	385	323,452
Total	6,102,996	67,404,771	Total	6,751,651	78,833,308

1963			1964		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
10,000	1,853,811	22,587,859	15,000	939,354	16,124,313
15,000	774,894	13,295,580	20,000	793,460	20,150,243
20,000	662,394	16,970,943	35,000	140,464	5,534,849
36,000	167,387	7,512,529	45,000	118,226	6,475,761
60,000	54,202	4,042,440	70,000	40,141	3,299,513
100,000	18,543	2,427,511	100,000	24,073	3,151,616
200,000	2,565	614,587	200,000	3,392	808,946
300,000	1,128	419,495	300,000	1,421	530,807
500,000	466	386,510	500,000	587	480,437
Total	7,709,532	95,288,013	Total	8,361,863	110,625,658

1965			1966		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
15,000	1,079,922	18,556,594	15,000	1,218,542	20,959,844
20,000	946,800	24,069,998	20,000	1,087,661	27,638,832
35,000	217,656	8,960,652	35,000	246,275	10,129,538
50,000	94,637	5,523,284	50,000	106,361	6,198,282
70,000	48,129	3,951,330	70,000	53,424	4,386,190
100,000	29,105	3,821,121	100,000	33,053	4,342,338
200,000	3,923	936,151	200,000	4,581	1,095,819
300,000	1,733	644,760	300,000	2,000	741,950
500,000	697	585,159	500,000	836	720,184
Total	8,572,756	122,046,887	Total	8,955,194	133,214,734

1967			1968		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
15,000	1,355,224	23,339,879	15,000	1,556,264	26,886,811
20,000	1,261,895	32,128,543	20,000	1,504,582	38,367,604
35,000	291,776	12,003,155	35,000	340,355	13,976,212
50,000	125,667	7,326,672	50,000	143,414	8,347,496
70,000	63,450	5,216,767	70,000	69,591	5,713,584
100,000	40,400	5,320,065	100,000	43,179	5,680,701
200,000	5,711	1,360,824	200,000	6,156	1,465,357
300,000	2,504	928,913	300,000	2,700	1,004,239
500,000	1,117	968,730	500,000	1,241	1,085,670
Total	9,591,039	148,350,809	Total	10,480,338	166,686,900

(continued)

TABLE A-I  
(continued)

1969			1970		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
20,000	971,308	21,678,349	20,000	1,826,044	44,187,389
25,000	546,180	14,931,037	30,000	650,596	22,333,831
30,000	736,366	27,469,941	40,000	278,951	12,401,268
50,000	174,512	10,168,575	50,000	222,218	12,949,350
70,000	84,890	6,978,443	70,000	108,101	8,889,934
100,000	54,175	7,140,390	100,000	69,615	9,201,859
200,000	9,988	2,620,982	200,000	13,359	3,498,580
400,000	2,469	1,788,023	400,000	3,024	2,143,339
Total	10,503,244	184,632,843	Total	10,513,119	206,267,912
1971			1972		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
25,000	822,100	22,504,114	25,000	980,764	26,845,271
30,000	815,488	27,985,752	30,000	999,002	34,302,831
40,000	348,892	15,511,976	40,000	430,670	19,143,033
50,000	277,744	16,186,477	50,000	338,819	19,741,650
70,000	135,552	11,149,299	70,000	166,121	13,662,879
100,000	89,958	11,920,476	100,000	111,073	14,768,617
200,000	18,151	4,758,820	200,000	23,676	6,205,057
400,000	4,142	2,923,268	400,000	5,515	3,961,355
Total	11,019,782	235,238,957	Total	11,502,269	265,369,287
1973			1974		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
30,000	1,331,971	45,790,160	30,000	1,809,969	62,337,341
40,000	588,740	26,172,187	40,000	854,193	37,982,226
50,000	460,949	26,841,515	50,000	665,288	38,695,024
70,000	224,940	18,506,875	70,000	310,935	25,555,461
100,000	151,540	20,148,979	100,000	203,688	27,040,295
200,000	33,424	8,801,430	200,000	44,190	11,631,641
400,000	8,241	6,108,029	400,000	10,441	7,274,901
Total	12,092,270	313,432,249	Total	12,767,947	374,844,200

1975			1976		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
40,000	1,200,242	53,445,982	50,000	1,351,507	78,783,072
50,000	980,033	56,984,192	70,000	609,667	50,004,408
70,000	438,732	36,006,056	100,000	370,154	49,093,064
100,000	277,867	36,890,160	200,000	82,076	21,626,632
200,000	60,912	16,033,475	400,000	19,817	13,883,383
400,000	14,220	9,964,710	Total	14,242,603	528,292,628
Total	13,494,548	448,653,458			

1977			1978		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
50,000	1,706,209	99,671,131	60,000	829,758	53,697,518
70,000	799,570	65,530,028	70,000	522,628	39,069,340
100,000	461,016	60,737,661	80,000	558,028	49,534,219
200,000	92,323	24,290,886	100,000	605,693	79,648,991
400,000	21,991	15,597,558	200,000	125,176	32,973,347
Total	14,007,405	577,365,619	400,000	30,301	21,206,588
			Total	14,564,035	664,139,917

1979			1980		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
70,000	668,251	49,954,646	80,000	1,020,009	90,651,000
80,000	733,989	65,174,714	100,000	1,096,703	143,302,000
100,000	789,729	103,677,345	200,000	210,495	55,645,000
200,000	162,981	43,052,350	400,000	52,771	37,145,000
400,000	41,338	29,258,217	Total	15,289,641	866,335,000
Total	15,000,673	755,393,800			

1981			1982		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
80,000	1,388,519	123,459,892	100,000	1,666,665	198,881,753
100,000	1,582,223	206,156,220	150,000	471,013	80,398,901
200,000	287,335	75,837,932	200,000	370,214	97,310,450
400,000	68,908	48,686,107	400,000	82,295	56,620,220
Total	15,056,169	995,563,890	Total	15,308,540	1,125,249,422

(continued)

APPENDIX A

TABLE A-I  
(continued)

1983			1984		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
100,000	1,496,948	166,433,165	100,000	1,679,359	186,890,144
125,000	785,677	106,983,316	125,000	923,864	125,908,360
150,000	665,346	113,465,001	150,000	807,412	137,692,317
200,000	492,698	129,138,264	200,000	306,695	67,962,442
400,000	103,603	69,143,929	250,000	333,631	109,281,033
Total	15,242,012	1,262,464,876	500,000	69,308	58,310,939
			Total	15,209,530	1,352,028,172

1985			1986		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
125,000	1,054,963	143,828,445	125,000	1,137,595	155,192,917
150,000	959,383	163,699,807	150,000	1,072,428	183,177,743
200,000	368,047	81,567,003	200,000	417,365	92,506,513
250,000	397,297	130,312,095	250,000	452,193	148,419,508
500,000	85,483	72,031,956	500,000	101,954	87,444,531
Total	15,252,320	1,447,554,505	Total	13,314,101	1,409,332,505

1987			1988		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
125,000	1,197,531	163,412,960	125,000	1,273,514	173,668,775
150,000	1,147,772	196,137,220	150,000	1,254,450	214,006,500
200,000	455,851	101,051,633	200,000	503,521	111,127,375
250,000	493,610	161,879,550	250,000	557,575	180,449,580
500,000	117,353	104,382,387	500,000	145,800	125,379,705
Total	13,368,628	1,466,612,969	Total	13,470,354	1,536,160,955

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1989			1990		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
150,000	1,400,562	239,687,604	150,000	1,566,951	268,487,074
200,000	573,204	127,089,566	200,000	662,969	147,033,067
250,000	633,418	207,667,864	250,000	735,995	241,211,541
500,000	155,880	143,615,702	500,000	175,411	161,347,446
Total	13,881,932	1,647,683,218	Total	14,296,524	1,767,664,738

1991			1992		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
150,000	1,709,115	293,010,834	150,000	1,818,306	311,983,831
200,000	740,839	164,305,554	200,000	803,428	178,176,856
250,000	813,650	266,264,804	250,000	868,123	283,497,601
500,000	183,121	164,786,239	500,000	185,668	164,282,422
Total	14,642,747	1,857,504,528	Total	14,753,713	1,911,147,341

1993			1994		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
150,000	1,886,670	323,839,597	150,000	1,949,526	334,720,308
200,000	843,453	187,073,742	200,000	884,623	196,224,818
250,000	908,474	296,182,562	250,000	947,650	308,576,418
500,000	186,471	164,379,749	500,000	192,473	171,112,167
Total	14,907,267	1,956,011,688	Total	14,990,137	1,998,301,276

1995			1996		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
150,000	2,034,867	349,662,404	150,000	2,092,251	359,796,697
200,000	939,611	208,491,161	200,000	981,219	217,801,597
250,000	1,010,150	328,914,964	250,000	1,071,983	349,074,495
500,000	204,178	180,186,358	500,000	209,569	184,259,649
Total	15,474,244	2,081,153,685	Total	15,181,132	2,091,120,959

(continued)

## APPENDIX A

TABLE A-1  
(continued)

1997			1998		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
150,000	2,156,707	370,950,474	150,000	2,255,894	388,342,822
200,000	1,031,376	229,000,570	200,000	1,106,550	245,748,682
250,000	1,131,795	368,218,643	250,000	1,225,912	398,783,481
500,000	221,827	197,080,665	500,000	240,125	211,966,592
Total	15,680,354	2,172,151,713	Total	16,838,573	2,313,848,331

*Sources:* Raw data recopied directly from the distribution tables compiled by the tax administration (see Tables A-4 and A-5 for the references to the finance ministry publications where the original tables were published).

*Explanation:*  $s_i$  represents the thresholds of taxable income brackets used by the tax administration,  $N_i$  represents the number of taxpayers whose income is between the thresholds  $s_i$  and  $s_{i+1}$ , and  $Y_i$  represents the total amount of taxable income declared by these taxpayers. The "Total" line gives the total number of taxable taxpayers and the total taxable income of taxable taxpayers. The thresholds are expressed in old francs for the 1915–1959 tax years, and in new francs for the 1960–1998 tax years. The amounts are expressed in thousands of old francs for the 1915–1959 tax years, and in thousands of new francs for the 1960–1998 tax years. For example, for the 1930 tax year, 1,043,409 taxpayers declared an annual taxable income between 10,000 and 20,000 old francs, for a total amount of 15.449 billion old francs; 581,904 taxpayers declared a taxable income between 20,000 and 30,000 old francs, for a total amount of 14.196 billion old francs, etc.; and 702 taxpayers declared an income above 1 million old francs, for a total amount of 1.458 billion old francs (the total number of taxable taxpayers was 2.150 million, and their total taxable income was 64.139 billion old francs). For the 1970 tax year, 1,826,044 taxpayers declared an annual taxable income between 20,000 and 30,000 new francs, for a total amount of 44.187 billion new francs, etc., and 3,024 taxpayers declared a taxable income above 400,000 new francs, for a total amount of 2.143 billion new francs (the total number of taxable taxpayers was 10,513 million, and their total taxable income was 206.268 billion new francs).

*Note:* For the 1915–1954 tax years, the "Total" line is equal to the sum of the various brackets; in contrast, for the 1955–1998 tax years, the "Total" line is greater than the sum of the various brackets, because in this table we have reproduced only the brackets necessary for estimating the incomes of the top decile of the distribution (the percentage of taxable tax units definitively exceeded 20 percent starting with the 1955 tax year, and the lowest tax brackets of the tables compiled by the tax administration become useless when studying the top decile) (readers interested in the complete tables can refer to the finance ministry publications where these tables were published, references for which are given in Table A-4).

top brackets since the 1960s is that we will have to slightly adjust the income estimates for the 0.01 percent of tax units with the highest incomes (P99.99–100) obtained on the basis of the distribution tables in the 1980s and 1990s (see Appendix B, section 1.2).

Let us also note that the brackets and income amounts in the tables compiled by the tax administration are always expressed in terms of "taxable income" (that is, after taking into account deductions for work expenses, special



exemptions for this or that category of income, deductions from total income, etc.), rather than in terms of “fiscal income” (that is, before any deductions or exemptions). That makes sense, because the administration is interested in income only from the perspective of the income tax: it is taxable income (rather than fiscal income) that determines the tax bracket and the amount of tax owed by taxpayers. However, the rules that determine how to move from fiscal income to taxable income have varied a great deal over time (particularly when it comes to deductions for the previous year’s tax payment and the 10 percent and 20 percent deductions and exemptions that wage earners currently enjoy), so we will have to adjust the taxable-income estimates to obtain consistent series expressed in terms of fiscal income (see Appendix B, section 1.4). Also, for the 1915–1944 tax years, we must distinguish between taxable income before accounting for any flat-rate deductions for family situation or dependents (which the tax administration of that time called “net income”) and taxable income after these deductions have been taken into account (which the tax administration of the time called “taxable income”): the income brackets and income amounts from the distribution tables are expressed in terms of “net income” for the 1915–1930 and 1936–1941 tax years (which corresponds to the notion of taxable income for the 1945–1998 period), but they were expressed in terms of “taxable income” for the 1931–1935 and 1942–1944 tax years, and for those years specific adjustments will be necessary (see Appendix B, section 1.3.2). Since flat-rate deductions for family situation and dependents disappeared after the 1945 tax year, the issue of distinguishing between “net income” and “taxable income” no longer arises, and we will use the term “taxable income” to refer to the income used as the basis for calculating income tax (that is, after taking into account deductions for work expenses, special exemptions for this or that category of income, deductions from total income, etc.).

## 1.2. The Other Information Contained in the Distribution Tables

By definition, only liable taxpayers file a tax return and enter into the field covered by the statistical tables compiled by the tax administration,<sup>4</sup> which means that the bottom threshold of the lowest income bracket used in the distribution tables corresponds to the threshold of income tax liability. For example, the standard deduction of the IGR in the 1930 tax year was 10,000 francs, so it was impossible to be liable for the IGR and enter into the statistics compiled by

the tax administration with an income below 10,000 francs, which explains why the lowest bracket used in the table covering 1930 incomes begins at 10,000 francs of annual income (see Table A-1). For the 1915–1954 tax years, we have reproduced in Table A-1 the figures corresponding to all of the income brackets used in the tables compiled by the tax administration, down to the lowest bracket. For the 1955–1998 tax years, we have reproduced in Table A-1 only the income brackets necessary for estimating the incomes of the top decile of the income distribution. The percentage of tax units subject to the progressive income tax definitively exceeded the 20 percent level starting in the 1955 tax year (see Table A-2), so the lowest income brackets of the tables compiled by the tax administration become useless henceforth when studying the top decile of the distribution.

The distribution tables compiled by the tax administration also contain other interesting information that we did not reproduce in Table A-1. Since the 1945 tax year, the taxpayer's family situation has been taken into account in calculating tax liability via the family-quotient mechanism, and the distribution tables show the number of taxpayers and the total amount of income as a function of a given number of income brackets; this is done separately for each group of taxpayers having the same number of family-quotient shares. In this way, for example, we know that in 1970, out of 3,024 taxpayers whose annual income was greater than 400,000 francs in 1970, 114 were taxpayers with 1 family-quotient share, 236 were taxpayers with 1.5 family-quotient shares, and so on.<sup>5</sup> These tables thus make it possible to follow the evolution of the income distribution separately for each group of taxpayers with the same number of family-quotient shares, so they could be used, notably, to study the extent to which the family-quotient mechanism has had an effect on high-income family structures or birth rates. Such an undertaking would far exceed the scope of this book, and we have not attempted to use this information systematically (we use it only in a subsidiary fashion, for adjusting estimates of incomes located at the very bottom of the top decile and for estimating average tax rates by fractile; see Appendix B, sections 1.3 and 3.2). Since the 1945 tax year, the distribution tables have also contained a column entitled "amount of liability," showing separately for each income bracket and for each family-quotient group the amount of tax obtained after moving from taxable income to the rate schedule, information that was very useful for us in verifying the different parameters

of legislation in effect,<sup>6</sup> as well as in testing the precision of our estimates of average tax rates by fractile.<sup>7</sup>

For the 1915–1944 tax years, family situation was taken into account via a system of flat-rate deductions, and the distribution tables compiled by the tax administration show the number and the amount of “deductions at the base due to family situation and dependents” declared by the different taxpayer groups. In this way, for example, we know that the 702 taxpayers who declared an annual income greater than 1 million francs in 1930 declared 539 deductions for “family situation” (this was the deduction reserved for married couples), 674 deductions for “minor children,” and 40 deductions for “other individuals” (infirm relatives, etc.), for a total amount of deductions of 6.168 million francs, a sum that must be subtracted from the 1.456 billion francs of “net income” declared by these taxpayers to get “taxable income,” which serves as the basis for calculating the tax. After the columns concerning deductions for family situation and dependents, the distribution tables for the 1915–1944 tax years provide details on the calculation of tax: the gross amount of tax (that is, the amount of tax after applying the rate schedule), the amount of penalties and additional fees (that is, essentially penalties for late filing), surtaxes owed by single taxpayers and childless married couples, the amount of tax reductions for family dependents, and finally the net amount of tax. However, these columns were compiled by the tax administration only for the 1919–1944 tax years (for the 1915–1918 tax years, the tables stop after the columns on deductions for dependents and family situation). For the 1939–1944 tax years, the surtaxes on single individuals and childless married couples are replaced by a *taxe de compensation familiale* (TCF), the corresponding columns disappear from the distribution tables, and the tax administration compiles tables specific to the TCF, showing for each income bracket the number of taxpayers and the amount of their incomes.<sup>8</sup> The “family” information available for the 1915–1944 tax years (numbers of deductions per income bracket and numbers of certain taxes per income bracket), although less rich overall than that for 1945–1998 (for which one can estimate the distribution separately for each group of taxpayers with the same number of family-quotient shares), nevertheless represents an extremely interesting source, which could notably make it possible to study any effects the surtaxes or the *taxe de compensation familiale* may have had on the evolution of fertility behavior and family structures among high-income recipients. As with

the 1945–1998 period, however, we did attempt to exploit this information systematically, and it was useful to us only in a subsidiary way (see Appendix B, sections 1.3 and 3.2). As was the case for the 1945–1998 period, the columns detailing the calculation of tax were also very useful to us in verifying the different parameters of the legislation in effect,<sup>9</sup> as well as in testing the precision of our estimates of average tax rates by fractile (see Appendix B, section 3.2).

Finally, let us point out that the figures contained in the distribution tables for the interwar era actually include not only those taxpayers who spontaneously declared their incomes to the authorities, but also those taxpayers taxed *d'office*, on the basis of information about them in the possession of the authorities. The number of taxpayers taxed in this way is very low, however: in 1930, 2 out of 702 taxpayers who were levied based on an annual income above 1 million francs, 7 out of 2,376 taxpayers levied on the basis of an annual income between 500,000 and 1 million francs, and so forth. In fact, only incomes that were located slightly above the threshold of IGR tax liability were taxed in this way fairly often (332,394 *taxations d'office* out of 1,043,409 taxpayers taxed on the basis of an annual income between 10,000 and 20,000 francs): these were often “middling” wage earners and “small” entrepreneurs who contested their liability under the IGR, but whose incomes were known to the authorities because of their liability for the schedular taxes (and particularly the schedular tax on wages). For convenience, we will always refer to taxpayers who “declared” an annual income between such and such limits, even though those categories that actually include *taxations d'office* in addition to spontaneous declarations.

### 1.3. The Evolution of the Number of Taxpayers, Total Taxable Income, and Tax Issued

The raw data in the distribution tables also make it possible to follow the evolution of the number of taxpayers, taxable income, and tax issued since the creation of the income tax (see Tables A-2 and A-3).

Column (1) of Table A-2 describes the evolution of the number of tax units that were taxable under the progressive income tax, from the 1915 tax year to the 1998 tax year. For the 1919–1997 tax years, the figures in column (1) of Table A-2 are taken directly from the total figures given in the distribution tables reproduced in Table A-1. For the 1915–1918 tax years, the distribution tables ex-

clude a significant portion of taxpayers who were actually taxed, so we have adjusted the total numbers of taxpayers from the distribution tables heavily upward (see section 1.5). For the 1998 tax year, we have marked up the number of taxable taxpayers by 1 percent, to take into account the fact that the distribution table reproduced in Table A-1 was compiled on  $12 / 31 / n + 1$  rather than  $12 / 31 / n + 2$  (see section 1.5).

Column (2) of Table A-2 describes the evolution of the total number of tax units (taxable and nontaxable combined), as we have been able to ascertain it based on the information available on the evolution of the total number of households and the average number of tax units per household; see Appendix H, section 1; column (2) of Table A-2 is taken directly from column (10) of Table H-1.

Column (3) of Table A-2 divides column (1) by column (2) to obtain the evolution of the percentage of taxable tax units.

Column (4) of Table A-2 describes the evolution of total taxable income declared by taxable tax units (expressed in thousands of old francs for the 1915–1959 tax years, and in thousands of new francs for the 1960–1998 tax years, like all the amounts reproduced in Table A-1). This is taxable income as we mean it for the period after the 1945 tax year and the elimination of deductions for dependents and family situation. In other words, after taking into account deductions for work expenses, exemptions reserved for this or that category of income, and so on, but before taking into account any deductions for dependents or family situation. As a result, for the 1931–1935 and 1942–1944 tax years, for which the tax administration compiled the distribution tables after deductions for dependents and family situation (see above), the figures reproduced in column (4) of Table A-2 are higher than the total incomes reproduced in Table A-1 (with the difference explained by the amount of deductions for dependents or family situation declared by taxable taxpayers; this amount is shown separately in the distribution tables compiled by the tax administration). For other years (the 1919–1930, 1936–1941, and 1945–1997 tax years), the total taxable income of taxable tax units shown in column (4) of Table A-2 is the same as the amount reproduced in Table A-1. For the 1915–1918 tax years, we have adjusted the total taxable income given in the distribution tables heavily upward (see section 1.5). For the 1998 tax year, we once again marked up the figures shown in the distribution table by 1 percent.

Column (5) of Table A-2 describes the evolution of total taxes issued under the progressive income tax, from the 1915 tax year to the 1998 tax year. This is tax “issued,” in the sense that the figures shown in Table A-2 represent the total amount of the tax-list issuance carried out by the tax administration (that is, the total amount of tax liability printed on the tax assessments), not the total amount of actual receipts, which in practice is slightly higher than tax issued (about 5–10 percent higher), mainly due to audits.<sup>10</sup> This is “total” tax, in the sense that the figures in this column take into account not only the “simple liability” (that is, the amount of tax owed after applying taxable income to the income tax rate schedule), but also any penalties, tax reductions, one-time surtaxes, and so on; see Table A-3; by construction, column (5) of Table A-2 is equal to column (7) of Table A-3. On the other hand, column (5) does not take into account the amount of tax owed under the proportional-rate levies linked to the income tax, such as the proportional-rate capital-gains tax.<sup>11</sup> Generally speaking, the statistics on the number of taxpayers and the amounts of taxable income by income bracket reproduced in Table A-15, as well as the aggregate statistics reproduced in Table A-2, pertain solely to the “normal” regime of the progressive income tax (that is, the regime corresponding to the taxation of overall income according to the progressive rate schedule, following the family-quotient system since 1945). When the tables include lines such as these, we have subtracted from the tax administration’s distribution tables the lines corresponding to “individual lists,” “particular levies” (that is, certain levies carried out in the event of a taxpayer’s death during the year, certain levies carried out under international agreements, etc.), “hidden remuneration,” and capital gains taxed at the proportional rate. Except for capital gains taxed at the proportional rate, which we will examine separately (see section 3), these various special regimes—in addition to appearing and disappearing from the statistics according to the vagaries of legislative changes as well as the evolution of the tax administration’s statistical practices—always involve extremely small numbers and tax amounts, and can thus legitimately be ignored.<sup>12</sup>

Column (6) of Table A-2 describes the evolution of total fiscal income for all tax units (taxable and nontaxable combined), as we have been able to ascertain it on the basis of information derived from the national accounts; see Appendix G, section 1; column (6) of Table A-2 was taken directly from column (4) of Table G-2.

Column (7) divides column (5) by column (6) to obtain the average tax rate of the progressive income tax for all tax units (taxable and nontaxable), from the 1915 tax year to the 1998 tax year.

Columns (8), (9), and (10) of Table A-2 describe the movement from “net” tax (that is, total tax before accounting for any exceptional surtaxes or rebates) to total tax (by definition, total tax [column (5)] is equal to net tax [column (8)], plus exceptional surtaxes [column (9)] and minus exceptional rebates [column (10)]). Column (11) shows the amount of one-time surtaxes (minus the amount of any one-time rebates) as a percentage of net tax. This decomposition of tax issuance between net tax, surtaxes, rebates, and total tax reproduced in Table A-2, like the decomposition of net tax reproduced in Table A-3, is generally shown separately in the distribution tables published by the tax administration.<sup>13</sup> The *double décime* that was in effect in the 1923–1925 tax years, which in theory should appear in this list of one-time surtaxes, was nevertheless included by the tax administration of the time within the “simple liability” column of the corresponding distribution tables, and that is why we have also counted it within net tax (column [8]) rather than counting it as a surtax. In principle, all of the other “exceptional” surtaxes are surtaxes and rebates that have dotted the history of the income tax since the 1915 tax year (that is, all of the surtaxes or rebates that were presented as such by the legislature, as opposed to changes that were included in the tax schedule and in theory meant to last) are included in columns (9) and (10) of Table A-2, though with the exception of the few one-time surtaxes that in theory were to be refunded to the affected taxpayers after a few years; these are handled in the tax statistics as “compulsory loans” rather than as taxes.<sup>14</sup>

Table A-3 describes the evolution of how simple liability became net tax, with the intervening steps including penalties, tax reductions, surtaxes for single individuals and childless married couples (which were in effect in the 1919–1938 tax years), tax credits and other tax assets (which appear in the distribution tables starting from the 1960 tax year),<sup>15</sup> and the *décote* (rebate) (which was in effect in the 1959–1972 tax years, and then once again since the 1983 tax year). By definition, net tax (column [7]) is equal to simple liability (column [1]), plus penalties and surtaxes for single individuals and childless married couples (columns [2] and [4]), and minus tax reductions, tax credits, and the *décote* (columns [3], [5], and [6]). Columns (8) to (14) of Table A-3 express



## APPENDIX A

TABLE A-2

*Number of taxable tax units, taxable income, and total tax (1915-1998 tax years)*

	(1)	(2)	(3)	(4)	(5)	(6)
	Number of taxable tax units	Total number of tax units	Percentage of taxable tax units	Taxable income of taxable tax units	Total tax issued	Total fiscal income
1915	260,038	15,249,090	1.7	5,151,098	48,445	27,431,441
1916	474,077	15,204,616	3.1	7,551,168	252,611	30,605,949
1917	593,861	15,160,142	3.9	9,517,096	565,847	39,037,008
1918	688,829	15,115,668	4.6	10,756,000	584,244	48,030,496
1919	541,202	15,071,194	3.6	14,447,326	1,142,613	61,650,813
1920	977,344	15,026,720	6.5	21,875,246	1,503,655	82,890,000
1921	1,119,330	15,323,122	7.3	22,846,216	1,271,527	86,055,000
1922	1,026,656	15,452,521	6.6	24,491,597	1,524,461	89,235,000
1923	1,201,285	15,608,585	7.7	29,931,431	2,352,458	99,535,000
1924	1,487,828	15,802,738	9.4	35,651,809	2,926,448	115,730,000
1925	1,938,597	16,000,924	12.1	44,788,765	2,849,869	125,995,000
1926	2,588,650	16,146,572	16.0	58,846,295	2,035,303	148,840,000
1927	2,901,966	16,253,637	17.9	64,641,511	2,108,318	150,455,000
1928	1,984,952	16,347,018	12.1	58,979,919	2,527,049	161,760,000
1929	1,923,270	16,454,096	11.7	59,534,613	2,394,505	175,880,000
1930	2,150,390	16,555,933	13.0	64,139,364	2,280,945	182,120,000
1931	2,080,164	16,728,728	12.4	59,823,608	1,835,105	170,960,000
1932	1,922,170	16,767,239	11.5	54,982,129	1,709,180	153,575,000
1933	1,920,408	16,810,401	11.4	54,658,918	1,647,497	147,410,000
1934	1,744,947	16,836,610	10.4	49,089,975	1,164,626	136,920,000
1935	1,632,799	16,873,981	9.7	46,565,827	1,296,520	131,520,000
1936	1,638,759	16,888,969	9.7	48,721,139	2,041,267	147,280,000
1937	2,287,732	16,899,312	13.5	66,853,812	2,952,400	176,940,000
1938	2,795,473	16,915,410	16.5	80,820,586	3,328,988	196,300,000
1939	2,102,618	16,172,289	13.0	64,758,359	3,128,644	199,761,573
1940	1,882,830	16,229,112	11.6	56,530,525	2,236,666	181,740,305
1941	2,732,864	15,368,132	17.8	85,899,147	4,199,311	217,953,496
1942	3,838,496	15,371,958	25.0	126,376,154	5,637,847	292,593,566
1943	2,045,270	15,276,624	13.4	105,892,953	5,762,510	361,750,000
1944	2,780,051	15,088,563	18.4	142,291,886	6,355,635	439,094,699



APPENDIX A

(7) Tax as percentage of fiscal income	(8) Net tax issued	(9) Surtaxes	(10) Tax rebates	(11) Surtaxes and rebates as percentage of net tax	(12) Top marginal rate
0.2					2.0
0.8					10.0
1.4					20.0
1.2					20.0
1.9	1,142,613	0	0	0.0	62.5
1.8	1,503,655	0	0	0.0	62.5
1.5	1,271,527	0	0	0.0	62.5
1.7	1,524,461	0	0	0.0	62.5
2.4	2,352,458	0	0	0.0	75.0
2.5	2,438,707	487,741	0	20.0	90.0
2.3	2,849,869	0	0	0.0	75.0
1.4	2,035,303	0	0	0.0	37.5
1.4	2,108,318	0	0	0.0	37.5
1.6	2,527,049	0	0	0.0	41.7
1.4	2,394,505	0	0	0.0	41.7
1.3	2,280,945	0	0	0.0	41.7
1.1	1,835,105	0	0	0.0	41.7
1.1	1,553,584	155,596	0	10.0	45.8
1.1	1,497,725	149,773	0	10.0	45.8
0.9	1,028,668	135,957	0	13.2	42.0
1.0	1,017,725	278,795	0	27.4	50.4
1.4	1,708,510	332,757	0	19.5	62.4
1.7	2,733,736	218,663	0	8.0	67.4
1.7	2,496,745	832,243	0	33.3	69.3
1.6	2,346,479	782,165	0	33.3	80.0
1.2	1,677,496	559,170	0	33.3	80.0
1.9	2,799,500	1,399,811	0	50.0	90.0
1.9	5,637,847	0	0	0.0	90.0
1.6	5,762,510	0	0	0.0	90.0
1.4	6,355,635	0	0	0.0	90.0

(continued)

## APPENDIX A

TABLE A-2  
(continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	Number of taxable tax units	Total number of tax units	Percentage of taxable tax units	Taxable income of taxable tax units	Total tax issued	Total fiscal income
1945	1,539,350	15,138,382	10.2	171,829,681	11,976,197	791,124,413
1946	4,148,833	16,535,848	25.1	565,490,749	42,884,918	1,343,522,207
1947	1,486,453	16,648,052	8.9	414,936,125	35,495,655	1,774,515,822
1948	2,690,223	16,817,525	16.0	953,623,740	64,162,703	3,015,130,000
1949	3,413,214	16,961,530	20.1	1,423,478,538	101,410,663	3,843,486,000
1950	2,982,086	17,077,292	17.5	1,517,700,000	110,598,787	4,489,101,949
1951	2,551,763	17,204,642	14.8	1,741,411,000	137,888,298	5,629,034,001
1952	3,370,199	17,302,224	19.5	2,430,399,000	200,652,386	6,621,644,572
1953	3,095,169	17,410,185	17.8	2,243,149,000	168,777,492	6,848,094,962
1954	3,142,439	17,497,477	18.0	2,325,566,000	178,626,942	7,319,180,359
1955	3,764,936	17,647,343	21.3	2,865,979,000	246,295,000	7,938,345,468
1956	4,400,880	17,820,252	24.7	3,449,380,000	305,135,891	8,792,361,299
1957	4,430,176	18,006,842	24.6	3,963,875,000	392,637,925	9,882,837,561
1958	4,984,390	18,223,086	27.4	4,809,532,000	496,742,468	11,382,260,704
1959	5,044,969	18,418,174	27.4	4,992,646,900	633,644,700	12,213,662,538
1960	5,455,992	18,612,827	29.3	57,076,201	7,133,206	135,989,062
1961	6,102,996	18,803,112	32.5	67,404,771	8,141,683	149,134,512
1962	6,751,651	19,026,155	35.5	78,833,308	9,589,663	169,728,470
1963	7,709,532	19,535,313	39.5	95,288,013	11,927,313	190,296,295
1964	8,361,863	19,803,518	42.2	110,625,658	13,813,441	209,238,868
1965	8,572,756	20,017,681	42.8	122,046,887	15,474,221	226,252,583
1966	8,955,194	20,165,511	44.4	133,214,734	16,330,389	244,668,064
1967	9,591,039	20,324,303	47.2	148,350,809	19,959,456	266,955,524
1968	10,480,338	20,454,008	51.2	166,686,955	22,447,583	294,701,675
1969	10,503,244	20,734,258	50.7	184,632,843	24,510,852	332,616,395
1970	10,513,119	21,033,070	50.0	206,267,912	26,807,441	380,778,445
1971	11,019,782	21,354,803	51.6	235,238,957	31,217,002	423,531,809
1972	11,502,269	21,652,870	53.1	265,369,287	34,565,638	474,150,487
1973	12,092,270	21,921,094	55.2	313,432,249	41,657,404	537,081,325
1974	12,767,947	22,160,611	57.6	374,844,200	49,832,052	629,321,999

APPENDIX A

(7) Tax as percentage of fiscal income	(8) Net tax issued	(9) Surtaxes	(10) Tax rebates	(11) Surtaxes and rebates as percentage of net tax	(12) Top marginal rate
1.5	11,976,197	0	0	0.0	70.0
3.2	42,884,918	0	0	0.0	70.0
2.0	29,877,294	5,618,360	0	18.8	84.0
2.1	64,162,703	0	0	0.0	70.0
2.6	101,410,663	0	0	0.0	70.0
2.5	110,598,787	0	0	0.0	70.0
2.4	137,888,298	0	0	0.0	70.0
3.0	200,652,386	0	0	0.0	70.0
2.5	168,777,492	0	0	0.0	70.0
2.4	178,626,942	0	0	0.0	70.0
3.1	225,689,000	20,606,000	0	9.1	77.0
3.5	279,561,522	25,574,369	0	9.1	77.0
4.0	359,300,732	33,337,193	0	9.3	77.0
4.4	454,314,676	42,427,792	0	9.3	77.0
5.2	579,057,300	54,587,400	0	9.4	71.5
5.2	6,486,484	646,722	0	10.0	71.5
5.5	7,751,527	390,156	0	5.0	68.3
5.7	9,266,308	323,355	0	3.5	68.3
6.3	11,684,015	243,298	0	2.1	69.8
6.6	13,564,503	248,938	0	1.8	68.3
6.8	15,205,451	268,770	0	1.8	68.3
6.7	16,916,831	0	586,442	-3.5	70.0
7.5	19,333,275	2,023,564	1,397,383	3.2	81.3
7.6	22,009,602	1,411,488	973,507	2.0	74.8
7.4	24,710,802	814,225	1,014,175	-0.8	69.9
7.0	27,552,224	302,058	1,046,841	-2.7	64.9
7.4	32,099,122	228,131	1,110,251	-2.7	64.3
7.3	35,763,769	0	1,198,131	-3.4	60.0
7.8	41,657,404	0	0	0.0	60.0
7.9	49,832,052	0	0	0.0	60.0

(continued)

## APPENDIX A

TABLE A-2  
(continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	Number of taxable tax units	Total number of tax units	Percentage of taxable tax units	Taxable income of taxable tax units	Total tax issued	Total fiscal income
1975	13,494,548	22,363,835	60.3	448,653,458	61,315,641	729,240,582
1976	14,242,603	22,497,021	63.3	527,597,705	74,722,658	841,856,959
1977	14,007,405	22,709,252	61.7	576,680,472	82,937,061	963,597,959
1978	14,564,035	22,938,934	63.5	663,561,892	97,377,773	1,103,768,250
1979	15,000,673	23,186,245	64.7	755,393,800	112,826,330	1,260,598,726
1980	15,289,641	23,457,373	65.2	866,335,263	131,468,753	1,446,405,205
1981	15,056,169	23,749,607	63.4	995,563,890	154,453,971	1,661,519,650
1982	15,308,540	24,042,665	63.7	1,125,249,422	170,908,464	1,899,949,686
1983	15,242,012	24,282,961	62.8	1,262,464,876	191,281,290	2,098,515,655
1984	15,209,530	24,572,248	61.9	1,352,028,172	193,088,111	2,256,809,378
1985	15,252,320	25,143,729	60.7	1,447,554,505	202,570,321	2,418,035,007
1986	13,314,101	25,534,326	52.1	1,409,645,000	206,073,159	2,556,531,429
1987	13,368,628	26,341,302	50.8	1,466,613,000	208,328,509	2,697,435,714
1988	13,470,354	26,791,368	50.3	1,536,160,000	220,550,055	2,835,974,286
1989	13,881,932	27,360,033	50.7	1,647,683,000	243,083,693	3,016,377,143
1990	14,296,524	28,029,464	51.0	1,767,665,000	265,951,166	3,215,488,571
1991	14,642,747	28,606,643	51.2	1,857,505,000	274,320,979	3,369,292,857
1992	14,753,713	29,052,122	50.8	1,911,147,000	274,004,694	3,478,377,143
1993	14,907,267	29,558,170	50.4	1,956,012,000	258,324,292	3,555,692,857
1994	14,990,137	30,038,236	49.9	1,998,301,000	262,188,401	3,634,712,857
1995	15,474,244	30,585,130	50.6	2,081,153,685	270,150,898	3,753,575,251
1996	15,181,132	31,133,527	48.8	2,091,120,959	247,649,192	3,878,267,084
1997	15,680,354	31,537,615	49.7	2,172,151,713	259,281,017	3,974,653,268
1998	17,007,262	32,250,906	52.7	2,336,986,814	281,047,686	4,133,639,399

Notes and Explanation: Columns (1) to (11): see Appendix A, section 1.3; column (12): see Chapter 4, section 4.3, Figure 4-1.

## APPENDIX A

(7) Tax as percentage of fiscal income	(8) Net tax issued	(9) Surtaxes	(10) Tax rebates	(11) Surtaxes and rebates as percentage of net tax	(12) Top marginal rate
8.4	61,315,641	0	0	0.0	60.0
8.9	74,722,658	0	0	0.0	60.0
8.6	82,937,061	0	0	0.0	60.0
8.8	97,377,773	0	0	0.0	60.0
9.0	112,826,330	0	0	0.0	60.0
9.1	127,808,530	3,660,223	0	2.9	75.0
9.3	148,785,948	5,668,023	0	3.8	66.0
9.0	167,308,992	3,599,471	0	2.2	69.6
9.1	182,932,327	8,348,964	0	4.6	70.2
8.6	194,761,905	2,899,588	4,573,381	-0.9	67.0
8.4	210,854,906	0	8,284,585	-3.9	65.0
8.1	220,628,086	0	14,554,927	-6.6	58.0
7.7	222,826,524	0	14,498,015	-6.5	56.8
7.8	235,684,720	0	15,134,664	-6.4	56.8
8.1	259,437,286	0	16,353,594	-6.3	56.8
8.3	283,539,031	0	17,587,864	-6.2	56.8
8.1	292,897,385	0	18,576,405	-6.3	56.8
7.9	292,798,118	0	18,793,423	-6.4	56.8
7.3	258,324,292	0	0	0.0	56.8
7.2	262,188,401	0	0	0.0	56.8
7.2	270,150,898	0	0	0.0	56.8
6.4	247,649,192	0	0	0.0	54.0
6.5	258,160,088	0	0	0.0	54.0
6.8	278,265,035	0	0	0.0	54.0

TABLE A-3  
*From simple liability to net tax (1919-1998 tax years)*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(9)	(10)	(11)	(12)	(13)	(14)
Simple liability	Penalties (late)	Tax reductions	Surtaxes on childless taxpayers	Tax credits	Rebate	Net tax issued	Columns (2) to (7), expressed as a percentage of column (1)					
1920	1,471,535	41,129	50,182	41,173	0	1,503,655	2.8	3.4	2.8	0.0	0.0	102.2
1921	1,268,053	12,839	45,440	36,074	0	1,271,527	1.0	3.6	2.8	0.0	0.0	100.3
1922	1,527,708	10,582	53,512	39,683	0	1,524,461	0.7	3.5	2.6	0.0	0.0	99.8
1923	2,371,867	7,246	79,193	52,538	0	2,352,458	0.3	3.3	2.2	0.0	0.0	99.2
1924	2,452,363	16,644	93,048	62,747	0	2,438,707	0.7	3.8	2.6	0.0	0.0	99.4
1925	2,874,785	14,886	102,747	62,944	0	2,849,869	0.5	3.6	2.2	0.0	0.0	99.1
1926	2,040,982	17,133	78,052	55,239	0	2,035,303	0.8	3.8	2.7	0.0	0.0	99.7
1927	2,112,471	17,916	79,064	56,995	0	2,108,318	0.8	3.7	2.7	0.0	0.0	99.8
1928	2,535,206	14,546	87,530	64,827	0	2,527,049	0.6	3.5	2.6	0.0	0.0	99.7
1929	2,411,419	12,860	92,074	62,300	0	2,394,505	0.5	3.8	2.6	0.0	0.0	99.3
1930	2,301,028	11,642	89,957	58,232	0	2,280,945	0.5	3.9	2.5	0.0	0.0	99.1
1931	1,851,651	9,281	74,593	48,766	0	1,835,105	0.5	4.0	2.6	0.0	0.0	99.1
1932	1,569,792	6,367	63,142	40,566	0	1,553,584	0.4	4.0	2.6	0.0	0.0	99.0
1933	1,512,615	6,172	59,943	38,880	0	1,497,725	0.4	4.0	2.6	0.0	0.0	99.0
1934	967,711	3,605	0	57,352	0	1,028,668	0.4	0.0	5.9	0.0	0.0	106.3
1935	958,517	3,816	0	55,392	0	1,017,725	0.4	0.0	5.8	0.0	0.0	106.2

1936	1,643,180	5,515	0	59,815	0	0	1,708,510	0.3	0.0	3.6	0.0	0.0	104.0
1937	2,628,100	8,909	0	96,727	0	0	2,733,736	0.3	0.0	3.7	0.0	0.0	104.0
1938	2,393,243	12,768	0	90,734	0	0	2,496,745	0.5	0.0	3.8	0.0	0.0	104.3
1939	2,340,336	6,143	0	0	0	0	2,346,479	0.3	0.0	0.0	0.0	0.0	100.3
1940	1,669,797	7,699	0	0	0	0	1,677,496	0.5	0.0	0.0	0.0	0.0	100.5
1941	2,786,085	13,415	0	0	0	0	2,799,500	0.5	0.0	0.0	0.0	0.0	100.5
1942	5,578,576	59,271	0	0	0	0	5,637,847	1.1	0.0	0.0	0.0	0.0	101.1
1943	5,701,362	61,148	0	0	0	0	5,762,510	1.1	0.0	0.0	0.0	0.0	101.1
1944	6,270,774	84,860	0	0	0	0	6,355,635	1.4	0.0	0.0	0.0	0.0	101.4
1945	11,816,489	159,709	0	0	0	0	11,976,197	1.4	0.0	0.0	0.0	0.0	101.4
1946	42,036,817	848,100	0	0	0	0	42,884,918	2.0	0.0	0.0	0.0	0.0	102.0
1947	29,877,294	0	0	0	0	0	29,877,294	0.0	0.0	0.0	0.0	0.0	100.0
1948	64,162,703	0	0	0	0	0	64,162,703	0.0	0.0	0.0	0.0	0.0	100.0
1949	101,410,663	0	0	0	0	0	101,410,663	0.0	0.0	0.0	0.0	0.0	100.0
1950	110,140,514	458,273	0	0	0	0	110,598,787	0.4	0.0	0.0	0.0	0.0	100.4
1951	137,458,428	429,870	0	0	0	0	137,888,298	0.3	0.0	0.0	0.0	0.0	100.3
1952	199,852,565	799,821	0	0	0	0	200,652,386	0.4	0.0	0.0	0.0	0.0	100.4
1953	168,247,723	529,769	0	0	0	0	168,777,492	0.3	0.0	0.0	0.0	0.0	100.3
1954	179,344,900	162,993	880,951	0	0	0	178,626,942	0.1	0.5	0.0	0.0	0.0	99.6
1955	226,006,000	237,000	554,000	0	0	0	225,689,000	0.1	0.2	0.0	0.0	0.0	99.9
1956	279,186,121	375,401	0	0	0	0	279,561,522	0.1	0.0	0.0	0.0	0.0	100.1
1957	358,865,596	435,046	0	0	0	0	359,300,732	0.1	0.0	0.0	0.0	0.0	100.1
1958	453,898,287	416,389	0	0	0	0	454,314,676	0.1	0.0	0.0	0.0	0.0	100.1
1959	761,715,900	559,500	171,965,200	0	0	11,252,900	579,057,300	0.1	22.6	0.0	0.0	1.5	98.2
1960	8,764,801	6,758	1,864,422	0	304,370	116,383	6,486,484	0.1	21.3	0.0	3.5	1.3	94.0

(continued)

TABLE A-3  
(continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(9)	(10)	(11)	(12)	(13)	(14)	
Simple liability	Penalties (late)	Tax reductions	Surtaxes on childless taxpayers	Tax credits	Rebate	Net tax issued	Columns (2) to (7), expressed as a percentage of column (1)						
1961	10,551,423	7,311	2,227,268	0	376,936	203,003	7,751,527	0.1	21.1	0.0	3.6	1.9	93.1
1962	12,553,528	8,466	2,687,578	0	397,504	210,604	9,266,308	0.1	21.4	0.0	3.2	1.7	93.9
1963	15,664,203	4,898	3,333,112	0	433,673	218,301	11,684,015	0.0	21.3	0.0	2.8	1.4	94.8
1964	18,234,902	10,851	3,903,168	0	471,540	306,542	13,564,503	0.1	21.4	0.0	2.6	1.7	94.6
1965	20,471,027	11,971	4,273,663	0	630,555	373,329	15,205,451	0.1	20.9	0.0	3.1	1.8	93.9
1966	22,960,528	8,699	4,719,534	0	898,133	434,729	16,916,831	0.0	20.6	0.0	3.9	1.9	92.7
1967	26,163,889	11,709	5,261,691	0	1,127,897	452,736	19,333,275	0.0	20.1	0.0	4.3	1.7	92.5
1968	29,694,115	14,946	6,148,058	0	1,099,270	452,131	22,009,602	0.1	20.7	0.0	3.7	1.5	93.5
1969	33,410,007	15,886	6,985,496	0	1,151,413	578,181	24,710,802	0.0	20.9	0.0	3.4	1.7	93.5
1970	34,207,921	22,558	4,802,031	0	1,291,742	584,482	27,552,224	0.1	14.0	0.0	3.8	1.7	93.7
1971	39,933,537	23,133	5,873,407	0	1,415,186	568,955	32,099,122	0.1	14.7	0.0	3.5	1.4	94.2
1972	37,783,103	43,611	0	0	1,545,578	517,368	35,763,769	0.1	0.0	0.0	4.1	1.4	94.7
1973	43,374,445	19,185	0	0	1,736,227	0	41,657,404	0.0	0.0	0.0	4.0	0.0	96.0
1974	51,805,548	29,342	100,758	0	1,902,079	0	49,832,052	0.1	0.2	0.0	3.7	0.0	96.2
1975	63,594,867	30,693	115,662	0	2,194,258	0	61,315,641	0.0	0.2	0.0	3.5	0.0	96.4
1976	77,271,678	35,339	149,935	0	2,434,424	0	74,722,658	0.0	0.2	0.0	3.2	0.0	96.7



1977	85,747,679	52,834	154,200	o	2,709,252	o	82,937,061	o.I	o.2	o.o	3.2	o.o	96.7
1978	100,564,814	55,056	199,013	o	3,043,084	o	97,377,773	o.I	o.2	o.o	3.0	o.o	96.8
1979	116,395,876	63,952	o	o	3,633,498	o	112,826,330	o.I	o.o	o.o	3.1	o.o	96.9
1980	132,101,670	79,433	o	o	4,372,673	o	127,808,530	o.I	o.o	o.o	3.3	o.o	96.8
1981	154,603,723	91,552	o	o	5,909,327	o	148,785,948	o.I	o.o	o.o	3.8	o.o	96.2
1982	172,434,654	96,242	o	o	5,221,904	o	167,308,992	o.I	o.o	o.o	3.0	o.o	97.0
1983	199,395,078	117,307	10,322,676	o	5,099,723	1,157,659	182,932,327	o.I	5.2	o.o	2.6	o.6	91.7
1984	213,235,622	96,434	11,410,047	o	5,887,528	1,272,577	194,761,905	o.o	5.4	o.o	2.8	o.6	91.3
1985	232,002,362	82,689	13,325,126	o	6,534,131	1,370,886	210,854,906	o.o	5.7	o.o	2.8	o.6	90.9
1986	244,824,116	100,950	13,579,511	o	7,397,584	3,319,885	220,628,086	o.o	5.5	o.o	3.0	1.4	90.1
1987	248,407,528	272,522	13,751,949	o	8,694,263	3,407,314	222,826,524	o.I	5.5	o.o	3.5	1.4	89.7
1988	265,767,047	197,858	15,776,196	o	10,997,575	3,506,414	235,684,720	o.I	5.9	o.o	4.1	1.3	88.7
1989	291,846,810	241,174	16,151,511	o	12,849,201	3,649,985	259,437,286	o.I	5.5	o.o	4.4	1.3	88.9
1990	315,833,110	197,205	17,425,495	o	13,480,563	1,585,226	283,539,031	o.I	5.5	o.o	4.3	o.5	89.8
1991	329,206,883	193,573	18,859,648	o	13,686,417	3,957,007	292,897,385	o.I	5.7	o.o	4.2	1.2	89.0
1992	334,532,575	195,580	24,719,209	o	13,307,689	3,903,139	292,798,118	o.I	7.4	o.o	4.0	1.2	87.5
1993	300,308,482	222,603	25,542,958	o	13,990,693	2,673,142	258,324,292	o.I	8.5	o.o	4.7	o.9	86.0
1994	307,333,246	243,954	26,887,151	o	15,805,392	2,696,256	262,188,401	o.I	8.7	o.o	5.1	o.9	85.3
1995	320,563,769	409,709	29,419,312	o	18,512,569	2,890,699	270,150,898	o.I	9.2	o.o	5.8	o.9	84.3
1996	296,828,318	424,366	28,648,251	o	19,238,181	1,717,060	247,649,192	o.I	9.7	o.o	6.5	o.6	83.4
1997	310,768,434	79,172	28,328,339	o	21,267,772	1,970,478	259,281,017	o.o	9.1	o.o	6.8	o.6	83.4
1998	336,857,477	85,818	30,706,506	o	23,053,204	2,135,900	281,047,686	o.o	9.1	o.o	6.8	o.6	83.4

*Notes and Explanation:* See Appendix A, section 1.3.

columns (2) to (6) as percentages of simple liability (column [1]).<sup>16</sup> The “penalties” category includes various elements whose official names have changed over time (“late penalties,” “late interest,” “surtaxes for late filing” etc.), but all of which have in common that they arise from a tax return being filed late.<sup>17</sup> These penalties never represented more than 1–2 percent of simple liability, and barely more than 0.1 percent since the Second World War (see column [9]). The “tax reduction” concept, as currently applied (tax reductions for working at home, tax reductions for investments in the French overseas territories and departments, etc.) is relatively recent, since it dates to the 1983 tax year (when several mechanisms involving deductions from total income were transformed into mechanisms for tax reductions), which explains to a great extent why net tax, which had always been about 95–100 percent of simple liability from the creation of the income tax until the early 1980s, represented little more than 85 percent by the late 1990s (see column [14]). For prior periods, the amounts reproduced in column (3) thus correspond to relatively disparate elements. For the 1919–1933 tax years, column (3) shows the amount of tax reductions for family dependents (these tax reductions were abolished starting with the 1934 tax year), whose size can be seen to have represented barely 4 percent of simple liability on average (see column [9]). The modest tax reductions in effect during the 1954–1955 tax years concerned the “tax reductions for invested savings” regime, which quickly disappeared from the legislation and the statistics. The same is true of the tax-reduction regime for dependent children aged eighteen to twenty-one, which was in effect in the 1974–1978 tax years, and whose corresponding amounts are reproduced in column (3). For the 1959–1971 tax years, the amounts reproduced in column (3) correspond to the tax reduction equal to 5 percent of all wages and retirement pensions (3 percent for 1970–1971). This is not a tax reduction in strict terms (it applies to the majority of taxed income, and it seems more correct to see it as being an increased tax rate on other incomes), which is why we have subtracted it from the amount of simple liability to calculate the ratio between net tax and simple liability reproduced in column (14).

Table A-3 covers only the 1919–1998 tax years. The tax-reduction mechanism for family dependents was already in effect in the 1915–1918 tax years, but the corresponding distribution tables do not include columns devoted to the calculation of tax, so we have merely showed in Table A-2 the total amount of tax issuance in the 1915–1918 tax years, as we have been able to ascertain that

amount from the tax-list information published by the tax administration (see section 1.5). For the 1998 tax year, we have marked up all figures by 1 percent (see section 1.5).<sup>18</sup>

#### 1.4. References to the Publications Where the Distribution Tables Were Published

The precise references to the publications where the distribution tables reproduced in Table A-1 were published are shown in Table A-4. Generally speaking, most of the statistical tables compiled by the tax administration from tax returns were published in the various statistical bulletins of the Ministry of Finance that have come and gone since the nineteenth century: the *Bulletin de Statistique et de Législation Comparée (BSLC)* from 1877 to 1940, the *Bulletin de Statistique du ministère des Finances (BSMF)* from 1947 to 1948, and the *Statistiques et Etudes Financières (S&EF)* from 1949 to 1985.<sup>19</sup> These publications may be consulted in any (good) library: *S&EF* is generally found in all academic libraries, and the complete collections of the *BSLC* are not much rarer; by contrast, the *BSMF*, which appeared for only two years (1947–1948), is often absent from libraries.<sup>20</sup> Since the early 1980s, the statistical tables compiled by the tax administration have not been published anywhere, but any interested person can obtain them by contacting the DGI (see below). Also, from 1889 to 1975, the finance ministry published annual volumes entitled *Renseignements statistiques relatifs aux impôts directs (RSRID)*.<sup>21</sup> The complete collection of these volumes may be consulted in Savigny-le-Temple at the Service des Archives Economiques et Financières (SAEF) of the Finance Ministry.<sup>22</sup> In general, these *RSRID* volumes merely reproduced exactly the same statistical tables as those published each year in the *BSLC*, *BSMF*, or the *S&EF*, and in these cases we show only the references to the tables reproduced in the various ministry statistical bulletins (the latter being easier to access). The only additional tables published in the *RSRID* and not published in the various ministry bulletins are the distribution tables compiled for the 1923–1929 tax years; for those years one can find in the *RSRID* tables that were compiled at later dates than those published in the *BSLC* (these are the only tables published in the *RSRID* that we have used in this book, and the only ones published in the *RSRID* whose references are shown in Table A-4).

Since these finance ministry publications have by now disappeared, we thought it would be useful to briefly describe their evolution. The first statistical

TABLE A-4

*References to the publications where the various distribution tables were published  
(1915–1998 tax years)*

Tax years	Situation on . . .	References
1915 tax year	Unclear	<i>BSLC</i> mai 1920, tome 87, p. 766; <i>BSLC</i> octobre 1921, tome 90, p. 746
1915 tax year	Unclear	<i>BSLC</i> mai 1920, tome 87, p. 767; <i>BSLC</i> octobre 1921, tome 90, p. 747
1917 tax year	Unclear	<i>BSLC</i> mai 1920, tome 87, p. 767; <i>BSLC</i> octobre 1921, tome 90, p. 747
1918 tax year	Unclear	<i>BSLC</i> avril 1921, tome 89, p. 629; <i>BSLC</i> octobre 1921, tome 90, p. 749
1919 tax year	Unclear	<i>BSLC</i> octobre 1921, tome 90, p. 750
	4/30/n + 3	<i>BSLC</i> mars 1923, tome 93, pp. 466–467
	2/28/n + 4	<i>BSLC</i> janvier 1924, tome 95, pp. 106–107
	12/31/n + 4	<i>BSLC</i> janvier 1925, tome 97, pp. 214–215
	12/31/n + 5	<i>BSLC</i> novembre 1925, tome 98, pp. 732–733
1920 tax year	4/30/n + 2	<i>BSLC</i> mars 1923, tome 93, pp. 472–473
	2/28/n + 3	<i>BSLC</i> janvier 1924, tome 95, pp. 112–113
	12/31/n + 3	<i>BSLC</i> janvier 1925, tome 97, pp. 220–221
	12/31/n + 4	<i>BSLC</i> novembre 1925, tome 98, pp. 736–737
1921 tax year	2/28/n + 2	<i>BSLC</i> janvier 1924, tome 95, pp. 118–119
	12/31/n + 2	<i>BSLC</i> janvier 1925, tome 97, pp. 226–227
	12/31/n + 3	<i>BSLC</i> novembre 1925, tome 98, pp. 740–741
1922 tax year	12/31/n + 1	<i>BSLC</i> janvier 1925, tome 97, pp. 232–233
	12/31/n + 2	<i>BSLC</i> novembre 1925, tome 98, pp. 744–745
1923 tax year	12/31/n + 1	<i>BSLC</i> novembre 1925, tome 98, pp. 748–749
	12/31/n + 2	<i>RSRID</i> 1926, pp. 234–235
1924 tax year	12/31/n + 1	<i>BSLC</i> octobre 1926, tome 100, pp. 702–703
	12/31/n + 2	<i>RSRID</i> 1927, pp. 250–251
1925 tax year	12/31/n + 1	<i>BSLC</i> septembre 1927, tome 102, pp. 416–417
	12/31/n + 2	<i>RSRID</i> 1928, pp. 266–267
1926 tax year	12/31/n + 1	<i>BSLC</i> octobre 1928, tome 104, pp. 688–689
	12/31/n + 2	<i>RSRID</i> 1929, pp. 230–231

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Tax years	Situation on . . .	References
1927 tax year	12/31/ $n + 1$ 3/31/ $n + 3$	<i>BSLC</i> septembre 1929, tome 106, pp. 474–475 <i>RSRID</i> 1930, pp. 256–257
1928 tax year	3/31/ $n + 2$ 3/31/ $n + 3$	<i>BSLC</i> septembre 1930, tome 108, pp. 606–607 <i>RSRID</i> 1931, pp. 270–271
1929 tax year	3/31/ $n + 2$ 3/31/ $n + 3$	<i>BSLC</i> décembre 1931, tome 110, pp. 1020–1021 <i>RSRID</i> 1931–1932, pp. 48–49
1930 tax year	3/31/ $n + 2$	<i>BSLC</i> octobre 1932, tome 112, pp. 720–721
1931 tax year	12/31/ $n + 1$	<i>BSLC</i> septembre 1933, tome 114, pp. 588–589
1932 tax year	12/31/ $n + 1$	<i>BSLC</i> septembre 1934, tome 116, pp. 618–619
1933 tax year	12/31/ $n + 1$	<i>BSLC</i> juillet 1935, tome 118, pp. 26–27
1934 tax year	12/31/ $n + 1$	<i>BSLC</i> juin 1936, tome 119, pp. 1046–1047
1935 tax year	12/31/ $n + 1$	<i>BSLC</i> août 1937, tome 122, pp. 288–289
1936 tax year	12/31/ $n + 1$	<i>BSLC</i> juillet-août 1938, tome 124, pp. 36–37
1937 tax year	12/31/ $n + 1$	<i>BSLC</i> juillet-août 1939, tome 126, pp. 66–67
1938 tax year	12/31/ $n + 1$	<i>BSMF</i> n°3 (3ème trimestre 1947), pp. 676–677
1939 tax year	12/31/ $n + 1$	<i>BSMF</i> n°3 (3ème trimestre 1947), pp. 696–697
1940 tax year	12/31/ $n + 1$	<i>BSMF</i> n°3 (3ème trimestre 1947), pp. 714–715
1941 tax year	12/31/ $n + 1$	<i>BSMF</i> n°3 (3ème trimestre 1947), pp. 732–733
1942 tax year	12/31/ $n + 1$	<i>BSMF</i> n°3 (3ème trimestre 1947), pp. 750–751
1943 tax year	12/31/ $n + 1$	<i>BSMF</i> n°3 (3ème trimestre 1947), pp. 768–769
1944 tax year	12/31/ $n + 1$	<i>BSMF</i> n°6 (2ème trimestre 1948), pp. 310–311
1945 tax year	12/31/ $n + 1$	<i>BSMF</i> n°6 (2ème trimestre 1948), pp. 338–341
1946 tax year	12/31/ $n + 1$	<i>S&amp;EF</i> n°3 (mars 1949), pp. 198–202; <i>S&amp;EF</i> “supplément Statistiques” n°4 (4ème trimestre 1949) pp. 610–615
1947 tax year	12/31/ $n + 1$	<i>S&amp;EF</i> n°8 (août 1949), pp. 624–627; <i>S&amp;EF</i> “supp. Stastistiques” n°7 (3ème trimestre 1950), pp. 574–577

(continued)

TABLE A-4  
(continued)

Tax years	Situation on . . .	References
1948 tax year	12/31/n + 1	<i>S&amp;EF</i> n°20-21 (août-septembre 1950), pp. 628-631; <i>S&amp;EF</i> "supp. Stat." n°14 (2ème trimestre 1952), pp. 204-207
1949 tax year	12/31/n + 1	<i>S&amp;EF</i> "supp. Stastistiques" n°14 (2ème trimestre 1952), pp. 244-247; <i>S&amp;EF</i> n°31 (juillet 1951), pp. 636-639
1950 tax year	12/31/n + 1	<i>S&amp;EF</i> "supp. Finances Françaises" n°18 (4ème trimestre 1953), pp. 346-349; <i>S&amp;EF</i> n°46 (octobre 1952), pp. 882-885
1951 tax year	12/31/n + 1	<i>S&amp;EF</i> "supp. Finances Françaises" n°21 (3ème trim. 1954), pp. 98-101; <i>S&amp;EF</i> n°57 (septembre 1963), pp. 812-813
1952 tax year	12/31/n + 1	<i>S&amp;EF</i> n°67 (juillet 1954), pp. 630-633
1953 tax year	12/31/n + 1	<i>S&amp;EF</i> n°80 (août 1955), pp. 796-797
1954 tax year	12/31/n + 1	<i>S&amp;EF</i> "supplément" n°96 (décembre 1956), pp. 1364-1367; <i>S&amp;EF</i> n°93 (septembre 1956), pp. 936-937
1955 tax year	12/31/n + 1	<i>S&amp;EF</i> "supplément" n°109 (janvier 1958), pp. 40-43; <i>S&amp;EF</i> n°106 (octobre 1957), pp. 1096-1097
1956 tax year	12/31/n + 1	<i>S&amp;EF</i> "supplément" n°121 (janvier 1959), pp. 42-45; <i>S&amp;EF</i> n°116 (août 1958), pp. 920-921
1957 tax year	12/31/n + 1	<i>S&amp;EF</i> "supplément" n°133 (janvier 1960), pp. 42-45; <i>S&amp;EF</i> n°131 (novembre 1959), pp. 1372-1375
1958 tax year	12/31/n + 1	<i>S&amp;EF</i> "supplément" n°145 (janvier 1961), pp. 44-47; <i>S&amp;EF</i> n°143 (novembre 1960), pp. 1230-1233
1959 tax year	12/31/n + 1	<i>S&amp;EF</i> "supplément" n°155 (novembre 1961), pp. 1622-1625; <i>S&amp;EF</i> n°155 (novembre 1961), pp. 1386-1389
1960 tax year	12/31/n + 1	<i>S&amp;EF</i> "supplément" n°170 (février 1963), pp. 386-389; <i>S&amp;EF</i> n°168 (décembre 1962), pp. 1408-1411

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Tax years	Situation on . . .	References
1961 tax year	12/31/ <i>n</i> + 1	<i>S&amp;EF</i> “supplément” n°182 (février 1964), pp. 192–195; <i>S&amp;EF</i> n°179 (novembre 1963), pp. 1378–1383
1962 tax year	12/31/ <i>n</i> + 1	<i>S&amp;EF</i> “supplément” n°196 (avril 1965), pp. 608–611; <i>S&amp;EF</i> n°193 (janvier 1965), pp. 36–41
1963 tax year	12/31/ <i>n</i> + 1	<i>S&amp;EF</i> “supplément” n°209 (mai 1966), pp. 754–757; <i>S&amp;EF</i> n°207 (mars 1966), pp. 270–275
1964 tax year	12/31/ <i>n</i> + 1 3/31/ <i>n</i> + 2	<i>S&amp;EF</i> “supplément” n°221 (mai 1967), pp. 566–569; <i>S&amp;EF</i> n°221 (mai 1967), pp. 588–591 <i>S&amp;EF</i> n°221 (mai 1967), pp. 534–537
1965 tax year	12/31/ <i>n</i> + 1 3/31/ <i>n</i> + 2	<i>S&amp;EF</i> “supplément” n°230 (février 1968), pp. 378–381; <i>S&amp;EF</i> n°238 (octobre 1968), pp. 1038–1041 <i>S&amp;EF</i> n°238 (octobre 1968), pp. 978–981
1966 tax year	12/31/ <i>n</i> + 1 3/31/ <i>n</i> + 2	<i>S&amp;EF</i> “supplément” n°245 (mai 1969), pp. 48–53 <i>S&amp;EF</i> n°258 (juin 1970), pp. 68–71
1967 tax year	12/31/ <i>n</i> + 1 3/31/ <i>n</i> + 2	<i>S&amp;EF</i> “supplément” n°258 (juin 1970), pp. 46–51 <i>S&amp;EF</i> n°263 (novembre 1970), pp. 28–31
1968 tax year	12/31/ <i>n</i> + 1 3/31/ <i>n</i> + 2	<i>S&amp;EF</i> “série bleue” n°270 (juin 1971), pp. 50–55 <i>S&amp;EF</i> “série rouge” n°271–272 (juillet-août 1971), pp. 74–77
1969 tax year	12/31/ <i>n</i> + 1 3/31/ <i>n</i> + 2	<i>S&amp;EF</i> “série bleue” n°280 (avril 1972), pp. 48–53 <i>S&amp;EF</i> “série rouge” n°283–284 (juillet-août 1972), pp. 84–87
1970 tax year	12/31/ <i>n</i> + 1 3/31/ <i>n</i> + 2	<i>S&amp;EF</i> “série bleue” n°297 (septembre 1973), pp. 46–51 <i>S&amp;EF</i> “série rouge” n°293 (mai 1973), pp. 98–101
1971 tax year	12/31/ <i>n</i> + 1 3/31/ <i>n</i> + 2	<i>S&amp;EF</i> “série bleue” n°304 (avril 1974), pp. 46–51 <i>S&amp;EF</i> “série rouge” n°309 (septembre 1974), pp. 24–27
1972 tax year	3/31/ <i>n</i> + 2	<i>S&amp;EF</i> “série rouge” n°319–320 (juillet-août 1975), pp. 22–25

(continued)

TABLE A-4  
(continued)

Tax years	Situation on . . .	References
1973 tax year	3/31/n + 2	<i>S&amp;EF</i> "série rouge" n°328 (avril 1976), pp. 26–29
1974 tax year	3/31/n + 2	<i>S&amp;EF</i> "série rouge" n°337 (janvier 1977), pp. 28–31
1975 tax year	3/31/n + 2	<i>S&amp;EF</i> "série rouge" n°353 (mai 1978), pp. 28–31
1976 tax year	3/31/n + 2	<i>S&amp;EF</i> "série rouge" n°363–364–365 (février 1980), pp. 160–163
1977 tax year	3/31/n + 2	<i>S&amp;EF</i> "série rouge" n°371 (septembre 1980), pp. 96–99
1978 tax year	3/31/n + 2	<i>S&amp;EF</i> "série rouge" n°380 (juin 1981), pp. 81–83
1979 tax year	3/31/n + 2	<i>S&amp;EF</i> "série rouge" n°390 (1983), pp. 98–100
1980 tax year	3/31/n + 2	<i>S&amp;EF</i> "série rouge" n°394 (1984), pp. 40–42
1981 tax year	3/31/n + 2	<i>S&amp;EF</i> "série rouge" n°394 (1984), pp. 48–50
Rev. 1982–1986	3/31/n + 2	Etats 1921 (situation au 3/31/n + 2), tableaux IIA Rev. 1987–1997
	12/31/n + 2	Etats 1921 (situation au 12/31/n + 2), tableaux IIA Revenus 1998
	12/31/n + 1	Etat 1921 (situation au 12/31/n + 1), tableau IIA

*Acronyms:*

*BSLC* = *Bulletin de Statistique et de Législation Comparée* (monthly publication of the Ministry of Finance, 1877–1940)

*BSMF* = *Bulletin de Statistique du ministère des Finances* (quarterly publication of the Ministry of Finance, 1947–1948)

*S&EF* = *Statistiques et Etudes Financières* (monthly publication of the Ministry of Finance, 1949–1985)

*RSRID* = *Renseignements Statistiques Relatifs aux Impôts Directs* (Annual volumes of the Ministry of Finance, 1889–1975)

Etats 1921 = Statistical digest disseminated by the Service d'Enquêtes Statistiques et de Documentation (SESDO) of the DGI (Ministry of Finance).

*Explanation:* For the 1919 tax year, five different distribution tables were compiled: the date of the first is unclear, the second includes tax-list issuances carried out before 4 / 30 / 1922, the third includes the tax-list issuances carried out before 2 / 28 / 1923, the fourth includes tax-list issuances carried out before 12 / 31 / 1923, and the fifth includes tax-list issuances carried out before 12 / 31 / 24; the first was published in the *BSLC* of October 1921, the second in the *BSLC* of March 1923, etc.

*Notes:* (i) When several references are given, it means that the same table (with exactly the same figures) was published several times. (ii) We have given references to the tables published in the *RSRID* volumes only when these tables were not also published in the *BSLC*, the *BSMF*, or in *S&EF*.



tables derived from the tabulation of tax returns appeared in the article of the *BSLC* of May 1920 entitled “Renseignements statistiques relatifs aux contributions directes, taxes assimilées et à l’impôt général sur le revenu,” and they covered the 1915–1917 tax years. Previously, the articles in the “Renseignements statistiques relatifs aux contributions directes” series and published in the *BSLC* each year since the late nineteenth century only contained statistics compiled on the basis of the “four old ladies,” like the annual *RSRID* volumes from which those articles came. The *BSLC* of April 1921 then published a similar table for the 1918 tax year, and the *BSLC* of October 1921 published all of the tables for the 1915–1918 tax years. Throughout the interwar era, the statistical tables compiled by the tax administration were thus published every year in the *BSLC* in the series of articles entitled “Renseignements statistiques relatifs aux contributions directes, taxes assimilées et à l’impôt général sur le revenu,” “Renseignements statistiques relatifs aux contributions directes en 19–,” or “Les contributions directes en 19–” (starting from 1924), with the publication months and page numbers varying slightly depending on the year (see Table A-4).

Besides the fact that they do not contain columns detailing the calculation of tax (see above), the key flaw in the tables published for the 1915–1918 tax years was that, unlike all tables published later, they do not mention the date when they were compiled. For example, the distribution table published for the 1930 tax year says that it is a “decomposition of the results of the tax lists carried out on March 31, 1932,” that is, on  $3/31/n+2$  (where  $n$  is the tax year, with  $n$  here = 1930), and the distribution table published for the 1970 tax year says that it was the “situation on 3/31/1972,” that is, again,  $3/31/n+2$ . In both cases, this means that in compiling these tables, the tax administration took into account all taxpayers for whom the “tax list issuance” could have taken place before  $3/31/n+2$ , that is, all taxpayers whose tax returns could have been recorded by the tax administration and whose tax assessments showing the amount of tax owed could have been compiled before  $3/31/n+2$  (in the language of taxation, the “list” refers to the list of taxpayers to whom the administration must send a tax assessment, as opposed to taxes such as the company profit tax or the VAT tax for which the taxpayers themselves must calculate the tax owed and send in the corresponding sum; these are said not to be compiled “via the tax list”). In practice, tax returns are usually filed in March of the year  $n+1$ , the issuance of tax lists is overwhelmingly carried out before the end of

## APPENDIX A

TABLE A-5

*The available tables and the tables used for the 1919–1998 tax years*

Tax years	Available tables	Tables used
1919 tax year	4/30/ $n + 3$ , 2/28/ $n + 4$ , 12/31/ $n + 4$ , and 12/31/ $n + 5$	12/31/ $n + 5$
1920 tax year	4/30/ $n + 2$ , 2/28/ $n + 3$ , 12/31/ $n + 3$ , and 12/31/ $n + 4$	12/31/ $n + 4$
1921 tax year	2/28/ $n + 2$ , 12/31/ $n + 2$ , and 12/31/ $n + 3$	12/31/ $n + 3$
1922–1926 tax year	12/31/ $n + 1$ and 12/31/ $n + 2$	12/31/ $n + 2$
1927 tax year	12/31/ $n + 1$ and 3/31/ $n + 3$	3/31/ $n + 3$
1928–1929 tax year	3/31/ $n + 2$ and 3/31/ $n + 3$	3/31/ $n + 3$
1930 tax year	3/31/ $n + 2$	3/31/ $n + 2$
1931–1963 tax year	12/31/ $n + 1$	12/31/ $n + 1$
1964–1986 tax year	12/31/ $n + 1$ and 3/31/ $n + 2$	3/31/ $n + 2$
1987–1997 tax year	12/31/ $n + 1$ and 12/31/ $n + 2$	12/31/ $n + 2$
1998 tax year	12/31/ $n + 1$	12/31/ $n + 1$

*Explanation:* Of the four tables compiled for the 1919 tax year (except for the table compiled on an unknown date; see Table A-4), we have used the table that the tax administration compiled, taking into account all tax-list issuances carried out before 12/31/1924, which was published in the *BSLC* of November 1925 (see Table A-4). Generally speaking, we have always used the last tables compiled by the tax administration, whose dates are given in this table, and whose corresponding references are given in Table A-4. In particular, the raw tables reproduced in Table A-1 are always the last tables created.

the year  $n + 1$  (generally in September–October of the year  $n + 1$ ), and the rare tax list issuances carried out during the year  $n + 2$  and later years (due to tax returns being filed late or the administration needing additional clarification from the taxpayer) are too few to significantly bias our estimates of the income distribution. However, in the very first years of the income tax, which also happened to be the years of the First World War, tax-list issuance was often carried out with a significant delay, so that not knowing the date on which the distribution tables for the years 1915–1918 were compiled poses a problem. These delays during the initial years of the income tax also explain why the tax administra-

tion in the 1920s systematically compiled several distribution tables for the same tax year, so as to take into account the new tax list issuances carried out. This multiplicity of tables can easily cause some confusion, which is why we have taken care in Table A-4 to show references to all of the tables compiled by the tax administration and in Table A-5 to show the exact date of all of the tables we have used. Generally speaking, for the 1919–1998 tax years, we always used the last tables compiled by the tax administration (see Table A-5), and the raw data reproduced in Table A-1 and analyzed in Appendix B (section 1) are always derived from these definitive tables. As we will see in section 1.5, using the definitive tables means that this problem of the date of tax-list issuances results in no significant bias for analyzing 1919–1998 incomes, since the speed of tax-list issuance actually attained its “modern” level by the 1920s (in contrast, for the 1915–1918 tax years, as we will see in section 1.5, there is no genuinely satisfying solution for dealing with this problem).

In July–August 1939, the *BSLC* published an article from the “Les contributions directes en 19–” series for the last time (the article happened to be titled “Les contributions directes en 1938,” and it contains the tables for the 1937 tax year), then publication of the *BSLC* was interrupted due to the war. It was not until the third quarter of 1947 that issue number 3 of the brand-new *BSMF* published a long article entitled “Les contributions directes et taxes assimilées, années 1939 à 1944,” which contained all of the tables compiled by the tax administration for the 1938–1943 tax years (see Table A-4). These tables were compiled on  $12/31/n+1$ , like all the tables compiled since the 1931 tax year. The same tables (with exactly the same figures) had also been published in the *RSRID* volumes throughout the Second World War years, which confirms that the usual work of tabulating tax returns and making up statistical tables never stopped during the conflict. The article in *BSMF* issue number 3 also contains a very useful note on “Méthodes de calcul des principaux impôts directs” from 1918 to 1945.<sup>23</sup> Then in 1948, *BSMF* issue number 6 then published article entitled “Les contributions directes et taxes assimilées, années 1945 et 1946,” which contained the tables compiled for the 1944 and 1945 tax years, as well as a “Notice concernant l’établissement des impôts sur les revenus et des taxes accessoires en 1946.” This habit of publishing notes about current legislation, which had not been the practice of the *BSLC* (articles in the *BSLC* merely reproduced statistical tables, without commentary, and only the texts of laws reprinted elsewhere than the *BSLC* gave information about legislation), was resumed in a series of

articles entitled “Les contributions directes en 19–” or “Les impôts directes en 19–” published each year in *S&EF* starting from 1949, and these notices were a very useful source for us in following the evolution of legislation.<sup>24</sup>

The “normal” pace of publication of the statistical tables compiled by the tax administration thus resumed in 1949, with the creation of the monthly journal *S&EF* and the publication in its issue number 3 (March 1949) of an article entitled “Les contributions directes et taxes assimilées en 1947,” which contained all of the tables compiled for the 1946 tax year. The general organization of *S&EF* evolved over time: from 1949 to 1952, *S&EF* was divided into a “normal” series, appearing monthly, a statistical supplement appearing quarterly, and a “Finances Comparées” supplement that also appeared quarterly; the “statistical supplement” became the “Finances Françaises” supplement in 1953, then the quarterly supplements disappeared in 1955 and were replaced by a “supplement” appearing monthly, with the same numbering as the “normal” series. Finally, starting in 1971, the “normal” series became the “red series,” the “supplement” series became the “blue series,” and a new “orange series” was created, entitled “Economie et Prévision” (“E&P”), which started in 1981 and still exists today under that title, despite the permanent disappearance of the other *S&EF* series since 1984–1985.<sup>25</sup> The exact references to all of the *S&EF* issues where the various distribution tables were published are given in Table A-4. As the table shows, *S&EF* immediately took up the habit of publishing the same table several times, with exactly the same figures (though with the amounts sometimes expressed in thousands of francs and sometimes in millions of francs).<sup>26</sup> In addition to the annual series of articles entitled “Les contributions directes en 19–,” “Renseignements statistiques relatifs aux impôts sur les revenus, aux anciennes contributions directes et au cadastre, exercice 19–,” or “Les impôts directs en 19–” published in the various supplements and then in the “blue series,” *S&EF* has since 1951 published an article each year entitled “L’impôt sur le revenu en 19–” (in the normal series, and then in the “red series”). The first article in this series, entitled “L’impôt sur le revenu en 1950,” and based on the 1949 income statistics, appeared in 1951 in issue number 31 of *S&EF*, and similar articles would be published each year until the final article of the series, entitled “L’impôt sur le revenu en 1981 et 1982,” which was based on the 1980 and 1981 income statistics, and which appeared in 1984 in issue number 394 of *S&EF*. From “L’impôt sur le revenu en 1950” to “L’impôt sur le revenu en 1964,” that is, from the 1949 tax year to the 1963 tax year, these arti-

cles reproduce the tables compiled on  $12/31/n+1$ , that is, exactly the same tables as those reproduced in the series of *S&EF* articles entitled “Les impôts directs en 19–.” For the corresponding years, we have shown in Table A-4 the two corresponding references, starting with those from the tables reproduced in the “Les impôts directs en 19–”<sup>27</sup> series. The articles dealing with “L’impôt sur le revenu en 1965” and “L’impôt sur le revenu en 1966” (1964 and 1965 tax years) reproduce both the tables compiled on  $12/31/n+1$  and the tables compiled on  $3/31/n+2$ . Then, starting with “L’impôt sur le revenu en 1967” (1966 tax year), only the tables compiled on  $3/31/n+2$  were published. The series of *S&EF* articles entitled “Les impôts directs en 19–,” up to the final installments on the 1971 tax year, entitled “Les impôts directs en 1972–,” which appeared in 1974 in issue number 304 of the “blue series,” would continue to reproduce the tables compiled on  $12/31/n+1$  (see the references given in Table A-4). The articles in the series “L’impôt sur le revenu en 19–” also contain useful information about the evolution of legislation. On the other hand, the statistical work offered in these articles is relatively modest: the DGI staff charged with drafting the articles merely reproduced the raw numbers obtained from the tabulation of tax returns and briefly commented on developments over the previous few years, with no attempt made to make the raw data consistent.

But these articles at least had the virtue of existing and thus of making the raw statistics compiled by the tax administration available to any interested individual. The final issues of *S&EF* were published in 1984–1985,<sup>28</sup> and since then, *Les Notes Bleues de Bercy* has assumed the role of disseminating the statistics produced by the finance ministry for external use. But while the *S&EF* published the full statistical tables compiled by the tax administration, *Les Notes Bleues de Bercy* limits itself to providing aggregate-level statistical information on overall income tax receipts, with no indication given about the distribution of taxpayers or of tax paid by income bracket.<sup>29</sup> Since the 1982 tax year, the statistical tables by income bracket that the tax administration compiles have only been available in the form of roughly fifty-page brochures entitled *Etats 1921* and drafted primarily for the internal use of the finance ministry. These are public documents, however (the figures contained in the *Etats 1921* always cover a very large number of taxpayers, respecting the rule that no findings concerning a group of less than eleven individuals may be released; thus these tables in no way violate the legitimate respect for individuals’ statistical secrecy), and any interested party may obtain a copy of the complete *Etats*

1921 tables by contacting the Service d'Enquêtes Statistiques et de Documentation (SESDO) of the Direction Générale des Impôts (DGI). A few rare tables from the *Etats 1921* are also reproduced each year in the *Annuaire Statistique de la France* published by INSEE.<sup>30</sup> Since the demise in the 1970s of the annual *RSRID* volumes, which dated back to 1889,<sup>31</sup> statistical tables by income bracket have also been “published” in documents entitled “Annuaire statistique de la DGI,” but these documents are not very widely disseminated.<sup>32</sup> Since the 1987 tax year, the *Etats 1921* have been compiled first on  $12/31/n+1$ , and then a second and final time on  $12/31/n+2$  (rather than on  $3/31/n+2$ ), and we have always used the latest available tables, as we did for prior periods (see Table A-5). The latest tables available when this book was written were the definitive tables for the 1997 tax year (compiled on  $12/31/1999$ ) and the initial tables for the 1998 tax year (compiled on  $12/31/1999$ ) (the definitive tables on the 1998 tax year (compiled on  $12/31/2000$ ), as well as the initial tables on the 1999 tax year (compiled on  $12/31/2000$ ), will only be available in 2001).<sup>33</sup>

### 1.5. The Question of the Date of Tax-List Issuance

Is the use of distribution tables compiled on dates that vary over time ( $12/31/n+1$ ,  $3/31/n+2$ ,  $12/31/n+2$ , etc.) likely to introduce significant biases for our estimates of the evolution of top incomes, and does always using the latest available tables (see Table A-5) guarantee that the raw data used will be consistent?

Let us start with the 1980s and 1990s and then go backward in time. For the 1980s and 1990s, the date of tax-list issuance does not really pose a problem: comparing the distribution tables compiled on  $12/31/n+1$  and the distribution tables compiled on  $12/31/n+2$  for the years 1987–1997 shows the 99 percent of the tax-list issuance for incomes of year  $n$  is actually done during the year  $n+1$ , so that taking into account (or not taking into account) issuances from the year  $n+2$  can have only limited consequences (at a maximum, around 1 percent) for the income levels estimated. Making the biases introduced even smaller is the fact that the volume of taxation carried out during the year  $n+2$  is approximately the same for all income brackets (about 1 percent of taxation carried out during the year  $n+1$ ), with slightly smaller markup rates for top incomes; this phenomenon is observed systematically since the 1920s.<sup>34</sup> To illustrate this phenomenon, we have reproduced in Table A-6 the distribution

tables compiled on  $12/31/n+1$  and on  $12/31/n+2$  for the 1995, 1996, and 1997 tax years, and we have calculated the markup rate corresponding to each income bracket. For example, for the 1996 tax year, taking into account the taxation established during the year 1998 results in a 1.3 percent markup in the total number of tax units (taxable and nontaxable) and a 1 percent markup in total taxable income, a 1.2 percent markup in the total number of taxable tax units, a 1 percent markup in the taxable income of taxable tax units, and a 0.7 percent markup in the number and amount of taxable income of tax units whose taxable income is greater than 500,000 francs. The fact that the markup rates are generally uniform means that it is not necessary to adjust the estimates of 1998 top-fractile income levels obtained on the basis of the distribution table compiled on  $12/31/n+1$  (see Appendix B, section 1.2).<sup>35</sup> On the other hand, we have marked up the total number of tax units, total taxable income, and the total tax corresponding to the 1998 tax year by 1 percent in Tables A-2 and A-3 (see section 1.3) to make the total 1998 figures perfectly consistent with those of previous years, for example, when we compare overall population figures and the national accounts (see Appendix H, section 1, and Appendix G, section 1).

This relative uniformity in markup rates also means that using the distribution tables compiled on  $12/31/n+2$  for the 1987–1997 tax years and the tables compiled on  $3/31/n+2$  for the 1964–1986 tax years (see Table A-5) does not cause any significant discontinuity in 1986–1987, especially since the majority of taxation carried out during the year  $n+2$  was generally carried out during the first three months of the year  $n+2$ . Moving from the tables compiled on  $3/31/n+2$  to those compiled on  $12/31/n+2$  means that the income levels of top-income fractiles in the 1964–1986 tax years are probably very slightly understated (at the very most by 1 percent) relative to the top-income fractiles of the 1987–1997 tax years. We have also not attempted to implement an upward adjustment to the total figures (total number of taxable tax units, total taxable income of taxable tax units, total tax, decomposition of total tax) reproduced in Tables A-2 and A-3 for the 1964–1986 tax years (see section 1.3); these estimates are also very slightly understated relative to the estimates for 1987–1997.

Comparing the distribution tables compiled on  $12/31/n+1$  and the distribution tables compiled on  $3/31/n+2$  for the 1964–1986 tax years shows that the pace of tax issuance accelerated slightly over time, so that using the distribution tables between the tables compiled on  $12/31/n+1$  for the 1931–1963 tax

TABLE A-6

*The pace of tax-list issuance by income bracket, from the 1920s to the 1990s*

1923 tax year	Situation on 12 / 31 / 1924		Situation on 12 / 31 / 1925		$(12 / 31 / n + 2) /$ $(12 / 31 / n + 1)$ ratios	
	$s_i$	$N_i$	$Y_i$	$N_i$	$Y_i$	$N_i$
7,000	248,652	2,064,087,900	268,545	2,224,492,400	1.080	1.078
10,000	529,588	7,597,266,600	558,419	7,977,792,800	1.054	1.050
20,000	168,883	4,120,314,500	174,985	4,269,294,800	1.036	1.036
30,000	105,019	3,987,056,300	108,443	4,121,314,600	1.033	1.034
50,000	57,815	3,963,277,400	58,840	4,103,335,000	1.018	1.035
100,000	20,817	2,848,938,300	21,549	2,948,513,200	1.035	1.035
200,000	5,327	1,288,844,000	5,521	1,336,646,300	1.036	1.037
300,000	3,124	1,178,293,900	3,254	1,228,070,900	1.042	1.042
500,000	1,287	846,851,800	1,352	894,399,700	1.051	1.056
1,000,000	363	794,451,900	377	827,570,800	1.039	1.042
Total (taxable hhds)	1,140,875	28,689,382,600	1,201,285	29,931,430,500	1.053	1.043

1949 tax year	Situation on 12 / 31 / 1950		Situation on 12 / 31 / 1951		$(3 / 31 / n + 2) /$ $(12 / 31 / n + 1)$ ratios	
	$s_i$	$N_i$	$Y_i$	$N_i$	$Y_i$	$N_i$
150,000	589,711	103,619,932	628,292	110,387,938	1.065	1.065
200,000	870,911	216,679,295	918,992	228,622,975	1.055	1.055



300,000	1,249,790	478,834,033	1,307,108	500,782,421	1.046	1.046
500,000	480,000	294,315,512	500,788	307,260,864	1.043	1.044
800,000	133,124	126,937,605	139,378	133,297,048	1.047	1.050
1,200,000	58,745	87,978,695	61,676	92,470,797	1.050	1.051
2,000,000	17,483	42,034,930	18,228	43,828,431	1.043	1.043
3,000,000	8,875	33,333,845	9,280	34,936,204	1.046	1.048
5,000,000	4,575	39,744,791	4,755	41,304,853	1.039	1.039
Total (taxable hhds)	3,413,214	1,423,478,538	3,589,063	1,492,638,914	1.052	1.049

1950 tax year	Situation on 12 / 31 / 1951		Situation on 12 / 31 / 1951		$(3 / 31 / n + 2) / (12 / 31 / n + 1)$ ratios	
$s_i$	$N_i$	$Y_i$	$N_i$	$Y_i$	$N_i$	$Y_i$
170,000	270,336	49,924,000	285,568	52,739,817	1.056	1.056
200,000	540,450	130,948,000	567,439	137,486,962	1.050	1.050
300,000	1,195,413	469,969,000	1,244,637	489,280,040	1.041	1.041
500,000	602,074	361,324,000	627,929	377,012,051	1.043	1.043
750,000	250,344	228,426,000	262,835	240,018,957	1.050	1.051
1,200,000	97,492	157,031,000	102,604	165,385,959	1.052	1.053
2,500,000	19,889	66,286,000	20,761	69,194,088	1.044	1.044
5,000,000	6,088	53,792,000	6,323	56,029,878	1.039	1.042
Total (taxable hhds)	2,982,086	1,517,700,000	3,117,896	1,587,147,752	1.046	1.046

(continued)

TABLE A-6  
(continued)

1964 tax year	Situation on 12 / 31 / 1965		Situation on 12 / 31 / 1966		$(3 / 31 / n + 2) /$ $(12 / 31 / n + 1)$ ratios	
	$s_i$	$N_i$	$Y_i$	$N_i$	$Y_i$	$N_i$
15,000	919,608	15,784,856	939,354	16,124,313	1.021	1.022
20,000	775,915	19,701,066	793,460	20,150,243	1.023	1.023
35,000	136,205	5,366,328	140,464	5,534,849	1.031	1.031
45,000	113,093	6,191,680	118,226	6,475,761	1.045	1.046
70,000	38,112	3,133,623	40,141	3,299,513	1.053	1.053
100,000	22,909	3,001,708	24,073	3,151,616	1.051	1.050
200,000	3,299	786,598	3,392	808,946	1.028	1.028
300,000	1,374	513,472	1,421	530,807	1.034	1.034
500,000	568	466,486	587	480,437	1.033	1.030
Total (taxable hhds)	8,053,801	107,181,724	8,361,863	110,625,658	1.038	1.032

1965 tax year	Situation on 12 / 31 / 1966		Situation on 12 / 31 / 1967		$(3 / 31 / n + 2) /$ $(12 / 31 / n + 1)$ ratios	
	$s_i$	$N_i$	$Y_i$	$N_i$	$Y_i$	$N_i$
15,000	1,055,803	18,141,954	1,079,922	18,556,594	1.023	1.023
20,000	923,179	23,462,938	946,800	24,069,998	1.026	1.026

35,000	209,990	8,641,355	217,656	8,960,652	1.037	1.037
50,000	90,025	5,252,782	94,637	5,523,284	1.051	1.051
70,000	45,452	3,731,242	48,129	3,951,330	1.059	1.059
100,000	27,594	3,625,437	29,105	3,821,121	1.055	1.054
200,000	3,769	899,299	3,923	936,151	1.041	1.041
300,000	1,678	624,749	1,733	644,760	1.033	1.032
500,000	681	573,602	697	585,159	1.023	1.020
Total (taxable hhds)	8,219,518	117,817,145	8,572,756	122,046,887	1.043	1.036

1995 tax year	Situation on 12 / 31 / 1996		Situation on 12 / 31 / 1997		$(12 / 31 / n + 2) / (12 / 31 / n + 1)$ ratios	
$s_i$	$N_i$	$Y_i$	$N_i$	$Y_i$	$N_i$	$Y_i$
150,000	2,012,744	345,879,335,852	2,034,867	349,662,403,793	1.011	1.011
200,000	930,589	206,488,325,018	939,611	208,491,160,715	1.010	1.010
250,000	1,000,330	325,738,932,116	1,010,150	328,914,964,363	1.010	1.010
500,000	202,608	178,995,403,024	204,178	180,186,357,820	1.008	1.007
Total (taxable hhds)	15,282,248	2,057,597,303,702	15,474,244	2,081,153,685,196	1.013	1.011
Total (taxable + nontaxable hhds)	30,087,859	2,595,878,289,110	30,585,130	2,627,502,675,564	1.017	1.012

(continued)

TABLE A-6  
(continued)

1996 tax year	Situation on 12 / 31 / 1997		Situation on 12 / 31 / 1998		(12 / 31 / n + 2) / (12 / 31 / n + 1) ratios	
	$s_i$	$N_i$	$Y_i$	$N_i$	$Y_i$	$N_i$
150,000	2,072,012	356,325,291,077	2,092,251	359,796,697,329	1.010	1.010
200,000	972,369	215,842,086,561	981,219	217,801,596,763	1.009	1.009
250,000	1,062,964	346,158,648,366	1,071,983	349,074,495,377	1.008	1.008
500,000	208,075	182,947,661,978	209,569	184,259,649,184	1.007	1.007
Total (taxable hhds)	15,007,042	2,069,451,404,789	15,181,132	2,091,120,959,478	1.012	1.010
Total (taxable + nontaxable hhds)	30,725,002	2,686,789,054,526	31,133,527	2,714,786,959,098	1.013	1.010

1997 tax year	Situation on 12 / 31 / 1998		Situation on 12 / 31 / 1999		$(12 / 31 / n + 2) /$ $(12 / 31 / n + 1)$ ratios	
	$s_i$	$N_i$	$Y_i$	$N_i$	$Y_i$	$N_i$
150,000	2,131,054	366,533,961,550	2,156,707	370,950,474,005	1.012	1.012
200,000	1,019,757	226,412,737,061	1,031,376	229,000,570,244	1.011	1.011
250,000	1,117,259	363,415,228,213	1,131,795	368,218,642,688	1.013	1.013
500,000	218,497	193,995,379,207	221,827	197,080,665,466	1.015	1.016
Total (taxable hhds)	15,472,558	2,143,727,345,646	15,680,354	2,172,151,713,252	1.013	1.013
Total (taxable + nontaxable hhds)	31,183,065	2,754,710,185,410	31,537,615	2,785,902,830,088	1.011	1.011

Sources: See Table A-4 and Appendix A, section 1.5.

years and the tables compiled on 3 / 31 /  $n + 2$  for the 1964–1986 tax years introduces a slightly larger discontinuity in 1963–1964.<sup>36</sup> This positive trend in the pace of tax issuance was extremely slow, however, and the slight discontinuity does not warrant any adjustment. For the 1964–1965 tax years, taking into account issuances undertaken during the first three months of year  $n + 2$  results in a roughly 3–4 percent markup in the total number of taxable tax units and the amount of their taxable income, and a roughly 2–3 percent markup in the number and amount of taxable income of taxable tax units located in the highest income brackets (see Table A-6). Moving from the tables compiled on 12 / 31 /  $n + 1$  to the tables compiled on 3 / 31 /  $n + 2$  means that the top-income fractiles of 1963 are underestimated by about 2–3 percent relative to the top-income fractiles of the years 1964–1986 (and by a maximum of 3–4 percent relative to the top-income fractiles of the years 1987–1997). For the same reasons, the increase from 39.5 percent to 42.2 percent in the percentage of taxable tax units between 1963 and 1964 described in Table A-2 is a slight overestimate, since this percentage was calculated based on of the number of taxable tax units as assessed on 12 / 31 /  $n + 1$  for the 1963 tax year and on 3 / 31 /  $n + 2$  for the 1964 tax year.<sup>37</sup>

For the 1931–1963 tax years, we also have distribution tables compiled on 12 / 31 /  $n + 1$  (see Table A-5). Fortunately, other sources of information exist making it possible to evaluate the evolution of the pace of tax-list issuance between the 1930s and the mid-1960s. First, we have found in the Ministry of Finance archives distribution tables compiled on 3 / 31 /  $n + 2$  for the 1949 and 1950 tax years, and Table A-6 shows that the accounting for issuances carried out in the first three months of year  $n + 2$  was barely greater for the 1949–1950 tax years than for the 1964–1965 tax years: for the 1949–1950 tax years, the markup rates are about 4–5 percent for the total number of taxable tax units and the amount of their total taxable income, and 3–4 percent for the number and taxable income amounts of tax units located in the highest income brackets.<sup>38</sup> Meanwhile, for each year since the creation of the income tax we have statistics on the total amount of tax lists issued for the various tax years (see Tables A-7 and A-8). By definition, these overall statistics do not tell us the evolution of the markup rates as a function of the different income brackets. But they do make it possible to get an idea of the evolution of the pace of tax-list issuance between the 1920s (for which we again have multiple distribution tables compiled on different dates) and the 1950s–1960s.

The figures reproduced in Table A-7 come from the *Tableaux récapitulatifs présentant le nombre d'articles et le montant des rôles des impôts sur les revenus émis depuis la mise en application de ces impôts jusqu'au . . .* published each year in the same articles of the *BSLC*, the *BSMF*, and the *S&EF* as the distribution tables.<sup>39</sup> Until the mid-1930s, these tables made it possible to know the breakdown of IGR issuance over the course of each year since 1916 by the tax year for which the issuances were carried out. For example, Table A-7 shows that the total amount of IGR issued for the 1915 tax year was 32.474 million francs over the course of year  $n + 1$  (1916), 5.677 million over the course of year  $n + 2$  (1917), which comes to 17.5 percent of issuances carried out over year  $n + 1$ , 3.726 million over the course of year  $n + 3$  (1918), and so on, up to year  $n + 8$  (1923). In principle, issuances should be strictly zero beyond year  $n + 6$  (since the creation of the income tax, the tax administration has had five years after the filing of tax returns to carry out audits, after which taxpayers in theory may no longer be troubled about it), and the very small residual issuances shown in Table A-7 for the years  $n + 7$  and  $n + 8$  thus must have involved very particular individual cases.<sup>40</sup> Also, the *Tableaux récapitulatifs* published by the tax administration shows the amount of issuance becoming increasingly small for many years as one moves through the 1920s (the notable acceleration in the pace of tax-list issuance made statistics covering distant years less and less useful), which explains the rising number of blank spaces reproduced in Table A-7. Starting from the mid-1930s, the tax administration has only published the decomposition of the total amount of tax-list issuance over the course of a given year  $n$  as between issuance carried out “for the current year” (that is, for taxes of year  $n$ , on incomes from year  $n-1$ ) on the one hand, and issuances carried out “for prior years” (that is, for taxes of previous years, on incomes from years  $n-2$ ,  $n-3$ , etc.) (see Table A-8). For example, we know that the total amount of IGR issued for 1935 incomes was 1.342 billion francs over the course of the year  $n + 1$  (1936) and 31 million over the course of the year  $n + 2$  (1937), which comes to 2.3 percent (see Table A-7). Later, we only know that the total amount of the tax lists in 1936 was 1.342 billion francs for 1935 incomes (“current year”) and 107 million francs for 1934 and previous incomes (“previous years”) (see Table A-8).

The main finding from the figures reproduced in Tables A-7 and A-8 is that by the 1923 tax year the tax administration had reached its “modern” pace of tax issuance. And this is not very surprising, since it is also starting with the 1923 tax year that large penalties began to be imposed on taxpayers filing their tax

TABLE A-7

*The amount of tax-list issuance in the 1915-1935 tax years during years  $n + 1$ ,  $n + 2$ , etc.*

Tax years	$n + 1$	$n + 2$	$n + 3$	$n + 4$	$n + 5$	$n + 6$	$n + 7$	$n + 8$
1915	32,474,184	5,677,239	3,726,665	3,334,488	2,466,837	3,481,947	129,266	75,782
1916	195,228,547	17,218,354	13,921,777	12,421,267	9,871,218	19,315,438	308,603	95,527
1917	342,311,667	136,655,143	34,852,056	23,415,864	19,570,335	41,033,361	304,264	189,816
1918	415,348,215	95,833,326	38,206,237	25,303,768	36,860,783	27,929,206	246,579	142,213
1919	610,971,361	272,320,197	76,745,689	130,420,996	52,154,266	49,898,218	607,368	321,481
1920	1,108,713,095	116,159,027	188,897,849	73,830,758	33,131,032	68,924,635	449,436	489,834
1921	1,012,144,065	197,302,694	62,079,831	25,704,071	21,519,723	52,503,720	757,939	668,378
1922	1,328,995,284	195,466,097	47,925,806	28,993,820	31,656,320	52,780,850	1,155,656	
1923	2,253,139,957	99,318,111	43,908,333	34,985,446	35,642,981	85,173,957		
1924	2,344,987,118	93,719,388	51,019,729	43,974,814	41,114,762	76,346,133		
1925	2,753,238,597	96,630,185	58,536,640	43,600,670	34,063,688	54,569,175		
1926	1,982,503,152	52,799,463	29,622,568	24,523,779	21,229,505	29,388,304		
1927	2,063,297,874	45,019,600	26,349,717	19,357,150	29,815,455			
1928	2,481,416,232	45,632,659	27,284,037	50,693,971				
1929	2,353,980,196	40,524,760	25,953,679	61,752,531				
1930	2,280,944,843	45,719,454	32,173,699	71,594,340				
1931	1,837,083,763	42,855,065	36,120,553	43,945,320				
1932	1,722,365,996	41,701,453	24,803,070	45,584,387				
1933	1,670,221,609	29,123,392	28,557,024	51,859,377				
1934	1,199,664,962	32,695,827	22,331,717					
1935	1,341,966,590	31,221,752						
	$n + 2$	$n + 3$	$n + 4$	$n + 5$	$n + 6$	$n + 7$	$n + 8$	$n + 8$
1915	17.5	9.8	8.0	5.5	7.3	0.3	0.1	
1916	8.8	6.6	5.5	4.1	7.8	0.1	0.0	



1917	39.9	7.3	4.6	3.6	7.4	0.1	0.0
1918	23.1	7.5	4.6	6.4	4.6	0.0	0.0
1919	44.6	8.7	13.6	4.8	4.4	0.1	0.0
1920	10.5	15.4	5.2	2.2	4.5	0.0	0.0
1921	19.5	5.1	2.0	1.7	4.0	0.1	0.0
1922	14.7	3.1	1.8	2.0	3.2	0.1	
1923	4.4	1.9	1.5	1.5	3.5		
1924	4.0	2.1	1.8	1.6	3.0		
1925	3.5	2.1	1.5	1.2	1.8		
1926	2.7	1.5	1.2	1.0	1.4		
1927	2.2	1.2	0.9	1.4			
1928	1.8	1.1	2.0				
1929	1.7	1.1	2.6				
1930	2.0	1.4	3.0				
1931	2.3	1.9	2.3				
1932	2.4	1.4	2.5				
1933	1.7	1.7	3.0				
1934	2.7	1.8					
1935	2.3						

*Explanation:* The total amount of tax-list issuance for 1915 incomes under the IGR was 32.474 million francs during the year 1916 ( $n+1$ ), 5.677 million during the year 1917 ( $n+2$ ) (thus 17.5 percent [ $5.677 / 32.474$ ] was issued in the year  $n+1$ ), 3.726 million during the year 1918 ( $n+3$ ) (thus 9.8 percent [ $(3.726 + 5.677) / 32.474$ ] was issued during the years  $n+1$  and  $n+2$ ), etc.

Notes: (i) The blank spaces correspond to figures not published by the tax administration.

(ii) All amounts expressed in current francs.

(iii) For the years 1929, 1930, and 1931, the budget year is shifted by three months relative to the calendar year in the tax-list issuance statistics published by the tax administration (for example, the figure of 2,481 million concerning the amount of 1928 income issued over the course of the year 1929 actually represents the amount of 1928 income issued down to 3 / 31 / 1930; the figure of 45.6 million represents the amount of 1928 income issued between 3 / 31 / 30 and 3 / 31 / 31, etc.).

*Sources:* Tables entitled "Tableaux récapitulatifs présentant le nombre d'articles et le montant des rôles des impôts sur les revenus émis depuis la mise en application de ces impôts jusqu'au . . ." reproduced in the series of articles entitled "Renseignements statistiques relatifs aux contributions directes" published each year in the *BSLC* (see Appendix A, section 1.5).

## APPENDIX A

TABLE A-8

*The amount of tax-list issuance for the current year and for prior years during the 1936-1952 procedures*

(1) Procedure	(2) Current year	(3) Prior years	(4) % (3) / (2)	(5) % (3)[ <i>n</i> + 1] / (2)
1936	1,341,966,590	106,837,238	8.0	7.9
1937	2,091,233,736	105,412,846	5.0	8.3
1938	2,952,399,649	174,507,998	5.9	8.0
1939	3,328,987,905	235,469,006	7.1	6.8
1940	3,128,643,930	225,713,206	7.2	16.4
1941	2,236,666,179	513,339,041	23.0	19.1
1942	4,199,310,710	427,133,828	10.2	26.2
1943	5,637,847,491	1,098,348,583	19.5	21.9
1944	5,766,154,275	1,235,282,813	21.4	19.2
1945	6,355,634,638	1,109,291,999	17.5	20.5
1946	11,976,197,302	1,303,531,312	10.9	26.6
1947	42,884,917,628	3,180,008,280	7.4	14.0
1948	35,844,243,570	5,982,714,305	16.7	17.5
1949	64,738,815,980	6,286,105,570	9.7	13.2
1950	102,554,000,000	8,530,000,000	8.3	13.0
1951	111,444,634,430	13,281,308,870	11.9	13.7
1952	138,848,576,850	15,230,322,100	11.0	10.0

*Explanation:* During the year 1936, the total amount of IGR tax issuance for the current year (that is, IGR on 1935 incomes) was 1,342 billion francs, and the total amount of IGR tax issuance for prior years (that is, IGR on incomes from 1934, 1933, etc.) was 107 million, or 8.0 percent ( $107 / 1342$ ) of 1936 issuance for the current year; the total amount of issuance in 1937 for prior years was 105 million, or 7.9 percent ( $105 / 1342$ ) of 1936 issuance for the current year.

*Notes:* (i) All amounts expressed in current francs.

(ii) These are tax lists issued for IGR for the years 1936-1948, then lists issued for the progressive surtax on the IRPP starting from the 1949 tax year.

*Sources:* See Table A-7 and Appendix A, section 1.5.

returns late.<sup>41</sup> Starting from the 1923 tax year, the total amount of tax issuance over the course of year  $n + 2$  was only 4.4 percent of the amount of tax-list issuance over the course of year  $n + 1$ , and this percentage would decline slightly further over the course of the 1920s, and then stabilizing around 2 percent from the 1927 tax year (see Table A-7). Also, a comparison of the multiple distribution

tables compiled over the course of the 1920s (see Table A-5) shows that by the 1923 tax year markup rates by income bracket had assumed the characteristic form we have observed for periods after the Second World War. To illustrate this phenomenon, we have reproduced in Table A-6 the distribution tables compiled on  $12/31/n+1$  and on  $12/31/n+2$  for the 1923 tax year, and we have calculated the markup rate corresponding to each income bracket: as is the case for the 1949–1950 tax years, the markup rates are about 4–5 percent for the total number of taxable tax units and the amount of their total taxable income, and 3–4 percent for the number and amount of taxable income of tax units located within the highest income brackets. The level and the general form of these markup rates are identical down to the 1929 tax year (with slightly declining levels), the last year of the interwar era for which several distribution tables were compiled on different dates (see Table A-5).

It can thus be said that moving from the tables compiled on  $12/31/n+1$  to the tables compiled on  $12/31/n+2$  means that the top-income fractiles of the 1930s, like those of the 1950s–1960s, are underestimated by about 2–3 percent relative to the top-income fractiles of the years 1964–1986 (and a maximum of 3–4 percent relative to the top-income fractiles of the years 1987–1996). On the other hand, there is every reason to think that the rates of underestimation are slightly greater for the years of the Second World War. Table A-8 indeed shows that the amount of issuance carried out for prior years, which was about 7–8 percent of the total amount of issuance carried out for the current year in the 1930s, reached levels of about 15–20 percent in the years 1941–1945, before returning to levels around 10 percent (or slightly less) by the early postwar years. These figures manifest the disorganization of the tax departments during the war years. Still, the fact is that delays in drawing up tax lists because of the war seem to have been relatively limited. Indeed, recall that a roughly 10 percent rate for issuances carried out for prior years (which combine the cumulative issuances carried out for all of the previous tax years) does not mean that the taxation carried out during year  $n+2$  represents 10 percent of the taxation carried out during year  $n+1$ . For example, in the 1930s, taxation carried out during the year  $n+2$  represented barely 2 percent of the taxation carried out during the year  $n+1$  (see Table A-6), while the amount of taxation carried out for prior years reached 7–8 percent of the number of issuances carried out for the current year. The same is true in the 1980s–1990s: issuances carried out for prior years still

represented about 7–8 percent of the issuances carried out for the current year, and this is the level around which the rate stabilized by the 1950s, even though 99 percent of tax-list issuances were carried out during the year  $n + 1$ , which is explained by the fact that the “prior” category combines all residual issuances carried out for older years, and in particular penalties arising from tax audits and adjustments.<sup>42</sup>

Finally, as for the 1920s, the figures reproduced in Table A-7 show that using the latest distribution tables for every year (see Table A-5) gives us more or less consistent raw data by the 1919 tax year, with relatively limited rates of underestimation relative to the raw data of subsequent periods. For example, using the table compiled on 12 / 31 /  $n + 5$  for the 1919 tax year allows us to be sure that we are taking into account the bulk of tax issuance, and this is in spite of the slow pace of the tax-list issuance process in question (see Table A-7).

Ultimately, the biases introduced by this problem of tax-list issuance dates can only be extremely small for the entire 1919–1998 period, notably when compared to “real” income changes (also, it will be noted that these biases rather tend to go in the “right” direction: the incomes of the earliest years are those most likely to be underestimated, and these biases can thus only reinforce the patterns obtained).

On the other hand, when it comes to the 1915–1918 tax years, the question of tax-list issuance dates poses a serious problem: given the fact that the tax lists were issued relatively slowly in these very first years of the income tax (see Table A-7), not knowing the exact date on which the distribution tables for the 1915–1918 tax years were compiled means that these tables must be used with the greatest caution. We have proceeded in the following way. First, we have compared the numbers of taxpayers appearing in the distribution tables (see Table A-1) with the “definitive” numbers of taxpayers, as they appear in the *Tableaux récapitulatifs présentant le nombre d'articles et. . .*<sup>43</sup> We observed that the numbers of taxpayers in the distribution tables must be increased by 57 percent (for 1915), 29 percent (for 1916), 35 percent (for 1917), and 38 percent (for 1918) to obtain the definitive numbers of taxpayers (see Table A-9). These figures confirm that the distribution tables of 1915–1918 exclude a large share of the taxpayers who were actually taxed. We have thus applied these markups to obtain the number of taxpayers appearing in Table A-2 for the years 1915–1918 (we have used the definitive numbers of taxpayers). Likewise, in Table A-2 we have used the definitive amount of total tax given in Table A-9.

## APPENDIX A

TABLE A-9  
*The case of the 1915–1918 tax years*

	Distribution tables		“Definitive” tax-list issuance situation		Ratios	
	Number of taxable tax units	Tax	Number of items	Tax	Number of taxable tax units	Tax
1915	165,394	26,888	260,038	48,445	1.57	1.80
1916	367,554	211,493	474,077	252,611	1.29	1.19
1917	438,700	486,626	593,861	565,847	1.35	1.16
1918	500,568	520,183	688,829	584,244	1.38	1.12

*Explanation:* The distribution table compiled for the 1915 tax year (see Table A-1) covers 165,394 taxpayers, and makes it possible to estimate a total tax of 26.888 million francs, whereas the “definitive” tax-list issuance situation shows that the total number of taxpayers was 260,038 (or 57 percent more taxpayers) and the total tax was 48.445 million (or 80 percent more tax). By “definitive” situation, we mean the tax-list issuance situation on 4 / 30 / 1921 for the 1915 tax year, on 4 / 30 / 1922 for the 1916 tax year, and on 2 / 28 / 1923 for the 1917 and 1918 tax years.

*Sources:* See Table A-1 for the distribution tables, and Table A-7 for the tables presenting the definitive tax-list issuance situations.

Next, to know how the taxpayers who did not file their tax returns on time (so as to become part of the universe of the distribution tables) stood within the income distribution of the era’s taxable tax units, we used the distribution tables of 1915–1918 reproduced in Table A-1 to calculate the theoretical total tax corresponding to the taxpayers appearing in those tables. The results are shown in Table A-9: this theoretical total tax must be marked up by 80 percent (for 1915), 19 percent for (for 1916), 16 percent (for 1917), and 12 percent (for 1918) to obtain the definitive total tax. The results obtained for 1915 clearly show that recipients of very high incomes were overrepresented among the “late” taxpayers during the very first years of the IGR (57 percent of the additional taxpayers provided 80 percent of the additional taxes). What makes this even more convincing is that our estimates of theoretical total tax only take the tax schedules into account: because no adequate information is given in the distribution tables of 1915–1918, we have not been able to take into account deductions from taxable income and tax reductions for family dependents, which means that our estimates of theoretical total tax are probably overstated by

about 10–15 percent. Therefore, in Table A-2 we have used an estimate of the total taxable income of 1915 taxable tax units that is greater than that which would have been obtained by taking the figure from the distribution table and applying to it the same markup coefficient as for the number of taxable tax units (the details of this adjustment are shown in Appendix B, section 1.3.2.1). For 1916, the results obtained show that “late” taxpayers had approximately the same incomes as the taxpayers from the distribution table: 29 percent of the additional taxpayers provided 19 percent of the additional taxes, which, given that our theoretical total tax is overestimated by about 10–15 percent, seems quite consistent. We have taken the total taxable income of taxable tax units appearing in the distribution table and applied to it the same markup coefficient as for the total number of taxable tax units (the figure used in Table A-2 was obtained in this way). Finally, for 1917 and 1918, the situation seems reversed relative to 1915: recipients of very high incomes seem slightly underrepresented among the “late” taxpayers, so in Table A-2 we have used an estimate of the total taxable income of 1915 taxable tax units that is less than that which would have been obtained by taking the figure from the distribution table and applying to it the same markup coefficient as for the number of taxable tax units (the details of this adjustment are shown in Appendix B, section 1.3.2.1).

## 2. *The Composition Tables (1917, 1920, 1932, 1936, 1937, 1945–1946, and 1948–1998 Tax Years)*

### 2.1. The General Form of the Composition Tables

Unlike the distribution tables, which were compiled for each tax year of the 1915–1998 period (with no discontinuity), the “composition” tables, which require a more thorough tabulation of tax returns, were compiled by the tax administration only for the 1917, 1920, 1932, 1934, 1936, 1937, 1945, and 1946 tax years, and then for all years starting from the 1948 tax year. These composition tables were published in the *BSLC* for the 1917, 1920, 1932, 1934, 1936, and 1937 tax years, in the *BSMF* for the 1945 tax year, in *S&EF* for the 1946 and 1948–1981 tax years, and then, like the distribution tables, in the *Etats* 1921 since the 1982 tax year (see section 1.4). The exact references to the publications where the various composition tables were published is given in Table A-10.<sup>44</sup>

## APPENDIX A

TABLE A-10

*References to the publications where the various composition tables were published  
(1917, 1920, 1932, 1934, 1936, 1937, 1945–1946, 1948–1998 tax years)*

Tax year	Situation on	References
1917 tax year	Unclear	<i>BSLC</i> avril 1921, tome 89, p. 628; <i>BSLC</i> octobre 1921, tome 90, p. 748
1920 tax year	4/30/n + 2 (1) 4/30/n + 2 (2)	<i>BSLC</i> mars 1923, tome 93, pp. 476–477 <i>BSLC</i> mars 1923, tome 93, pp. 478–479
1932 tax year	12/31/n + 1	<i>BSLC</i> septembre 1934, tome 116, p. 622bis
1934 tax year	12/31/n + 1	<i>BSLC</i> juin 1936, tome 119, p. 1049bis
1936 tax year	12/31/n + 1	<i>BSLC</i> juillet-août 1938, tome 124, p. 37bis
1937 tax year	12/31/n + 1	<i>BSLC</i> juillet-août 1939, tome 126, p. 69bis
1945 tax year	12/31/n + 1	<i>BSMF</i> n°6 (2ème trimestre 1948), pp. 288–289
1946 tax year	12/31/n + 1	<i>S&amp;EF</i> n°3 (mars 1949), pp. 194–197; <i>S&amp;EF</i> “supplément Statistiques” n°4 (4ème trimestre 1949), pp. 616–617
1948 tax year	12/31/n + 1	<i>S&amp;EF</i> n°20–21 (août-septembre 1950), pp. 624–627; <i>S&amp;EF</i> “supp. Stat.” n°14 (2ème trimestre 1952), pp. 202–203
1949 tax year	12/31/n + 1	<i>S&amp;EF</i> “supp. Stastistiques” n°14 (2ème trimestre 1952), pp. 242–243; <i>S&amp;EF</i> n°31 (juillet 1951), pp. 634–635
1950 tax year	12/31/n + 1	<i>S&amp;EF</i> “supp. Finances Françaises” n°18 (4ème trimestre 1953), pp. 344–345; <i>S&amp;EF</i> n°46 (octobre 1952), pp. 880–881
1951 tax year	12/31/n + 1	<i>S&amp;EF</i> “supp. Finances Françaises” n°21 (3ème trimestre 1954), pp. 96–97; <i>S&amp;EF</i> n°57 (septembre 1963), pp. 810–811
1952 tax year	12/31/n + 1	<i>S&amp;EF</i> n°67 (juillet 1954), pp. 628–629
1953 tax year	12/31/n + 1	<i>S&amp;EF</i> n°80 (août 1955), pp. 794–795

(continued)

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TABLE A-10  
(continued)

Tax year	Situation on	References
1954 tax year	12/31/ $n + 1$	<i>S&amp;EF</i> “supplément” n°96 (décembre 1956), pp. 1362–1363; <i>S&amp;EF</i> n°93 (septembre 1956), pp. 934–934
1955 tax year	12/31/ $n + 1$	<i>S&amp;EF</i> “supplément” n°109 (janvier 1958), pp. 38–39; <i>S&amp;EF</i> n°106 (octobre 1957), pp. 1094–1095
1956 tax year	12/31/ $n + 1$	<i>S&amp;EF</i> “supplément” n°121 (janvier 1959), pp. 40–41; <i>S&amp;EF</i> n°116 (août 1958), pp. 918–919
1957 tax year	12/31/ $n + 1$	<i>S&amp;EF</i> “supplément” n°133 (janvier 1960), pp. 40–41; <i>S&amp;EF</i> n°131 (novembre 1959), pp. 1370–1371
1958 tax year	12/31/ $n + 1$	<i>S&amp;EF</i> “supplément” n°145 (janvier 1961), pp. 42–43; <i>S&amp;EF</i> n°143 (novembre 1960), pp. 1228–1229
1959 tax year	12/31/ $n + 1$	<i>S&amp;EF</i> “supplément” n°155 (novembre 1961), pp. 1616–1621; <i>S&amp;EF</i> n°155 (novembre 1961), pp. 1380–1385
1960 tax year	12/31/ $n + 1$	<i>S&amp;EF</i> “supplément” n°170 (février 1963), pp. 380–385; <i>S&amp;EF</i> n°168 (décembre 1962), pp. 1402–1407
1961 tax year	12/31/ $n + 1$	<i>S&amp;EF</i> “supplément” n°182 (février 1964), pp. 186–191; <i>S&amp;EF</i> n°179 (novembre 1963), pp. 1372–1377
1962 tax year	12/31/ $n + 1$	<i>S&amp;EF</i> “supplément” n°196 (avril 1965), pp. 602–607; <i>S&amp;EF</i> n°193 (janvier 1965), pp. 30–35
1963 tax year	12/31/ $n + 1$	<i>S&amp;EF</i> “supplément” n°209 (mai 1966), pp. 748–753; <i>S&amp;EF</i> n°207 (mars 1966), pp. 250–255
1964 tax year	12/31/ $n + 1$ 3/31/ $n + 2$	<i>S&amp;EF</i> “supplément” n°221 (mai 1967), pp. 560–565; <i>S&amp;EF</i> n°221 (mai 1967), pp. 592–593 <i>S&amp;EF</i> n°221 (mai 1967), pp. 538–539
1965 tax year	12/31/ $n + 1$ 3/31/ $n + 2$	<i>S&amp;EF</i> “supplément” n°230 (février 1968), pp. 372–377; <i>S&amp;EF</i> n°238 (octobre 1968), pp. 1042–1047 <i>S&amp;EF</i> n°238 (octobre 1968), pp. 982–983



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Tax year	Situation on	References
1966 tax year	12/31/ $n+1$ 3/31/ $n+2$	<i>S&amp;EF</i> “supplément” n°245 (mai 1969), pp. 42–47 <i>S&amp;EF</i> n°258 (juin 1970), pp. 72–73
1967 tax year	12/31/ $n+1$ 3/31/ $n+2$	<i>S&amp;EF</i> “supplément” n°258 (juin 1970), pp. 40–45 <i>S&amp;EF</i> n°263 (novembre 1970), pp. 32–33
1968 tax year	12/31/ $n+1$ 3/31/ $n+2$	<i>S&amp;EF</i> “série bleue” n°270 (juin 1971), pp. 44–49 <i>S&amp;EF</i> “série rouge” n°271–272 (juillet-août 1971), pp. 78–79
1969 tax year	12/31/ $n+1$ 3/31/ $n+2$	<i>S&amp;EF</i> “série bleue” n°280 (avril 1972), pp. 42–47 <i>S&amp;EF</i> “série rouge” n°283–284 (juillet-août 1972), pp. 88–89
1970 tax year	12/31/ $n+1$ 3/31/ $n+2$	<i>S&amp;EF</i> “série bleue” n°297 (septembre 1973), pp. 40–45 <i>S&amp;EF</i> “série rouge” n°293 (mai 1973), pp. 102–103
1971 tax year	12/31/ $n+1$ 3/31/ $n+2$	<i>S&amp;EF</i> “série bleue” n°304 (avril 1974), pp. 40–45 <i>S&amp;EF</i> “série rouge” n°309 (septembre 1974), pp. 28–29
1972 tax year	3/31/ $n+2$	<i>S&amp;EF</i> “série rouge” n°319–320 (juillet-août 1975), pp. 26–27
1973 tax year	3/31/ $n+2$	<i>S&amp;EF</i> “série rouge” n°328 (avril 1976), pp. 30–31
1974 tax year	3/31/ $n+2$	<i>S&amp;EF</i> “série rouge” n°337 (janvier 1977), pp. 32–33
1975 tax year	3/31/ $n+2$	<i>S&amp;EF</i> “série rouge” n°353 (mai 1978), pp. 32–33
1976 tax year	3/31/ $n+2$	<i>S&amp;EF</i> “série rouge” n°363–364–365 (février 1980), pp. 164–165
1977 tax year	3/31/ $n+2$	<i>S&amp;EF</i> “série rouge” n°371 (septembre 1980), pp. 100–101
1978 tax year	3/31/ $n+2$	<i>S&amp;EF</i> “série rouge” n°380 (juin 1981), pp. 84–85
1979 tax year	3/31/ $n+2$	<i>S&amp;EF</i> “série rouge” n°390 (1983), pp. 101–102

(continued)

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TABLE A-10  
(continued)

Tax year	Situation on	References
1980 tax year	3/31/ $n+2$	<i>S&amp;EF</i> "série rouge" n° 394 (1984), pp. 43-44
1981 tax year	3/31/ $n+2$	<i>S&amp;EF</i> "série rouge" n° 394 (1984), pp. 51-52
1982-1986 tax year	3/31/ $n+2$	Etats 1921 (situation au 3/31/ $n+2$ ), tableaux IA
1987-1997 tax year	12/31/ $n+2$	Etats 1921 (situation au 12/31/ $n+2$ ), tableaux IA
1998 tax year	12/31/ $n+1$	Etat 1921 (situation au 12/31/ $n+1$ ), tableau IA

*Acronyms:* See Table A-4.

*Explanation:* See Table A-4.

*Notes:* (i) When several references are given, it means that the same table (with exactly the same figures) was published several times. (ii) We have not given references to the composition tables published in the *RSRID* volumes, since they were all published in the *BSLC*, the *BSMF*, or the *S&EF*.

(iii) Two composition tables were compiled on the same date for the 1920 tax year: the first covers only "declared incomes," and the second covers both "declared incomes" and "adjustments carried out by auditors of the tax administration."

All composition tables compiled by the tax administration have always had the same form (only the income categories used in the tables have changed, as we will see): the composition tables always show for each income bracket the amount of each of the various categories of income declared by taxpayers, as well as the number of taxpayers declaring each of the various income categories. Then, after a series of columns corresponding to the different income categories ("real estate income," "industrial and commercial profits," etc.), the composition tables always contain a column giving the total of the various categorical incomes (called "total partial income," or "overall gross income"; we will use this terminology later), then the column giving the amount of deductions that taxpayers could deduct from their overall gross income, which leads (by subtraction) to the final column showing for each bracket the number of taxpayers and the total amount of taxable income (called "overall net income") (with the exception of the composition tables compiled for the 1917 and 1920 tax years, which stop after the "overall gross income" column). The various categorical incomes are always shown in their amounts net of all categorical deductions (work expenses, categorical exemptions, etc.), and the column for deductions thus includes only deductions from

overall income, such as the deduction of the previous year's IGR liability (see section 2.2). The income brackets used in the composition tables are always expressed in terms of taxable income, and the bracket thresholds are always strictly the same as those in the distribution tables. We may also note that the composition tables always combine all taxpayers appearing within a given income bracket, with no distinction made according to family situation.

For example, we know that the 3,024 taxpayers whose taxable income in 1970 was greater than 400,000 francs declared 85,918 million francs of real estate income, 42,732 million francs of industrial and commercial profits, 797,522 million francs of investment income, and so on, giving a "total partial income" of 2.207 billion francs from which 64 million francs of "deductible deficits and expenses" must be deducted to obtain 2.143 billion francs of taxable income; this figure is found in the distribution table as well as the composition table.<sup>45</sup> In other words, the income of the 3,024 taxpayers whose 1970 taxable income was greater than 400,000 francs was made up of 3.9 percent real estate income, 19.4 percent industrial and commercial profits, 36.1 percent investment income, and so forth.<sup>46</sup> These are the raw data that made it possible for us to estimate the income composition of the various top-income fractiles (see Appendix B, section 2).

The composition tables also show, for each income bracket and each category of income, the number of taxpayers who declared incomes from that category. These data thus give us information about the diffusion of the various income categories (not just their overall volume) within each income bracket. These data are difficult to interpret, however (only a very small amount needs to be declared within an income category to appear in the statistic), and we have not attempted to make use of this information.<sup>47</sup>

Finally, let us clarify that, as with the distribution tables, we always used the latest composition tables compiled by the tax administration.<sup>48</sup> For the 1920 tax year, which gave the tax administration the opportunity to compile two composition tables corresponding to the same tax-list issuance date (the first covering only "declared incomes," and the second covering "declared incomes" and "adjustments made by auditors"),<sup>49</sup> we used the second table.<sup>50</sup>

## 2.2. The Categories of Income Used in the Composition Tables

We thought it would be uselessly meticulous to try to reproduce here the composition tables as they were published by the tax administration (given the large

number of income categories, the composition tables are significantly more complex than the distribution tables reproduced in Table A-1). We will simply lay out, in Appendix B (section 2), the methodology we used to move from the raw data in the composition tables to consistent estimates of the composition of the various top-income fractiles, and we refer any readers interested in the original raw data to the publications whose exact references are given in Table A-10. However, it did seem important to describe precisely how we combined categories in order to obtain the consistent estimates presented in Appendix B (section 2), as well as the content of the main information appearing in the original composition tables, which we have not attempted to make use of in the context of these estimates.

All our estimates of the composition of the various top-income fractiles (see Appendix B, section 2, Tables B-16 and B-17) were carried out using six categories of income: real estate income (RF), investment income (RCM), agricultural profits (BA), industrial and commercial profits (BIC), noncommercial profits (BNC), and payments, wages, retirement pensions, and annuities (TSP). In order to obtain these consistent categories on the basis of the raw data in the distribution tables, we have grouped things in the following way:

(i) We combined into a single category the various real estate income categories that the tax administration has at times been led to use. In particular, we grouped together the categories that the interwar administration used to distinguish between “income from built real property” (that is, income from houses, apartment buildings, etc.), and “incomes from nonbuilt real property” (that is, income from land) (these categories were used in the composition tables compiled for the 1920 and 1932 tax years), or, amounting to almost the same thing, “income from urban property” and “income from rural property” (categories used in the composition tables compiled for the 1934, 1936, and 1937 tax years).<sup>51</sup> This type of distinction completely disappeared from the composition tables after 1945 (the composition table compiled for the 1937 tax year was the last to make use of this type of distinction), and it is interesting to note that nonbuilt (or rural) real property was of relatively limited importance in the interwar era. In 1920, the nonbuilt real estate share of overall gross income was 2.1 percent (all taxable tax units combined), and this share rose from about 1.5–2 percent for the lowest income brackets used in the composition table to 2.5–3 percent for the middle brackets, and 0.5–1 percent for the highest brackets (the built-property share was 4.7 percent, and it rose from about 3 percent for the lowest brackets to more than 6 percent for the middle brackets,

and barely more than 1.5 percent for the highest brackets). We find exactly the same profile in 1932, 1934, 1936, and 1937, with the sole difference being that the overall volume (all taxable tax units included) of built property income (or urban property income) recovered (to 9.2 percent of overall gross income, all taxable tax units included, in 1934), while nonbuilt property (or rural property) stagnated at around 2 percent (and the share for the highest brackets stagnated at about 0.1–1 percent).<sup>52</sup> We also grouped the categories irregularly used by the tax administration to distinguish true real estate incomes (corresponding to properties actually rented out or leased out by their owners) from fictive real estate incomes (corresponding to properties occupied or used by their owners).<sup>53</sup>

(ii) Since investment incomes were never subject to any additional decomposition in the composition tables (in particular, dividends and interest never appeared separately in the composition tables), we have not had to categorize them in any way.

(iii) We have included “*rémunérations des gérants et associés*” (RGA)—that is, compensation paid to *gérants* of SARLs and *associés* of SNCs—with industrial and commercial profits (BIC). The RGA category was first introduced in the composition table for the 1948 tax year, and has always been used since then.<sup>54</sup> This inclusion makes sense in that, before 1948, this type of compensation was not broken out as such in the composition tables and was always included directly within BIC.<sup>55</sup> We have also included in the BIC category “profits from mining operations,” a category that was used only in the composition tables compiled for the 1920 and 1932 tax years.<sup>56</sup>

(iv) In addition, we have always grouped all BIC into a single category; however, it is taxed (BIC taxed under the flat-rate regime, BIC taxed under the simplified real profit regime, BIC taxed under the normal real profit regime, etc.).<sup>57</sup> We have done likewise for BA and BNC.<sup>58</sup>

(v) We have grouped “payments and wages” and “retirement pensions and annuities” into the single category of TSP. These two components are broken out in the composition tables compiled only for the 1917, 1920, and 1934 tax years and then each year since the 1975 tax year (the composition tables compiled for the 1932, 1936–1937, 1945–1946, and 1948–1974 tax years do not make this distinction).<sup>59</sup>

(vi) Finally, we excluded from our field of analysis the few residual and irregular categories that could not be assigned to any of the six major income categories (RF, RCM, BA, BIC, BNC, TSP). Notably this includes the “incomes

received abroad” category (called “incomes received outside of France” beginning in 1945), which was used in the composition tables compiled for the 1932, 1934, 1936–1937, 1945–1946, and 1948–1976 tax years (since the 1977 tax year, “incomes received outside of France” have been grouped with the income categories they belong to, so they no longer appear as such in the composition tables). For the 1966–1976 period, these “incomes received outside of France” were grouped in the composition tables within the broader category of “miscellaneous incomes.”<sup>60</sup> We have always excluded all of these “incomes received abroad,” “incomes received outside of France,” “miscellaneous incomes,” and other categories from our field of analysis in the sense that our estimates of the various top-income fractiles’ composition cover the sum of the categorical incomes minus these residual incomes (in contrast, these residual incomes are, of course, taken into account in our estimates of the level of the various top-income fractiles, since the levels’ estimates are based on the distribution tables, and those tables are based on a ranking of taxable incomes, which, by definition include all categories of taxable income, whatever their nature). Given the small volume of residual incomes, their exclusion is of hardly any consequence. For example, in 1970, “miscellaneous incomes” represented about 634.799 million francs, roughly 0.3 percent of the some 214.441 billion francs of overall gross income (all tax units included).<sup>61</sup> This goes for the entire period under consideration: the share of these “incomes received outside of France” or these “miscellaneous incomes” has always been between 0.1 percent and 0.3 percent of overall gross income (all taxable tax units included) in the composition tables compiled for the 1945–1946 and 1948–1976 tax years; in the interwar era, the “incomes received abroad” share of overall gross income (all taxable tax units included) stood at around 0.5 percent. However, we should make clear that these shares were slightly less trivial for recipients of very high incomes: in 1970, the “miscellaneous income” share reached 3.3 percent of overall gross income for the highest incomes,<sup>62</sup> a maximal level that is quite representative of the entire 1945–1976 periods; in the interwar era, the “income received abroad” share of overall gross income reached 6 percent for the highest income brackets. Insofar as these incomes were probably largely investment income (though it is not possible to evaluate this share with precision, hence our methodological choice to exclude them), this means that our estimates of the RCM share for very high income fractiles are probably slightly understated, up to 1976 (this is mainly the case for the interwar era, and it does not appear that this underestimate could exceed 4 or 5 percentage points).

The composition tables also make it possible to see the evolution of deductions from overall gross income taken by taxpayers. These figures will be useful for verifying the validity of the adjustments carried out in Appendix B (section 1.4) concerning the deduction of the previous year's taxes. Indeed, the composition tables from the interwar era make it possible to see that (taxable income) / (overall gross income) ratios at that time were a sharply decreasing function of the income level: in the composition tables for the 1932, 1934, and 1936–1937 tax years, taxable income represented about 90–91 percent of overall gross income (all taxable tax units included), and this percentage ranged from about 96 percent for the lowest income brackets to just over 70 percent for the highest.<sup>63</sup> Moreover, within expenses deducted from overall gross income, these composition tables from the 1930s distinguish between “direct taxes” deducted by taxpayers and other deductions authorized by the legislation in effect at the time (that is, “interest on debt or arrears on annuities” and “losses resulting from an operating deficit”), and this decomposition makes it possible to see that the declining (taxable income) / (overall gross income) ratios were solely due to the “direct taxes”: deductions taken for other expenses represented about 2–3 percent of overall gross income for all income brackets, from the lowest to the highest.<sup>64</sup> Since 1945, the (taxable income) / (overall gross income) ratios have differed far more wildly by level of taxpayer income. Let us first note that when calculated at the level of all taxable tax units, the ratios have varied little since 1945: taxable income always represented about 95 percent of overall gross income in the composition tables of 1945–1946 and 1948–1982, then this percentage rose to about 98 percent in the composition tables for the 1983–1998 tax years (which is explained by the fact that in 1983 certain expenses deductible from overall gross income, such as those pertaining to principal residences or life-insurance premiums, were suddenly transformed into tax reductions). From 1945 to 1959, these percentages were a slightly decreasing function of the income level: they fell from about 97–98 percent for the lowest brackets to 90–92 percent for the highest brackets (with an average percentage of around 95 percent), which is explained by the fact that taxpayers could deduct the amount of the proportional tax owed them on the previous year's income from their income that was subject to the progressive surtax, and this was especially valuable for recipients of high incomes. Once this possibility disappeared, these percentages became practically uniform for all income brackets throughout the 1960s (around 95 percent). Then, starting in the late 1960s and



early 1970s, the percentages increasingly started to resemble a slightly rising function of the income level (which is explained by the fact that the only expenses that were still deductible from overall income were often flat-rate): in late 1970s and early 1980s, these percentages ranged from about 92–93 percent for the lowest brackets to 97–98 percent for the highest brackets (with an average percentage of 95 percent). Since 1983, these percentages have once again been practically uniform for all income brackets (around 98 percent).

### 3. *The Capital Gains Tables (1988–1998 Tax Years)*

The tax-return tabulations have also allowed the tax administration to compile statistics on capital gains. For a proper understanding of the nature of the available statistics, a brief discussion of the particularities of the capital-gains taxation regime is necessary. As we explained in Chapter 6 (section 1.3), the general principle of the legislation in effect since the 1976–1982 reform has been that real estate capital gains are subject to the progressive income tax schedule (they are added to other incomes, though with a certain number of specific exemptions) whereas investment capital gains are taxed at a proportional rate (they are taxed separately, without being added to other incomes). We have dealt with real estate capital gains—which appear in the composition tables compiled since the 1979 tax year, and which also appeared in the composition tables covering the 1963–1976 tax years (at least when it came to the few real estate capital gains that were taxable before the 1976–1982 reform)—in the same way as the other residual categories discussed earlier (“incomes received outside of France,” “miscellaneous incomes,” etc.). Thus we have excluded them from our estimates of the composition of the various top-income fractiles, which, given their very small size (even for very high incomes), is of little consequence (also, as with the other categories excluded in this way, this obviously does not mean that they are not taken into account in our estimates of the income levels, since the distribution tables are always based on the entirety of incomes subject to the rate schedule).<sup>65</sup> When it comes to investment capital gains, which are often a very important income source for recipients of very large incomes (which the distribution tables, and thus our estimates of the various top-income fractile levels, do not take into account when they are taxed separately, since in this case



they are not part of taxable income subject to the rate schedule), the situation is different. Before the 1976–1982 reform, investment capital gains were taxable only in a few rare specific cases, and the statistics on them were extremely meager: investment capital gains could, for example, be subject to the rate schedule in the form of BNC if it could be proved that they were capital gains earned “on a regular basis,” in which case they appeared in the composition tables as BNC (though it is not possible to break them out).<sup>66</sup> Since the 1959 tax year there have also been a certain number of specific situations in which investment capital gains have been taxed at a proportional rate, and the tax administration compiled statistical tables on them for the years 1959–1972, which we saw little point in trying to analyze here.<sup>67</sup> The tax administration took several years to adapt to the 1976–1982 reform, and the statistics compiled on investment capital gains for the years 1979–1987 cover only the overall amount of capital gains in question. Ultimately, then, it is only since the 1988 tax year that investment capital gains taxed at the proportional rate have been subject to systematic annual statistical treatment. Thus, here we have merely reproduced the information appearing in the capital gains tables that the tax administration has compiled since 1988 (see Table A-11). We will note that, although these are capital gains taxed at a proportional rate, the tables show the importance that capital gains take on as a function of taxable income subject to the rate schedule. Because the highest brackets used in these tables are not high enough, we have also reproduced similar information from the DGI’s samples of tax returns, which contain all large tax returns, and thus make it possible to study the case of very high incomes in an extremely reliable way (we discuss the samples in Appendix B, section 1.2) (see Table A-12).

#### *4. The Other Statistical Tables Compiled by the Tax Administration*

Besides the distribution, composition, and capital gains tables discussed in the previous sections, the tax administration has also had occasion to compile other interesting statistical tables since the 1914–1917 tax reform. These other tables, which are notably based on the system of schedular taxes that were in effect until 1948 and on the “proportional tax” that took their place until 1959,

TABLE A-11

*The distribution of capital gains in the raw statistical tables compiled by the tax administration (1988–1998 tax years)*

1988				1989				1990				1991			
$s^i$	$p_i$	$N(PV)_i$	$\% (PV)_i$	$s_i$	$p_i$	$N(PV)_i$	$\% (PV)_i$	$s_i$	$p_i$	$N(PV)_i$	$\% (PV)_i$	$s_i$	$p_i$	$N(PV)_i$	$\% (PV)_i$
125,000	13.9	7,771	0.1	150,000	10.1	25,221	1.4	150,000	11.2	23,130	1.4	150,000	12.0	22,004	1.1
150,000	9.2	14,621	0.2	200,000	5.0	20,213	2.3	200,000	5.6	18,723	2.3	200,000	6.1	18,214	2.0
200,000	4.5	12,621	0.5	250,000	2.9	48,683	5.7	250,000	3.3	47,065	5.8	250,000	3.5	47,292	4.9
250,000	2.6	35,593	1.4	500,000	0.6	35,576	16.8	500,000	0.6	35,542	17.7	500,000	0.6	36,455	15.3
500,000	0.5	34,215	17.7	Total		192,344	3.0	Total		190,756	3.4	Total		184,478	3.0
Total		126,542	2.0												
1992				1993				1994				1995			
$s^i$	$p_i$	$N(PV)_i$	$\% (PV)_i$	$s_i$	$p_i$	$N(PV)_i$	$\% (PV)_i$	$s_i$	$p_i$	$N(PV)_i$	$\% (PV)_i$	$s_i$	$p_i$	$N(PV)_i$	$\% (PV)_i$
150,000	12.7	23,863	1.1	150,000	12.9	35,823	1.3	150,000	13.2	59,318	1.1	150,000	13.7	97,371	1.2
200,000	6.4	19,654	1.9	200,000	6.6	28,859	2.1	200,000	6.7	43,290	1.8	200,000	7.0	64,515	1.8
250,000	3.6	50,292	4.8	250,000	3.7	70,616	5.3	250,000	3.8	91,066	4.4	250,000	4.0	116,266	4.2
500,000	0.6	37,002	15.0	500,000	0.6	46,523	17.1	500,000	0.6	50,876	14.7	500,000	0.7	54,839	13.8
Total		195,383	2.9	Total		281,603	3.3	Total		408,067	2.9	Total		626,934	2.8

1996				1997				1998			
$s^i$	$p_i$	$N(PV)_i$	$\% (PV)_i$	$s_i$	$p_i$	$N(PV)_i$	$\% (PV)_i$	$s_i$	$p_i$	$N(PV)_i$	$\% (PV)_i$
150,000	14.0	76,633	1.2	150,000	14.4	101,527	1.7	150,000	15.1	109,199	1.7
200,000	7.3	53,756	1.8	200,000	7.6	71,934	2.6	200,000	8.1	78,480	2.5
250,000	4.1	111,329	4.4	250,000	4.3	143,340	6.0	250,000	4.6	152,922	5.5
500,000	0.7	55,492	14.6	500,000	0.7	66,566	18.9	500,000	0.8	67,022	17.2
Total		541,675	3.0	Total		708,973	4.1	Total		756,163	3.9

*Sources:* Etats 1921, tables IA (1988–1989 tax years) and tables I (1990–1998 tax years), columns “Nombre de plus-values imposées à taux proportionnel” and “Base des plus-values imposées à taux proportionnels.”

*Explanation:* In the 1998 tax year, 0.8 percent of tax units declared a taxable income greater than 500,000 francs (see Appendix B, Table B-1); the total number of capital gains declared by these tax units and taxed at the proportional rate was 67,022, and the total amount of these capital gains represented 17.2 percent of the total amount of taxable income subject to the tax schedule and declared by these tax units; the total number of taxable tax units declaring capital gains taxed at the proportional rate was 756,163, and the total amount of these capital gains represented 3.9 percent of the total amount of taxable income subject to the rate schedule declared by all taxable tax units.

APPENDIX A

TABLE A-12

*The importance of capital gains for the various top-income fractiles  
(1992–1995 tax years)*

Fractile	1992	1993	1994	1995	Fractile	1992	1993	1994	1995
P0–100	1.7	1.7	1.6	1.5	P0–90	0.5	0.5	0.6	0.4
P90–100	4.3	4.5	3.7	3.7	P90–95	1.4	1.3	0.8	1.2
P95–100	5.8	6.3	5.3	5.1	P95–99	2.7	2.8	2.2	2.3
P99–100	11.0	12.4	10.6	9.7	P99–99.5	6.2	5.2	6.5	5.0
P99.5–100	13.5	16.3	12.7	12.1	P99.5–99.9	10.9	12.4	9.1	8.8
P99.9–100	17.5	22.2	19.1	17.3	P99.9–99.99	16.1	20.7	18.6	15.9
P99.99–100	21.4	26.5	20.4	21.0	P99.99–100	21.4	26.5	20.4	21.0

Source: Samples of DGI tax returns, variables *pv* ( $pv=ripv-rimp$ ) and *rfisc* (see Piketty 1998, appendix F, 137–145).

Explanation: In the 1995 tax year, capital gains taxed at a proportional rate represented 1.5 percent of the total fiscal income of fractile P0–100, 3.7 percent of the total taxable income of fractile P90–100, etc., and 21.0 percent of the total taxable income of fractile P99.99–100.

have not all been used in this book (we have used only the “wage” and “BIC” tables), but it seems useful to briefly describe the evolution of all of the materials available for future research.

Let us begin with the tables derived from the schedular taxes created in 1917. There were four schedular taxes on earned incomes: the schedular tax on compensation, wages, pensions, and annuities (or more simply “tax on wages”), the schedular tax on BIC, the schedular tax on BA, and the schedular tax on BNC. Like the tax returns filed under the IGR, the wage declarations, BIC declarations, BA declarations, and BNC declarations filed under these four schedular taxes were tabulated by the tax administrations for the purpose of compiling statistical tables (in the case of the wage tax, the declarations were filed by employers; in the other three cases, the declarations were filed by taxpayers, as with income tax returns). Each of these four taxes thus gave rise to distribution tables of the same kind as the distribution tables compiled from income tax returns: thus, we have “wage” tables showing the number of taxable wage earners and the total amount of declared wages as a function of a certain number of wage brackets; “BIC” tables showing the number of recipients of taxable BIC and the corresponding amount of BIC as a function of a certain

number of BIC brackets; “BA” tables showing the number of recipients of taxable BA and the corresponding amount of BA as a function of a certain number of BA brackets; and “BNC” tables showing the number of recipients of taxable BNC and the corresponding amount of BNC as a function of a certain number of BNC brackets. All of these tables were published in the same publications as those shown in Tables A-4 and A-10.<sup>68</sup> Although the schedular taxes first went into effect for 1917 wages and profits, all of these wage, BIC, BA, and BNC tables started to be compiled only with the wages and profits of 1919: the wage and profit declarations from 1917–1918 were apparently not tabulated.<sup>69</sup> As we noted in Chapter 3 (section 2.1), the inauguration of tax withholding for the wage tax in 1939–1940 halted the series of wage tables: the wage tables cover only wages from the years 1919–1938. These are the wage tables that we analyzed in Appendix D (section 1) to estimate the levels of the various top-wage fractiles from the years 1919–1938. Unlike the wage tables, the BIC, BA, and BNC tables were compiled until the abolition of the schedular taxes in 1948: these three series of tables thus cover profits from the years 1919–1948. We (partially) analyzed the BIC tables from the years 1919–1938 (see Appendix G, Tables G-18 and G-19), but we have not attempted to analyze the BA and BNC tables at all in this book.

Unfortunately, the schedular taxes on capital incomes did not lead to the creation of statistical tables that were as rich as those on earned incomes. On the one hand, there was no schedular tax on real estate incomes, strictly speaking: the old real estate tax (the only direct tax from the “four old ladies” system to have been preserved as a central-government tax) took the place of one. This explains why the tax administration never compiled distribution tables for real estate incomes: until its elimination in 1948, the old real estate tax continued to function on the basis of the pre-1917 system, that is, on the basis of rental values periodically revalued by the tax administration (there were no real estate income declarations), so that the statistics that came from the real estate tax for the 1917–1947 period were just as sporadic and of poor quality as those compiled under the old system (we have not attempted to analyze them).<sup>70</sup> On the other hand, the IRVM created in 1872 (which was supplemented with a modest tax on income from loans, deposits, and collateral) took the place of a schedular tax on investment income, and in this case, too, there were no declarations of investment income during the 1917–1947 period: the IRVM remained a tax levied at the source, and, as during the 1872–1917 period, the only statistics that came from this tax were statistics on total receipts (with no indication given

about the distribution of the incomes in question).<sup>71</sup> Given that the IRVM was a proportional tax on a very broadly defined income base, these total-receipt statistics are of some interest, however, because they make it possible to estimate the overall volume of investment income (see, for example, the estimates carried out by Dugé de Bernonville, which we discuss in Appendix G). Generally speaking, tax-receipt statistics, especially those for the IRVM, have given rise to very useful retrospective publications by the finance ministry (see *S&EF* “supplement” n°175 [juillet 1963] [for 1900–1930] et *S&EF* “supplement” n°144 [décembre 1960] [for 1930–1959]).<sup>72</sup>

The elimination of the schedular taxes in 1948 put an end to statistical tables based on the schedular taxes. But by creating the “proportional tax,” the 1948 reform brought about the creation of similar categorical tables, though with the important difference that wages were no longer covered. Over the course of its existence (1948–1958), the “proportional tax” gave rise to the creation of two series of tables: on the one hand, a table showing the number and amount of the various categorical incomes as a function of a certain number of categorical income brackets (as had been the case with the wages, BIC, BA, and BNC tables of the preceding periods); on the other hand, a table showing the numbers and total amounts of income subject to the “proportional tax,” as a function of a certain number of brackets of total income subject to the “proportional tax.”<sup>73</sup> As it happens, the list of categorical incomes subject to the “proportional tax” and included in these two series of tables (in particular, to define the concept of “total income subject to the proportional tax”) were the following: BIC, BA, BNC, and real estate incomes.<sup>74</sup> The tables by categorical-income bracket directly succeeded the BIC, BA, and BNC tables from the years 1919–1947; thus these tables exist in a more or less consistent form for the entire 1919–1958 period.<sup>75</sup> However, we will note an important break in the BIC tables: while individuals and legal entities were grouped together in the schedular tax on BIC and thus in the statistics derived from it (though with a growing degree of statistical separation over time),<sup>76</sup> the “proportional tax” was a tax only on individuals (legal entities were now subject to the IS, also created in 1948), so the statistics derived from the “proportional tax” covered only individuals (since the IS was calculated and paid directly by firms, with no tax lists issued, there was no distribution table on the profits of companies subject to IS, only receipt statistics).<sup>77</sup> We will also note that, unlike real estate income, which received the same statistical treatment as professional profits, investment incomes continued

to be dealt with separately: the “proportional tax” owed on investment income was levied at the source (this was simply the continuation of the IRVM), and thus the only statistics on these incomes were always statistics on total receipts.<sup>78</sup> Finally, let us note that tables by bracket of total income subject to the “proportional tax” are of limited interest: the concept of “total income subject to the proportional tax” is an odd one, since it excludes both wages (which are exempt from the “proportional tax”) and investment incomes (which are dealt with separately), and it is relatively difficult to interpret the economic and social meaning of an income distribution obtained on the basis of such a concept (it is neither a categorical income, nor a genuinely total income). The tables derived from the “proportional tax” were all published in the same publications as those shown in Tables A-4 and A-10, and we have not attempted to analyze them.

The elimination of the “proportional tax” in 1959 put an end to these two series of statistical tables. Excepting the tables derived from the “complementary tax,” which until 1969 carried on the spirit of the tables based on the “proportional tax,”<sup>79</sup> from 1959 onward the statistical tables compiled by the tax administration were thus limited to the distribution and composition tables derived from income tax returns (as well as periodic capital gains tables). That is where the situation remained until the early 1980s, when the tax administration started to compile new statistical tables derived from income tax returns and intended to supplement the information provided by the distribution and composition tables, and to include them in the *Etats 1921*: these new tables show, for example, the number of taxpayers and the amount of taxable income as a function of a given number of brackets of net tax owed (this table has existed since the 1984 tax year); the amount of the various deductions from total income as a function of a given number of brackets of taxable income (this table has also existed since the 1984 tax year); the amount of the various tax reductions as a function of a given number of taxable-income brackets (this table has existed since 1985); the gross amount of the various categorical incomes (before any exemptions or deductions) as a function of a given number of taxable-income brackets (this table has existed since 1989); the number of taxpayers and the amount of taxable income (before any exemptions or deductions) as a function of a given number of brackets of fiscal income (this table has existed since 1995); and so on.<sup>80</sup> We have not sought to analyze those tables for this book.<sup>81</sup>

# Methodology and Results of Estimates Based on Income Tax Return Statistics (1915–1998 Tax Years)

This appendix describes the methodology we used in analyzing the raw statistical tables derived from income tax returns, as well as all of the results obtained. Three series of estimates must be distinguished: estimates of the levels of the various top-income fractiles (section 1), estimates of the composition of the various top-income fractiles (section 2), and, finally, estimates of the average tax rates for the various top-income fractiles (section 3).

## *1. Estimating the Level of the Various Top-Income Fractiles (1915–1998 Tax Years)*

### *1.1. The Technique of Approximation by a Pareto Law*

#### *1.1.1. The Series Estimated*

The raw data from the distribution tables compiled each year by the tax administration since the 1915 tax year tell us about the distribution of income tax returns filed by taxpayers according to a certain number of taxable income brackets (see Appendix A, section 1, Table A-1). But because of inflation, the overall growth of real incomes, and irregular changes in the number and thresholds of the income brackets used by the administration to tabulate and rank tax returns, these raw data, which we have reproduced in Table A-1, are hardly intelligible at first sight, and they must be made homogeneous in order to make it possible to study the evolution of income inequality. Thus, we have used these raw data to estimate, for each year, the income level of the 10 percent of tax units with the highest incomes, the income level of the 1 percent of tax units with the highest incomes, and so forth, which then allows us to estimate, for



each year, the share of total income going to the top decile, the top 1 percent, and so on.

More precisely, we analyzed these raw data to estimate the following annual series. First, we estimated the average income level of the 10 percent of tax units with the highest incomes (an income level we will denote as “P90–100”), the average income level of the 5 percent of tax units with the highest incomes (denoted “P95–100”), the average income level of the 1 percent of tax units with the highest incomes (denoted “P99–100”), the average income level of the 0.5 percent of tax units with the highest income levels (denoted “P99.5–100”), the average income level of the 0.1 percent of tax units with the highest income levels (denoted “P99.9–100”), and the average income level of the 0.01 percent of tax units with the highest incomes (denoted “P99.99–100”). We also estimated the thresholds for the corresponding fractiles: the income threshold that must be exceeded to belong to the 10 percent of tax units with the highest incomes above the 90th percentile (we denote this threshold as “P90”), the income threshold that must be exceeded to belong to the 5 percent of tax units with the highest incomes (denoted “P95”), the income threshold that must be exceeded to belong to the 1 percent of tax units with the highest incomes (denoted “P99”), the income threshold that must be exceeded to belong to the 0.5 percent of tax units with the highest income levels above the 90th percentile (we denote this threshold “P99.5”), the income threshold that must be exceeded to belong to the 0.1 percent of tax units with the highest income levels (denoted “P99.9”), the income threshold and must be exceeded to belong to the 0.01 percent of tax units with the highest incomes (denoted “P99.99”). Estimating the P90–100, P95–100, P99–100, P99.5–100, P99.9–100, and P99.99–100 average income levels also makes it possible for us to calculate (by subtraction) the intermediate P90–95, P95–99, P99–99.5, P99.5–99.9, and P99.9–99.99 average income levels (P90–95 is the average income level of tax units whose incomes lie between the P90 and P95 thresholds; P95–99 is the average income level of tax units whose average income lies between the P95 and P99 thresholds, etc.).<sup>1</sup>

Thus for each tax year from 1915 to 1998, we have estimated seventeen figures: the P90–100, P95–100, P99–100, P99.5–100, P99.9–100, and P99.99–100 levels, the P90–95, P95–99, P99–99.5, P99.5–99.9, and P99.9–99.99 levels, and the P90, P95, P99, P99.5, P99.9, and P99.99 thresholds. However, for the 1915–1918 tax years, given the small number of taxable taxpayers and the fragility of the available raw data, we do not give estimates for the top decile or half-decile;

we merely estimate the P99–100, P99.5–100, P99.9–100, and P99.99–100 levels (and, by subtraction, the intermediate levels P99–99.5, P99.5–99.9, and P99.9–99.99) and the P99, P99.5, P99.9, and P99.99 thresholds. All of these estimates were carried out directly based on the raw data in current francs reproduced in Table A-1 (see Appendix A), and thus all of these estimates of income levels and thresholds are expressed in current francs (in old francs for the 1915–1959 tax years, and in new francs for the 1960–1998 tax years). Only at the end of the process of estimation and adjustment did we convert the P90–100, P95–100, P99–100, P99.5–100, P99.9–100, and P99.99–100 levels, the intermediate levels P90–95, P95–99, P99–99.5, P99.5–99.9, and P99.9–99.99, and the P90, P95, P99, P99.5, P99.9, and P99.99 thresholds into 1998 francs (see Tables B-11 to B-13), and the P90–100, P95–100, P99–100, P99.5–100, P99.9–100, and P99.99–100 levels, and the intermediate levels P90–95, P95–99, P99–99.5, P99.5–99.9, and P99.9–99.99 into shares of total income (see Tables B-14 and B-15).

### 1.1.2. The Pareto Law

To estimate the various fractiles' income thresholds and average income levels based on the raw data compiled by the tax administration, we must make assumptions about how the number of taxpayers and their incomes progress between the successive thresholds used in the raw data. The central hypothesis of the estimation is that the distribution of taxable income for top incomes follows a Pareto law, that is, that starting from a certain income level, the distribution function  $F(y) - F(y)$  is equal to the percentage of tax units with incomes less than  $y$ —can be correctly approximated by a function of the type:

$$1 - F(y) = (k/y)^a \quad (k > 0, a > 1)$$

The density  $f(y)$  of the distribution thus has the form  $f(y) = ak^a/y^{(1+a)}$ . If the distribution of taxable income has this form, then the average income  $y^*(y)$  of taxpayers with incomes greater than  $y$  is given by:

$$\begin{aligned} y^*(y) &= \left[ \int_{z>y} zf(z) dz \right] / \left[ \int_{z>y} f(z) dz \right] \\ &= \left[ \int_{z>y} dz / z^a \right] / \left[ \int_{z>y} dz / z^{(1+a)} \right] = ay / (a-1) \end{aligned}$$

In other words, the remarkable property of the Pareto law is that the ratio  $y^*(y)/y$  is equal to a constant  $b = a/(a-1)$ , independent of the level of income  $y$ . For simplicity, we will refer to parameter  $b$  as the “Pareto coefficient.”<sup>2</sup> All that is needed to estimate the parameters  $a$  and  $b$ , therefore, is to know the income level  $y$  and the average income  $y^*(y)$  for taxpayers with incomes greater than  $y$ . Thus, it is sufficient to know the number of tax units  $N(y)$  with incomes greater than  $y$  to estimate the parameter  $k$ . The parameters  $a$  and  $k$  then make it possible to estimate the entire top-income distribution.

The raw data that the tax administration has compiled from income tax returns since the creation of the income tax, which we reproduced in Table A-1 (see Appendix A, section 1), give us, for a certain number of taxable income brackets  $[s_1; s_2], \dots, [s_i; s_{i+1}], \dots, [s_p; +\infty]$ , the total number  $N_i$  of tax units with taxable incomes between  $s_i$  and  $s_{i+1}$ , and the total taxable income  $Y_i$  of these tax units, and this is the case for the 1915–1998 tax years. Let us denote by  $N_i^* = N_i + N_{i+1} + \dots + N_p$  the number of tax units with a taxable income above  $s_i$ . Let us denote by  $N^*$  the total number of tax units (taxable and nontaxable) estimated in Appendix H (see Table H-1, column [10]), and let us denote by  $p_i = N_i^*/N^*$  the proportion of tax units with a taxable income greater than  $s_i$ . Finally, let us denote by  $y_i = (Y_i + \dots + Y_p)/N_i^*$  the average taxable income of these tax units, and by  $b_i = y_i/s_i$  the ratio between the average income of these tax units and their minimum income. Table B-1 describes for each tax year from 1915 to 1998 the values of  $p_i$  and  $b_i$  obtained for each of the thresholds  $s_i$  used by the tax administration by applying these formulas to the raw figures reproduced in Table A-1.

Table B-1 shows that the Pareto hypothesis is well verified overall by the French tax data, and this is the case for the whole of the 1915–1998 tax years: top incomes declared under the progressive income tax are characterized by Pareto coefficients of around  $b_i = 2.1 - 2.2$  in the interwar era (with coefficients above 2.3–2.4 in the late 1910s and early 1920s, then a strong downward trend during the 1920s and 1930s, and above all during the Second World War years, with an absolute minimum below 1.6 in 1944), then around  $b_i = 1.7 - 1.8$  since the Second World War.<sup>3</sup>

In particular, as Pareto already noted in 1896 with the tax statistics from his time,<sup>4</sup> and as all subsequent researchers who have utilized his discovery have observed, starting with Kuznets (1953), “Pareto’s law” does not mean that coefficient  $b$  is strictly constant for all (top) income levels in a given year: in all

TABLE B-1

*Pareto coefficients obtained from the raw data compiled by the tax administration (1915–1998 tax years)*

1915			1916			1917			1918			1919		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
5,000	1.085	3.61	3,000	2.417	5.31	3,000	2.894	5.42	3,000	3.312	5.35	6,000	3.591	4.45
10,000	0.572	2.75	8,000	1.216	3.29	10,000	1.094	3.29	10,000	1.260	3.21	10,000	2.607	3.36
15,000	0.319	2.63	12,000	0.716	3.16	20,000	0.437	3.08	20,000	0.491	3.04	20,000	1.154	2.85
20,000	0.206	2.58	16,000	0.483	3.10	50,000	0.130	2.72	50,000	0.146	2.63	30,000	0.677	2.66
25,000	0.146	2.54	20,000	0.354	3.06	100,000	0.050	2.46	100,000	0.053	2.41	50,000	0.328	2.51
50,000	0.049	2.45	40,000	0.138	2.85	250,000	0.011	2.31	250,000	0.011	2.27	100,000	0.120	2.32
100,000	0.015	2.43	60,000	0.078	2.75	500,000	0.003	2.29	500,000	0.003	2.17	200,000	0.039	2.11
200,000	0.005	2.34	80,000	0.053	2.65							300,000	0.018	2.08
500,000	0.001	2.62	100,000	0.038	2.61							500,000	0.007	2.13
			150,000	0.020	2.55							1,000,000	0.002	2.35
			250,000	0.009	2.49									
			500,000	0.003	2.54									
1920			1921			1922			1923			1924		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
6,000	6.504	3.73	6,000	7.305	3.40	7,000	6.644	3.41	7,000	7.696	3.56	7,000	9.415	3.42
10,000	4.303	2.96	10,000	4.725	2.73	10,000	5.112	2.85	10,000	5.976	2.97	10,000	7.333	2.83

20,000	1.611	2.76	20,000	1.671	2.56	20,000	1.961	2.56	20,000	2.398	2.64	20,000	2.938	2.48
30,000	0.888	2.67	30,000	0.874	2.52	30,000	1.027	2.52	30,000	1.277	2.59	30,000	1.553	2.41
50,000	0.412	2.56	50,000	0.397	2.40	50,000	0.466	2.42	50,000	0.582	2.49	50,000	0.700	2.30
100,000	0.149	2.31	100,000	0.134	2.21	100,000	0.161	2.20	100,000	0.205	2.26	100,000	0.230	2.12
200,000	0.047	2.17	200,000	0.042	2.03	200,000	0.050	2.05	200,000	0.067	2.04	200,000	0.071	1.92
300,000	0.022	2.18	300,000	0.019	1.99	300,000	0.024	1.98	300,000	0.032	1.97	300,000	0.032	1.86
500,000	0.008	2.30	500,000	0.007	1.99	500,000	0.008	1.98	500,000	0.011	1.99	500,000	0.010	1.95
1,000,000	0.002	2.68	1,000,000	0.001	2.19	1,000,000	0.002	2.33	1,000,000	0.002	2.20	1 000 000	0.002	2.25
1925			1926			1927			1928			1929		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
7,000	12.116	3.30	7,000	16.032	3.25	7,000	17.854	3.18	1,0000	12.143	2.97	10,000	11.689	3.10
10,000	9.474	2.71	10,000	12.478	2.68	10,000	14.130	2.59	20,000	5.585	2.35	20,000	6.076	2.29
20,000	3.621	2.43	20,000	4.445	2.47	20,000	5.033	2.35	30,000	2.618	2.42	30,000	2.936	2.29
30,000	1.827	2.40	30,000	2.198	2.50	30,000	2.362	2.42	50,000	1.063	2.48	50,000	1.143	2.35
50,000	0.792	2.29	50,000	0.968	2.44	50,000	0.965	2.46	100,000	0.357	2.34	100,000	0.362	2.27
100,000	0.255	2.14	100,000	0.335	2.24	100,000	0.322	2.34	200,000	0.117	2.17	200,000	0.115	2.10
200,000	0.077	1.97	200,000	0.107	2.08	200,000	0.105	2.18	300,000	0.059	2.07	300,000	0.056	2.03
300,000	0.036	1.90	300,000	0.052	2.00	300,000	0.052	2.09	500,000	0.023	2.04	500,000	0.020	2.04
500,000	0.012	1.93	500,000	0.019	2.01	500,000	0.020	2.05	1,000,000	0.005	2.16	1,000,000	0.005	2.13
1,000,000	0.002	2.16	1,000,000	0.004	2.28	1,000,000	0.005	2.18						

(continued)

TABLE B-1  
(continued)

1930			1931			1932			1933			1934		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
10,000	12.989	2.98	10,000	12.435	2.40	10,000	11.464	2.38	10,000	11.424	2.36	10,000	10.364	2.34
20,000	6.686	2.20	20,000	3.893	2.33	20,000	3.655	2.26	20,000	3.691	2.21	20,000	3.266	2.22
30,000	3.172	2.19	30,000	1.908	2.33	30,000	1.788	2.23	30,000	1.787	2.19	30,000	1.563	2.21
50,000	1.164	2.28	40,000	1.150	2.33	40,000	1.062	2.23	40,000	1.047	2.19	40,000	0.926	2.20
100,000	0.352	2.22	50,000	0.784	2.32	50,000	0.715	2.22	50,000	0.697	2.19	50,000	0.622	2.19
200,000	0.107	2.09	100,000	0.248	2.20	100,000	0.217	2.11	100,000	0.204	2.11	100,000	0.184	2.10
300,000	0.052	1.97	200,000	0.077	2.03	200,000	0.064	1.96	200,000	0.059	2.00	200,000	0.053	1.96
500,000	0.019	1.97	500,000	0.013	1.97	500,000	0.010	1.89	500,000	0.009	1.96	500,000	0.008	1.90
1,000,000	0.004	2.08	1,000,000	0.003	2.05	1,000,000	0.002	1.88	1,000,000	0.002	2.10	1,000,000	0.002	1.94
1935			1936			1937			1938			1939		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
10,000	9.676	2.37	10,000	9.703	2.97	10,000	13.543	2.92	10,000	16.526	2.89	10,000	13.001	3.08
20,000	3.053	2.27	20,000	5.285	2.09	20,000	7.277	2.07	20,000	8.924	2.03	20,000	7.556	2.09
30,000	1.470	2.27	30,000	2.408	2.08	30,000	3.284	2.05	30,000	4.092	1.96	30,000	3.573	2.02
40,000	0.895	2.22	40,000	1.351	2.10	40,000	1.771	2.10	40,000	2.147	2.03	40,000	1.875	2.10
50,000	0.606	2.20	50,000	0.877	2.10	50,000	1.135	2.12	50,000	1.344	2.06	50,000	1.157	2.17

100,000	0.177	2.12	75,000	0.405	2.09	75,000	0.531	2.11	75,000	0.615	2.04	75,000	0.544	2.17
200,000	0.050	2.04	100,000	0.236	2.07	100,000	0.312	2.08	100,000	0.355	2.01	100,000	0.331	2.12
500,000	0.008	2.03	150,000	0.110	2.04	150,000	0.145	2.06	150,000	0.162	1.96	150,000	0.157	2.09
1,000,000	0.002	2.07	300,000	0.029	2.00	300,000	0.037	2.04	300,000	0.040	1.90	300,000	0.044	2.00
			600,000	0.007	2.09	600,000	0.009	2.20	600,000	0.009	2.07	600,000	0.010	2.06
			1,000,000	0.002	2.17	1,000,000	0.003	2.36	1,000,000	0.003	2.14	1,000,000	0.004	2.19
<b>1940</b>			<b>1941</b>			<b>1942</b>			<b>1943</b>			<b>1944</b>		
<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>	<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>	<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>	<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>	<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>
10,000	11.602	3.00	10,000	17.783	3.14	10,000	24.971	2.74	20,000	13.388	2.16	20,000	18.425	2.14
20,000	6.532	2.07	20,000	10.439	2.13	20,000	10.791	2.18	30,000	6.867	2.02	30,000	10.264	1.90
30,000	3.112	1.98	30,000	5.144	2.03	30,000	5.367	2.09	40,000	4.011	1.97	40,000	6.039	1.81
40,000	1.694	2.00	40,000	2.829	2.05	40,000	3.112	2.08	50,000	2.586	1.95	50,000	3.842	1.76
50,000	1.061	2.02	50,000	1.796	2.07	50,000	2.050	2.05	60,000	1.808	1.93	60,000	2.577	1.73
75,000	0.479	2.00	75,000	0.849	2.01	60,000	1.480	2.02	70,000	1.347	1.90	70,000	1.807	1.72
100,000	0.277	1.97	100,000	0.503	1.96	70,000	1.128	1.98	80,000	1.043	1.87	80,000	1.325	1.72
150,000	0.125	1.93	125,000	0.330	1.92	80,000	0.891	1.94	90,000	0.836	1.84	90,000	1.010	1.71
300,000	0.031	1.82	150,000	0.230	1.89	90,000	0.722	1.91	100,000	0.681	1.82	100,000	0.793	1.69
600,000	0.007	1.80	200,000	0.130	1.85	100,000	0.594	1.88	120,000	0.472	1.78	120,000	0.525	1.67
1,000,000	0.002	1.83	300,000	0.056	1.81	120,000	0.419	1.84	140,000	0.344	1.75	140,000	0.367	1.64
			600,000	0.012	1.78	140,000	0.309	1.81	160,000	0.259	1.73	160,000	0.268	1.63
			1,000,000	0.004	1.86	160,000	0.236	1.79	180,000	0.200	1.71	180,000	0.201	1.61

(continued)

TABLE B-1  
(continued)

1940			1941			1942			1943			1944		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
						180,000	0.185	1.76	200,000	0.158	1.70	200,000	0.155	1.60
						200,000	0.148	1.75	225,000	0.120	1.68	225,000	0.116	1.58
						225,000	0.115	1.73	250,000	0.093	1.68	250,000	0.088	1.57
						250,000	0.092	1.71	275,000	0.075	1.67	275,000	0.068	1.57
						275,000	0.074	1.70	300,000	0.059	1.68	300,000	0.054	1.57
						300,000	0.060	1.69	325,000	0.048	1.69	325,000	0.043	1.57
						325,000	0.050	1.69	350,000	0.040	1.69	350,000	0.035	1.57
						350,000	0.041	1.69	375,000	0.034	1.70	375,000	0.029	1.57
						375,000	0.035	1.69	400,000	0.028	1.71	400,000	0.024	1.57
						400,000	0.030	1.68	520,000	0.014	1.73	520,000	0.012	1.59
						510,000	0.016	1.69	1,020,000	0.003	1.80	1,020,000	0.002	1.55
						1,010,000	0.003	1.77						
1945			1946			1947			1948			1949		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
40,000	10.169	2.79	40,000	25.090	3.41	100,000	8.929	2.79	120,000	15.997	2.95	150,000	20.123	2.78
60,000	7.519	2.23	60,000	21.014	2.55	120,000	7.525	2.59	150,000	13.490	2.63	200,000	16.647	2.34



80,000	5.793	1.91	80,000	16.714	2.18	150,000	6.509	2.26	200,000	10.871	2.24	300,000	11.512	1.88
100,000	4.318	1.75	100,000	13.185	1.97	300,000	2.576	1.73	300,000	7.214	1.83	500,000	4.144	1.78
150,000	1.749	1.68	150,000	6.568	1.80	500,000	0.743	1.77	500,000	2.403	1.77	800,000	1.314	1.85
300,000	0.314	1.67	300,000	1.339	1.83	750,000	0.290	1.78	800,000	0.780	1.83	1,200,000	0.529	1.89
500,000	0.086	1.70	500,000	0.430	1.86	1,000,000	0.152	1.77	1,200,000	0.321	1.82	2,000,000	0.182	1.86
750,000	0.031	1.71	750,000	0.181	1.84	1,500,000	0.063	1.72	2,000,000	0.108	1.77	3,000,000	0.079	1.81
1,000,000	0.016	1.73	1,000,000	0.097	1.83	3,000,000	0.012	1.66	3,000,000	0.044	1.72	5,000,000	0.027	1.74
1,500,000	0.006	1.74	1,500,000	0.040	1.81				5,000,000	0.013	1.71			
<b>1950</b>			<b>1951</b>			<b>1952</b>			<b>1953</b>			<b>1954</b>		
<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>	<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>	<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>	<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>	<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>
170,000	17.462	2.99	220,000	14.832	3.10	220,000	19.478	3.28	220,000	17.778	3.29	220,000	17.959	3.36
200,000	15.879	2.71	350,000	10.933	2.37	350,000	15.027	2.43	350,000	13.590	2.47	350,000	13.874	2.50
300,000	12.715	2.05	600,000	6.265	1.80	600,000	9.049	1.82	600,000	8.157	1.86	600,000	8.454	1.88
500,000	5.715	1.78	900,000	2.567	1.77	900,000	3.862	1.76	900,000	3.535	1.80	900,000	3.696	1.82
750,000	2.189	1.80	1,500,000	0.758	1.83	1,500,000	1.147	1.80	1,500,000	1.096	1.82	1,500,000	1.185	1.83
1,200,000	0.723	1.87	3,000,000	0.167	1.81	3,000,000	0.245	1.79	3,000,000	0.241	1.79	3,000,000	0.264	1.79
2,500,000	0.152	1.85	6,000,000	0.037	1.77	6,000,000	0.053	1.73	6,000,000	0.051	1.75	6,000,000	0.055	1.76
5,000,000	0.036	1.77	10,000,000	0.011	1.74	10,000,000	0.017	1.67	10,000,000	0.016	1.70	10,000,000	0.017	1.73

(continued)

TABLE B-1  
(continued)

1955			1956			1957			1958			1959		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
350,000	16.878	2.54	350,000	20.075	2.57	600,000	15.402	1.95	600,000	18.844	2.00	600,000	18.084	2.13
600,000	10.532	1.89	600,000	12.766	1.90	900,000	7.556	1.80	900,000	9.956	1.78	900,000	10.502	1.85
900,000	4.708	1.81	900,000	5.796	1.80	1,500,000	2.383	1.81	1,500,000	3.097	1.78	1,500,000	3.597	1.79
1,500,000	1.488	1.82	1,500,000	1.814	1.82	3,000,000	0.523	1.77	3,000,000	0.650	1.75	3,000,000	0.769	1.76
3,000,000	0.329	1.78	3,000,000	0.408	1.77	6,000,000	0.107	1.75	6,000,000	0.128	1.76	6,000,000	0.156	1.73
6,000,000	0.068	1.76	6,000,000	0.083	1.75	10,000,000	0.032	1.75	10,000,000	0.037	1.80	10,000,000	0.046	1.73
10,000,000	0.021	1.75	10,000,000	0.025	1.77	15,000,000	0.013	1.72	15,000,000	0.015	1.73	15,000,000	0.018	1.73
						20,000,000	0.007	1.73	20,000,000	0.008	1.71	20,000,000	0.009	1.71
						30,000,000	0.003	1.71	30,000,000	0.003	1.74	30,000,000	0.003	1.70
1960			1961			1962			1963			1964		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
6,500	18.647	2.13	10,000	12.259	1.89	10,000	14.885	1.90	10,000	18.097	1.93	15,000	10.408	1.83
9,750	10.570	1.87	15,000	5.428	1.83	15,000	6.781	1.81	15,000	8.608	1.81	20,000	5.664	1.80
16,250	3.621	1.83	20,000	2.911	1.82	20,000	3.619	1.80	20,000	4.641	1.79	35,000	1.658	1.77
32,000	0.842	1.79	30,000	1.219	1.79	30,000	1.482	1.78	36,000	1.251	1.75	45,000	0.949	1.74
64,000	0.179	1.74	60,000	0.263	1.74	60,000	0.317	1.72	60,000	0.394	1.71	70,000	0.352	1.70
100,000	0.063	1.73	100,000	0.079	1.74	100,000	0.095	1.71	100,000	0.116	1.70	100,000	0.149	1.69

150,000	0.024	1.74	200,000	0.015	1.76	200,000	0.018	1.72	200,000	0.021	1.71	200,000	0.027	1.69
200,000	0.012	1.73	300,000	0.006	1.74	300,000	0.007	1.69	300,000	0.008	1.69	300,000	0.010	1.68
300,000	0.005	1.70	500,000	0.002	1.69	500,000	0.002	1.68	500,000	0.002	1.66	500,000	0.003	1.64
<b>1965</b>			<b>1966</b>			<b>1967</b>			<b>1968</b>			<b>1969</b>		
<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>	<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>	<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>	<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>	<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>
15,000	12.102	1.85	15,000	13.651	1.85	15,000	15.488	1.88	15,000	17.930	1.86	20,000	12.443	1.80
20,000	6.707	1.81	20,000	7.608	1.80	20,000	8.820	1.82	20,000	10.322	1.79	25,000	7.758	1.77
35,000	1.978	1.76	35,000	2.214	1.77	35,000	2.611	1.78	35,000	2.966	1.76	30,000	5.124	1.76
50,000	0.890	1.74	50,000	0.993	1.75	50,000	1.175	1.77	50,000	1.302	1.75	50,000	1.572	1.76
70,000	0.418	1.70	70,000	0.466	1.72	70,000	0.557	1.74	70,000	0.601	1.74	70,000	0.731	1.75
100,000	0.177	1.69	100,000	0.201	1.71	100,000	0.245	1.72	100,000	0.260	1.73	100,000	0.321	1.73
200,000	0.032	1.70	200,000	0.037	1.72	200,000	0.046	1.75	200,000	0.049	1.76	200,000	0.060	1.77
300,000	0.012	1.69	300,000	0.014	1.72	300,000	0.018	1.75	300,000	0.019	1.77	400,000	0.012	1.81
500,000	0.003	1.68	500,000	0.004	1.72	500,000	0.005	1.73	500,000	0.006	1.75			
<b>1970</b>			<b>1971</b>			<b>1972</b>			<b>1973</b>			<b>1974</b>		
<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>	<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>	<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>	<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>	<i>s<sub>i</sub></i>	<i>p<sub>i</sub></i>	<i>b<sub>i</sub></i>
20,000	15.081	1.82	25,000	11.763	1.80	25,000	14.112	1.81	30,000	12.772	1.81	30,000	17.593	1.80
30,000	6.399	1.77	30,000	7.914	1.78	30,000	9.582	1.80	40,000	6.696	1.82	40,000	9.425	1.77

(continued)

TABLE B-1  
(continued)

1970			1971			1972			1973			1974		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
40,000	3.306	1.76	40,000	4.095	1.79	40,000	4.969	1.80	50,000	4.010	1.83	50,000	5.571	1.79
50,000	1.979	1.76	50,000	2.461	1.79	50,000	2.980	1.81	70,000	1.908	1.83	70,000	2.569	1.79
70,000	0.923	1.75	70,000	1.160	1.77	70,000	1.415	1.80	100,000	0.881	1.81	100,000	1.166	1.78
100,000	0.409	1.73	100,000	0.526	1.75	100,000	0.648	1.78	200,000	0.190	1.79	200,000	0.247	1.73
200,000	0.078	1.72	200,000	0.104	1.72	200,000	0.135	1.74	400,000	0.038	1.85	400,000	0.047	1.74
400,000	0.014	1.77	400,000	0.019	1.76	400,000	0.025	1.80						
1975			1976			1977			1978			1979		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
40,000	13.289	1.76	50,000	10.816	1.75	50,000	13.568	1.73	60,000	11.647	1.72	70,000	10.335	1.74
50,000	7.922	1.76	70,000	4.808	1.78	70,000	6.054	1.73	70,000	8.029	1.73	80,000	7.453	1.74
70,000	3.540	1.78	100,000	2.098	1.79	100,000	2.533	1.75	80,000	5.751	1.74	100,000	4.287	1.77
100,000	1.578	1.78	200,000	0.453	1.74	200,000	0.503	1.74	100,000	3.318	1.76	200,000	0.881	1.77
200,000	0.336	1.73	400,000	0.088	1.75	400,000	0.097	1.77	200,000	0.678	1.74	400,000	0.178	1.77
400,000	0.064	1.75							400,000	0.132	1.75			

1980			1981			1982			1983			1984		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
80,000	10.146	1.72	80,000	14.009	1.71	100,000	10.773	1.67	100,000	14.596	1.65	100,000	16.768	1.67
100,000	5.798	1.74	100,000	8.162	1.71	150,000	3.841	1.69	125,000	8.431	1.64	125,000	9.934	1.64
200,000	1.122	1.76	200,000	1.500	1.75	200,000	1.882	1.70	150,000	5.196	1.65	150,000	6.174	1.64
400,000	0.225	1.76	400,000	0.290	1.77	400,000	0.342	1.72	200,000	2.456	1.66	200,000	2.888	1.66
									400,000	0.427	1.67	250,000	1.640	1.66
												500,000	0.282	1.68
1985			1986			1987			1988			1989		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
125,000	11.395	1.65	125,000	12.460	1.68	125,000	12.953	1.70	125,000	13.941	1.72	150,000	10.099	1.73
150,000	7.199	1.65	150,000	8.005	1.67	150,000	8.407	1.70	150,000	9.187	1.71	200,000	4.980	1.76
200,000	3.384	1.67	200,000	3.805	1.69	200,000	4.050	1.72	200,000	4.505	1.73	250,000	2.885	1.78
250,000	1.920	1.68	250,000	2.170	1.70	250,000	2.319	1.74	250,000	2.625	1.74	500,000	0.570	1.84
500,000	0.340	1.69	500,000	0.399	1.72	500,000	0.446	1.78	500,000	0.544	1.72			
1990			1991			1992			1993			1994		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
150,000	11.207	1.74	150,000	12.049	1.72	150,000	12.651	1.70	150,000	12.941	1.69	150,000	13.231	1.70
200,000	5.617	1.75	200,000	6.074	1.71	200,000	6.393	1.69	200,000	6.558	1.67	200,000	6.741	1.67

(continued)

TABLE B-1  
(continued)

1990			1991			1992			1993			1994		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
250,000	3.252	1.77	250,000	3.484	1.73	250,000	3.627	1.70	250,000	3.704	1.68	250,000	3.796	1.68
500,000	0.626	1.84	500,000	0.640	1.80	500,000	0.639	1.77	500,000	0.631	1.76	500,000	0.641	1.78
1995			1996			1997			1998					
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
150,000	13.696	1.70	150,000	13.988	1.70	150,000	14.388	1.71	150,000	15.121	1.72			
200,000	7.042	1.67	200,000	7.268	1.66	200,000	7.554	1.66	200,000	8.057	1.66			
250,000	3.970	1.68	250,000	4.116	1.66	250,000	4.284	1.67	250,000	4.591	1.67			
500,000	0.668	1.76	500,000	0.673	1.76	500,000	0.701	1.78	500,000	0.752	1.77			

*Sources:* Results of calculations made directly from the raw data reproduced in Table A-1 and column (10) of Table H-1 for the total number of tax units (taxable and nontaxable).

*Explanation:*  $s_i$  represents the thresholds of the taxable income brackets used by the tax administration;  $p_i$  represents the number of tax units that declared an income above  $s_i$ , expressed as a percentage of the total number of tax units (taxable and nontaxable);  $b_i$  represents the ratio between the average income of tax units who declared an income above  $s_i$  and income  $s_i$ . For example, in the 1970 tax year, 3,024 tax units declared an income above 400,000 francs, and these tax units declared a total income of 2.143 billion francs (see Table A-1); the total number of tax units in 1970 was 21.033 million (see Table H-1, column [10]); the result is that 0.014 percent of tax units declared in income above 400,000 francs ( $p_i = 3,024 / 21,033,070 = 0.014$  percent), and these tax units declared an income (on average) equal to 1.77 times 400,000 francs ( $b_i = (2,143,339,000 / 3,024) / 400,000 = 1.77$ ).

countries and in all eras, the  $b_i$  coefficients always vary slightly with the income threshold  $s_i$ . In other words, Pareto's hypothesis is valid only locally, and to obtain the best possible estimates of the levels of the different fractiles of the distribution, it is necessary to use coefficients obtained based on income thresholds that are as close as possible to the fractile one is trying to estimate. An estimation technique frequently employed by scholars analyzing the tables by income bracket compiled by the American tax administration, and notably by Kuznets (1953) for the 1913–1948 tax years and by Feenberg and Poterba (1993) for the 1950–1989 tax years, is to use only the information contained in the successive pairs  $(s_i, p_i)$ , rather than the information contained in the  $b_i$  coefficients. For example, to estimate the share of income going to the fractile containing the 0.5 percent of tax units with the highest incomes (P99.5–100), Feenberg and Poterba start by estimating the coefficients  $(a, k)$  based on the  $(s_i, p_i)$  and  $(s_{i+1}, p_{i+1})$  corresponding to the taxable income bracket  $[s_i, s_{i+1}]$  surrounding the P99.5 threshold, that is, based on the successive pairs  $(s_i, p_i)$  and  $(s_{i+1}, p_{i+1})$  such that  $(p_{i+1} < 0.5 \text{ percent} < p_i)$ , using the formula  $a = \log(p_i / p_{i+1}) / \log(s_{i+1} / s_i)$  and  $k = s_i p_i^{1/a}$ . Then they use these coefficients  $(a, k)$  to estimate the P99.5 lower threshold and the average P99.5–100 income level of the top half-percent:  $P99.5 = k / (0.005^{1/a})$  and  $P99.5 - 100 = (a / a - 1)P99.5$  (see Feenberg and Poterba (1993, 172). The techniques used by Pareto (1896) and by Kuznets (1953), of linear approximations between successive pairs  $(\log(s_i), \log(p_i))$  and  $(\log(s_{i+1}), \log(p_{i+1}))$ , are strictly identical.<sup>5</sup>

### 1.1.3. The Approximation Technique Used

For this book, we have used a slightly different approximation technique, which consists of directly exploiting the information contained in the  $b_i$  coefficients. We have proceeded in the following way. For each year and for each bracket  $[s_i; s_{i+1}]$ , the coefficients  $b_i$  calculated in Table B-1 allow us to calculate the coefficients  $a_i = b_i / (b_i - 1)$  and  $k_i = s_i p_i^{(1/a_i)}$ . Each pair  $(a_i, k_i)$  then makes it possible to estimate the entire top-income distribution using the formula  $1 - F(y) = (k/y)^a$ . To estimate the threshold or the level corresponding to a given fractile, we have always used the coefficients  $(a_i, k_i)$  corresponding to the threshold  $s_i$  that is closest (in fractiles) to the threshold we are trying to estimate. For example, to estimate the lower threshold of the top 1 percent (P99) or the average income level of the top 1 percent (P99–100), we have always used the coefficients  $(a_i, k_i)$  corresponding to the threshold  $s_i$  such that  $p_i$  is the closest possible to 1 percent.

To estimate the lower threshold of the top tenth of a percent (P99.9) or the average income level of the top tenth of a percent (P99.9-100), we have always used the coefficients  $(a_p, k_i)$  corresponding to the  $s_i$  threshold such that  $p_i$  is the closest possible to 0.1 percent, and so forth.

To illustrate how our approximation technique works (before any adjustments), let us take the example of the 1970 tax year. The raw data published by the tax administration are reproduced in Table A-1. These raw data make it possible, for example, to calculate that 6.399 percent of tax units declared an income above 30,000 francs, and that 3.306 percent declared an income above 40,000 francs (see Table B-1). The average income declared by taxpayers with incomes above 30,000 francs was 1.77 times greater than 30,000 francs, and the average income declared by taxpayers with an income above 40,000 francs was 1.76 times greater than 40,000 francs (see Table B-1). For  $s_i = 30,000$ , we thus have  $p_i = 6.399$  percent and  $b_i = 1.77$ , hence  $a_i = 1.77 / (1.77 - 1) = 2.30$  and  $k_i = 30,000 \times (0.06399)^{(1.77-1)/1.77} = 9,082$ .<sup>6</sup> For  $s_i = 40,000$ , we have  $p_i = 3.306$  percent and  $b_i = 1.76$ , hence  $a_i = 1.76 / (1.76 - 1) = 2.32$  and  $k_i = 40,000 \times (0.0331)^{(1.76-1)/1.76} = 9,126$ .<sup>7</sup> Since  $p_i = 6.399$  percent is the  $p_i$  closest to 5 percent, we use the coefficients  $(a_p, k_i)$  corresponding to the threshold  $s_i = 30,000$  to estimate the top half-decile's lower threshold P95 and its average income level P95-100. We thus have  $P95 = 9,082 / (0.05)^{(1.77-1)/1.77} = 33,395$ , and  $P95 - 100 = 1.77 \times P95 = 59,071$ .<sup>8</sup> It is these estimates of 33,395 francs for P95 and 59,071 francs for P95-100 that we have adopted for the 1970 tax year in the tables of results given below (see Tables B-2 and B-4). Note, however, that, since the distribution of income is very well approximated by a Pareto law whose coefficients change only very slowly, the results obtained would not be much different if we had chosen to use the coefficients  $(a_p, k_i)$  corresponding to a threshold  $s_i$  close to  $s_i = 30,000$  francs. For example, if we had used the coefficients  $(a_p, k_i)$  corresponding to the threshold  $s_i = 40,000$  francs, we would have obtained  $P95 = 9,126 / (0.05)^{(1.76-1)/1.76} = 33,432$ ,<sup>9</sup> instead of 33,395 francs, a difference of around 0.1 percent. If we had used the coefficients  $(a_p, k_i)$  corresponding to the threshold  $s_i = 50,000$ , we would have obtained  $P95 = 33,488$  francs, and so on.

The same goes if we try to estimate higher-income fractiles. For example, Table B-1 shows that 0.078 percent of tax units declared a 1970 income above 200,000 francs, and that 0.014 percent of tax units declared an income above 400,000 francs. Since  $p_i = 0.014$  percent is the closest  $p_i$  to 0.01 percent, we use the coefficients  $(a_p, k_i)$  corresponding to the threshold



$s_i = 400,000$  to estimate the lower threshold  $P_{99.99}$  and the average income level  $P_{99.99-100}$  for the highest 0.01 percent of tax units. We obtain  $P_{99.99} = 468,546$  francs and  $P_{99.99-100} = 858,393$  francs, and these are the estimates we have reproduced in Tables B-2 and B-4. But if we had used the coefficients  $(a_p, k_i)$  corresponding to the threshold  $s_i = 200,000$ , a threshold relatively far from fractile  $P_{99.99-100}$ , we would have obtained  $P_{99.99} = 472,910$  francs instead of 468,546 francs, a difference of around 0.1 percent. Generally speaking, estimates obtained using the  $(a_p, k_i)$  coefficients corresponding to various thresholds are always extremely close to one another, as long as the  $s_i$  threshold used is not “too” far from the fractile one is trying to estimate.

The approximation technique we apply is the same for all tax years since 1915. For example, for the 1930 tax year, the distribution table published by the tax administration and reproduced in Table A-1 shows that 0.107 percent declared an income above 200,000 francs, and 0.052 percent an income above 300,000 francs (see Table A-2). Since  $p_i = 0.017$  percent is the  $p_i$  closest to 0.1 percent, we use the coefficients  $(a_p, k_i)$  corresponding to the threshold  $s_i = 200,000$  to estimate the lower threshold  $P_{99.9}$  and the average income level  $P_{99.9-100}$  for the top 0.1 percent of tax units. We obtain  $P_{99.9} = 207,477$  francs and  $P_{99.9-100} = 433,661$  francs, and these are the estimates we have reproduced in Tables B-2 and B-4. But if we had used the coefficients  $(a_p, k_i)$  corresponding to the threshold  $s_i = 300,000$ , we would have obtained  $P_{99.9-100} = 429,848$  francs, instead of 433,661 francs, again a gap of around 0.1 percent; and so forth.

Unless we have erred in our calculations, all of the results reproduced in Tables B-2, B-3, and B-4 below can be precisely recalculated by an interested reader by applying the formula given above to the raw data compiled by the tax administration and reproduced in Table A-1, and by taking into account the adjustments described in sections 1.2 and 1.3.

## 1.2. The Reliability of Approximation Techniques by a Pareto Law

To judge the reliability of their approximation technique, Pareto (1896) and Kuznets (1953), like all scholars until relatively recently, simply showed graphically that the curve traced out by the various  $(\log(s_i), \log(p_i))$  pairs was very close to a straight line (at least locally), which allowed them to conclude that approximation errors arising from this technique should be extremely small. Progress in information technology allowed Feenberg and Poterba (1993) to go

## APPENDIX B

TABLE B-2

*Estimate of the taxable income distribution (levels P90-100 to P99.99-100)  
(1915-1998 tax years)*

	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1915			28,726	45,626	126,183	490,672
1916			35,965	57,647	165,690	677,098
1917			42,291	67,181	184,525	704,388
1918			44,836	70,290	181,647	658,657
1919	14,230	22,609	62,628	97,480	256,930	851,248
1920	17,445	27,272	74,246	113,964	288,398	994,666
1921	17,458	26,732	69,735	104,962	259,033	824,257
1922	19,116	29,451	76,969	116,328	287,506	905,485
1923	22,140	34,202	90,106	136,676	333,469	1,047,987
1924	24,145	36,134	93,863	140,314	324,199	955,149
1925	27,060	40,309	100,575	149,339	346,813	1,045,858
1926	30,557	46,085	119,796	179,577	430,681	1,378,661
1927	31,733	47,165	120,558	181,668	447,370	1,458,304
1928	33,863	50,176	128,388	192,752	472,774	1,542,127
1929	35,362	51,525	126,884	189,711	453,233	1,472,839
1930	36,056	51,883	124,152	182,880	433,661	1,336,715
1931	33,400	47,159	108,913	158,145	365,250	1,115,790
1932	31,878	44,728	100,356	143,712	325,103	956,569
1933	31,654	44,276	97,889	139,438	315,111	956,256
1934	30,047	41,898	92,587	131,846	296,974	875,454
1935	29,455	41,226	91,571	130,538	296,445	931,161
1936	31,232	44,113	98,238	140,457	321,108	1,012,977
1937	36,279	50,189	113,610	163,098	373,386	1,211,920
1938	39,383	53,936	120,165	169,949	371,705	1,146,188
1939	37,295	51,798	117,466	170,333	395,729	1,264,180
1940	34,386	47,659	104,250	147,082	321,077	906,372
1941	44,585	62,141	139,114	196,176	417,792	1,155,069
1942	53,027	73,681	157,297	215,156	424,404	1,065,375
1943	60,195	82,426	167,441	224,326	425,487	1,071,946
1944	67,754	90,406	168,745	219,703	393,033	886,715
1945	128,928	168,637	314,522	415,112	797,439	2,060,768
1946	225,153	305,833	628,254	865,385	1,807,234	5,050,370
1947	290,875	400,625	778,415	1,052,496	2,124,371	5,423,719
1948	487,862	645,914	1,306,609	1,788,580	3,664,706	9,594,173

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	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1949	610,042	818,963	1,679,244	2,324,922	4,897,224	13,237,224
1950	700,778	942,973	1,929,951	2,664,548	5,604,287	15,342,621
1951	900,841	1,201,557	2,418,761	3,311,297	6,870,475	18,345,480
1952	1,059,776	1,420,550	2,869,664	3,911,139	7,920,396	20,423,684
1953	1,030,547	1,388,685	2,845,000	3,888,284	7,898,848	20,849,813
1954	1,057,176	1,431,686	2,962,890	4,045,944	8,187,474	21,897,501
1955	1,169,253	1,585,355	3,262,965	4,443,415	8,958,992	24,071,236
1956	1,280,012	1,734,845	3,594,002	4,859,023	9,717,064	26,260,721
1957	1,440,506	1,953,889	4,002,052	5,407,144	10,772,129	29,085,219
1958	1,605,565	2,162,272	4,371,292	5,887,472	11,727,085	30,640,684
1959	1,709,188	2,323,242	4,703,910	6,338,438	12,499,199	32,957,824
1960	18,774	25,673	52,986	72,012	142,712	378,715
1961	20,832	28,553	58,717	79,470	157,232	423,000
1962	22,866	31,200	63,483	85,443	167,404	436,300
1963	25,397	34,556	69,399	92,905	180,275	465,505
1964	27,942	38,102	76,757	102,804	198,338	506,438
1965	30,204	41,175	82,589	110,409	213,186	547,722
1966	31,892	43,405	87,053	116,680	226,563	594,569
1967	34,400	46,923	94,859	127,606	250,393	673,074
1968	36,333	49,074	97,961	131,533	259,559	706,231
1969	39,584	53,430	106,933	143,766	283,588	783,067
1970	43,705	59,071	118,149	158,598	310,129	858,393
1971	48,324	65,416	132,439	178,457	351,131	943,000
1972	52,873	71,830	147,078	199,217	396,108	1,093,010
1973	60,749	82,784	171,570	233,791	473,570	1,374,870
1974	69,150	93,639	190,365	257,069	507,181	1,363,308
1975	79,586	107,363	217,864	293,007	579,141	1,571,604
1976	90,735	122,388	248,971	334,716	666,442	1,811,529
1977	98,123	131,056	260,691	350,685	703,111	1,945,938
1978	110,230	147,595	295,731	397,644	793,211	2,161,791
1979	123,257	165,705	335,591	453,250	916,312	2,539,071
1980	138,196	184,994	371,246	500,106	1,006,403	2,774,297
1981	156,932	209,125	416,692	559,804	1,130,923	3,138,880
1982	172,437	228,008	440,230	589,100	1,161,670	3,120,050

(continued)

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TABLE B-2  
(continued)

	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1983	191,503	251,067	475,510	628,461	1,204,340	3,110,863
1984	204,093	267,398	507,911	669,491	1,294,040	3,387,996
1985	217,484	285,665	544,871	723,268	1,400,686	3,682,221
1986	229,142	302,733	586,731	784,572	1,545,871	4,169,474
1987	237,162	315,646	626,493	850,078	1,733,136	4,910,847
1988	248,058	330,302	662,338	904,911	1,870,628	5,468,545
1989	261,287	351,141	715,580	984,509	2,074,164	6,176,822
1990	273,691	367,610	746,386	1,026,472	2,161,434	6,447,561
1991	279,006	372,303	741,876	1,011,918	2,091,439	6,093,417
1992	281,553	373,109	732,162	992,284	2,021,421	5,786,265
1993	282,659	373,266	726,306	983,087	1,997,594	5,711,961
1994	285,691	377,130	736,259	1,000,094	2,049,783	5,946,359
1995	290,074	382,949	745,552	1,009,968	2,057,880	5,935,820
1996	292,918	386,090	746,342	1,009,743	2,052,176	5,912,828
1997	298,439	393,939	767,462	1,042,822	2,141,704	6,275,446
1998	306,017	403,841	786,183	1,065,741	2,177,734	6,351,833

*Explanation:* In 1998, the average taxable income of fractile P90-100 was 306,017 francs, the average taxable income of fractiles P95-100 was 403,841 francs, etc. All incomes appearing in this table are expressed in current francs (old francs for the 1915-1959 tax years and new francs for the 1960-1998 tax years).

further: Feenberg and Poterba had representative samples of all income tax returns filed under the U.S. federal income tax since the 1979 tax year in an electronic format, which allowed them to rigorously test the reliability of approximation by a Pareto law in a period of extremely rapid change in the structure of the American income distribution, characterized by a large increase in the Pareto coefficient (that is, coefficient  $b$ ). Despite these very rapid changes, their estimates remained precise, in terms both of levels and of changes: their estimate of the share of taxable income going to fractile P99.5-100, obtained using their technique of approximation by a Pareto law, rose from 6.04 percent in 1979 to 12.02 percent in 1988, while the estimate obtained from the electronic tax return sample rose from 6.06 percent in 1979 to 12.05 percent in 1988 (see Feenberg and Poterba 1993, table A-2, 175). Errors on levels were thus about

## APPENDIX B

TABLE B-3

*Estimate of the taxable income distribution (levels P90-95 to P99.99-100)  
(1915-1998 tax years)*

	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1915			11,825	25,487	85,684	490,672
1916			14,283	30,636	108,867	677,098
1917			17,400	37,845	126,763	704,388
1918			19,381	42,451	128,646	658,657
1919	5,851	12,604	27,775	57,618	190,895	851,248
1920	7,617	15,529	34,529	70,355	209,924	994,666
1921	8,184	15,981	34,508	66,444	196,230	824,257
1922	8,781	17,571	37,609	73,534	218,841	905,485
1923	10,077	20,226	43,536	87,477	254,078	1,047,987
1924	12,156	21,702	47,411	94,343	254,094	955,149
1925	13,811	25,243	51,812	99,970	269,141	1,045,858
1926	15,030	27,657	60,015	116,801	325,350	1,378,661
1927	16,300	28,817	59,448	115,243	335,044	1,458,304
1928	17,550	30,623	64,023	122,747	353,957	1,542,127
1929	19,199	32,685	64,058	123,830	339,943	1,472,839
1930	20,229	33,816	65,423	120,185	333,321	1,336,715
1931	19,641	31,721	59,682	106,369	281,857	1,115,790
1932	19,029	30,821	57,000	98,364	254,940	956,569
1933	19,033	30,872	56,341	95,519	243,873	956,256
1934	18,196	29,226	53,329	90,564	232,699	875,454
1935	17,685	28,640	52,605	89,061	225,921	931,161
1936	18,352	30,582	56,018	95,295	244,234	1,012,977
1937	22,369	34,334	64,121	110,526	280,216	1,211,920
1938	24,831	37,379	70,381	119,510	285,652	1,146,188
1939	22,793	35,381	64,599	113,983	299,235	1,264,180
1940	21,114	33,511	61,417	103,583	256,044	906,372
1941	27,029	42,897	82,051	140,773	335,872	1,155,069
1942	32,373	52,777	99,437	162,844	353,185	1,065,375
1943	37,964	61,173	110,555	174,036	353,658	1,071,946
1944	45,102	70,822	117,786	176,371	338,179	886,715
1945	89,220	132,165	213,931	319,531	657,069	2,060,768
1946	144,473	225,228	391,123	629,923	1,446,885	5,050,370
1947	181,126	306,177	504,335	784,527	1,757,777	5,423,719

(continued)

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TABLE B-3  
(continued)

	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1948	329,811	480,740	824,638	1,319,548	3,005,876	9,594,173
1949	401,121	603,893	1,033,567	1,681,846	3,970,558	13,237,224
1950	458,583	696,229	1,195,354	1,929,613	4,522,250	15,342,621
1951	600,126	897,256	1,526,224	2,421,503	5,595,475	18,345,480
1952	699,003	1,058,272	1,828,189	2,908,825	6,531,141	20,423,684
1953	672,408	1,024,607	1,801,717	2,885,643	6,459,852	20,849,813
1954	682,666	1,048,885	1,879,837	3,010,561	6,664,138	21,897,501
1955	753,151	1,165,953	2,082,514	3,314,521	7,279,854	24,071,236
1956	825,179	1,270,056	2,328,980	3,644,513	7,878,880	26,260,721
1957	927,123	1,441,848	2,596,960	4,065,898	8,737,341	29,085,219
1958	1,048,859	1,610,017	2,855,113	4,427,568	9,625,574	30,640,684
1959	1,095,135	1,728,075	3,069,382	4,798,248	10,226,019	32,957,824
1960	11,874	18,845	33,961	54,337	116,489	378,715
1961	13,110	21,012	37,964	60,030	127,703	423,000
1962	14,532	23,129	41,523	64,953	137,526	436,300
1963	16,238	25,845	45,893	71,063	148,583	465,505
1964	17,782	28,438	50,711	78,921	164,104	506,438
1965	19,233	30,822	54,769	84,714	176,015	547,722
1966	20,379	32,493	57,425	89,210	185,673	594,569
1967	21,877	34,939	62,112	96,910	203,429	673,074
1968	23,591	36,853	64,388	99,527	209,928	706,231
1969	25,739	40,054	70,100	108,811	228,091	783,067
1970	28,339	44,301	77,700	120,716	249,210	858,393
1971	31,231	48,660	86,421	135,289	285,368	943,000
1972	33,916	53,018	94,938	149,994	318,674	1,093,010
1973	38,713	60,588	109,350	173,846	373,425	1,374,870
1974	44,660	69,458	123,661	194,540	412,056	1,363,308
1975	51,809	79,738	142,722	221,473	468,868	1,571,604
1976	59,083	90,742	163,227	251,784	539,210	1,811,529
1977	65,190	98,647	170,698	262,578	565,019	1,945,938
1978	72,865	110,561	193,818	298,752	641,146	2,161,791
1979	80,809	123,233	217,933	337,484	736,005	2,539,071
1980	91,398	138,431	242,387	373,532	809,970	2,774,297
1981	104,739	157,233	273,579	417,025	907,817	3,138,880
1982	116,865	174,952	291,361	445,957	944,072	3,120,050

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	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1983	131,940	194,956	322,560	484,491	992,504	3,110,863
1984	140,789	207,269	346,331	513,353	1,061,379	3,387,996
1985	149,303	220,864	366,475	553,913	1,147,182	3,682,221
1986	155,551	231,734	388,890	594,247	1,254,359	4,169,474
1987	158,678	237,934	402,907	629,313	1,380,057	4,910,847
1988	165,814	247,293	419,764	663,482	1,470,860	5,468,545
1989	171,433	260,031	446,651	712,096	1,618,313	6,176,822
1990	179,771	272,916	466,301	742,731	1,685,198	6,447,561
1991	185,710	279,910	471,833	742,038	1,646,775	6,093,417
1992	189,996	283,346	472,040	735,000	1,603,105	5,786,265
1993	192,052	285,006	469,524	729,460	1,584,887	5,711,961
1994	194,253	287,348	472,425	737,671	1,616,830	5,946,359
1995	197,199	292,299	481,136	747,990	1,626,998	5,935,820
1996	199,745	296,028	482,941	749,134	1,623,215	5,912,828
1997	202,938	300,559	492,102	768,101	1,682,400	6,275,446
1998	208,193	308,255	506,625	787,743	1,713,945	6,351,833

*Explanation:* In 1998, the average taxable income of fractile P90-95 was 208,193 francs, the average taxable income of fractile P95-99 was 308,255 francs, etc. All incomes appearing in this table are expressed in current francs (old francs for the 1915-1959 tax years and new francs for the 1960-1998 tax years).

0.02-0.03 percentage points, less than 0.5 percent of the shares estimated from the sample, and the errors on rates of change were even smaller.

For a study carried out for the Finance Ministry's Direction de la Prévision, we had the opportunity to use the income tax return samples produced and used by the DGI, which showed that the technique of approximation by a Pareto law is just as reliable with French data as with American data, even for very high incomes, and that the approximation technique we ultimately chose to use (in which the information contained in the  $b_i$  coefficients is exploited directly) gives even more precise estimates of top income levels than those obtained from the approximation technique used by Feenberg and Poterba.<sup>10</sup> The DGI samples have existed only in an exploitable electronic format since the 1988 tax year (we only used samples of 1988-1995 incomes), but they have the enormous advantage of including all tax returns above a certain income level, which makes

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TABLE B-4

*Estimate of the taxable income distribution (thresholds P90 to P99.99)  
(1915–1998 tax years)*

	P90	P95	P99	P99.5	P99.9	P99.99
1915			9,345	16,524	49,593	202,203
1916			11,368	18,579	60,213	271,741
1917			13,143	22,407	67,945	305,088
1918			14,607	24,484	69,195	290,733
1919	4,725	7,508	21,954	38,791	110,728	400,183
1920	6,199	9,691	27,854	44,455	125,101	433,307
1921	6,727	10,301	27,660	43,726	117,310	413,338
1922	7,197	11,088	30,495	48,000	140,261	458,406
1923	8,248	12,742	34,854	54,782	163,425	526,132
1924	9,395	14,667	40,863	66,330	169,286	490,151
1925	10,995	16,645	43,854	69,879	176,161	542,544
1926	12,444	18,767	49,037	80,122	206,793	686,245
1927	13,590	20,199	48,956	77,721	204,996	709,993
1928	14,653	21,711	51,861	82,505	218,104	756,418
1929	16,158	23,543	54,015	83,441	215,492	721,208
1930	17,126	24,644	54,482	82,506	207,477	678,541
1931	16,355	23,339	50,327	76,267	184,238	570,734
1932	15,823	22,796	48,351	68,846	170,252	510,161
1933	15,798	22,937	48,007	67,851	162,331	492,862
1934	15,207	21,833	45,359	64,276	155,625	465,670
1935	14,811	21,182	44,646	63,527	149,955	462,404
1936	15,674	22,138	47,016	67,257	157,284	485,053
1937	18,411	25,026	53,818	77,496	181,660	550,212
1938	20,343	28,048	58,568	83,418	189,812	553,455
1939	18,713	26,177	54,449	78,549	189,499	614,108
1940	17,417	24,523	51,867	73,433	166,723	504,054
1941	21,975	31,317	69,109	100,296	225,764	649,647
1942	26,843	38,131	84,633	120,679	253,022	636,888
1943	32,818	44,885	94,587	130,998	260,012	625,431
1944	38,371	52,522	103,358	136,323	255,852	565,353
1945	77,598	103,346	188,606	248,926	469,450	1,182,156
1946	125,671	170,704	342,615	466,381	988,246	2,793,397
1947	177,582	237,950	439,682	590,601	1,234,784	3,263,132
1948	284,227	365,521	714,732	978,376	2,070,898	5,601,882



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	P90	P95	P99	P99.5	P99.9	P99.99
1949	340,747	462,177	906,922	1,231,919	2,703,978	7,618,646
1950	400,663	539,136	1,031,893	1,424,663	3,031,000	8,682,135
1951	526,488	702,238	1,322,751	1,810,854	3,875,291	10,559,637
1952	608,794	808,743	1,594,424	2,190,072	4,590,315	12,248,751
1953	584,176	776,568	1,563,373	2,174,085	4,508,492	12,246,365
1954	592,328	789,370	1,619,985	2,266,627	4,652,540	12,638,124
1955	649,896	879,679	1,794,000	2,497,194	5,094,456	13,792,327
1956	704,487	964,216	2,030,341	2,744,983	5,553,212	14,859,441
1957	807,010	1,094,621	2,264,653	3,059,757	6,170,159	16,825,694
1958	910,060	1,216,481	2,493,436	3,358,282	6,673,412	17,870,895
1959	939,326	1,296,899	2,679,973	3,611,218	7,215,767	19,269,566
1960	10,195	14,039	29,670	41,378	82,308	219,524
1961	11,119	15,573	32,751	45,693	90,310	243,131
1962	12,604	17,322	35,645	49,539	98,032	258,058
1963	14,031	19,356	39,624	54,329	106,354	276,183
1964	15,281	21,142	43,996	60,566	117,575	301,686
1965	16,372	22,802	47,599	65,001	126,255	324,647
1966	17,711	24,104	49,851	67,948	131,387	345,973
1967	18,899	26,308	53,634	73,285	143,421	388,046
1968	20,282	27,955	55,984	75,673	147,430	403,637
1969	22,390	30,319	61,216	82,943	160,247	432,521
1970	24,708	33,395	67,637	91,884	180,110	468,546
1971	26,869	36,636	74,690	102,161	203,641	534,458
1972	29,438	39,889	82,700	111,995	227,124	608,676
1973	33,482	45,242	94,489	130,540	254,964	741,994
1974	38,981	52,435	106,941	148,388	290,304	782,653
1975	45,218	60,143	122,169	169,103	329,353	897,094
1976	51,714	68,813	142,710	191,747	378,813	1,034,303
1977	56,844	75,869	149,207	200,576	394,434	1,097,431
1978	63,962	84,895	169,459	227,679	450,665	1,235,549
1979	70,984	93,526	189,298	255,453	514,351	1,434,949
1980	80,485	106,476	210,236	283,343	567,648	1,576,550
1981	91,940	122,481	237,885	315,874	634,993	1,777,049
1982	103,040	134,672	255,357	341,322	669,523	1,813,942

(continued)

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TABLE B-4  
(continued)

	P90	P95	P99	P99.5	P99.9	P99.99
1983	116,975	152,279	284,346	375,366	715,319	1,864,486
1984	124,677	162,869	304,528	396,369	761,507	2,013,475
1985	131,608	173,131	322,436	427,416	822,383	2,184,915
1986	137,203	178,891	340,949	455,229	890,688	2,430,228
1987	139,690	183,093	350,926	475,365	961,800	2,760,536
1988	142,733	192,530	364,626	493,932	1,009,568	2,996,756
1989	150,625	199,654	386,580	530,763	1,108,003	3,352,152
1990	157,427	210,188	403,703	553,934	1,154,731	3,504,775
1991	162,153	216,876	410,094	558,022	1,140,909	3,385,696
1992	165,270	219,057	411,534	556,323	1,120,257	3,269,749
1993	166,697	221,362	409,619	552,927	1,109,647	3,239,800
1994	168,251	223,547	411,513	557,325	1,127,108	3,344,338
1995	173,848	227,778	419,665	566,731	1,138,489	3,363,084
1996	176,173	231,322	421,527	568,416	1,138,012	3,362,498
1997	178,878	235,141	428,703	580,460	1,173,207	3,531,710
1998	183,467	241,616	441,876	596,788	1,199,164	3,597,817

*Explanation:* In 1998, the taxable income threshold P90 that had to be exceeded to belong to fractile P90–100 was 183,467 francs, the taxable income threshold P95 that had to be exceeded to belong to fractile P95–100 was 241,616 francs, etc. All incomes appearing in this table are expressed in current francs (old francs for the 1915–1959 tax years and new francs for the 1960–1998 tax years).

it possible to carry out estimates of high incomes and very high incomes declared under the income tax that are (by definition) perfectly reliable, and then to systematically compare these estimates with the results obtained by approximation using a Pareto law (see Piketty 1998, appendix D, 125–136).<sup>11</sup>

The conclusion from these comparisons is that discrepancies between the top-income level estimates derived from electronic files and those obtained by approximation using a Pareto law, expressed as a percentage of the estimates derived from electronic files, are generally about 0.1–0.2 percent, and in no case above 0.5 percent (except for the very high incomes of fractile P99.99–100; see below), and that discrepancies in terms of rates of change are even smaller.<sup>12</sup> The only adjustment that has to be made to the results obtained by approximation with a Pareto law is for the incomes of the 0.01 percent of tax units with the highest incomes (threshold P99.99 and level P99.99–100) for the 1980s–

1990s. In the 1970 tax year, the highest income bracket used by the tax administration contained only 0.014 percent of tax units, and the information provided by this top bracket was amply sufficient to reliably estimate the P99.99 threshold and the P99.99–100 level. However, as the 1970s and 1980s go on, the failure to increase the top bracket means that it includes a larger and larger percentage of tax units, up to 0.7 percent in the 1990s (see Table B-1), so that the quality of the P99.99 and P99.99–100 estimates gradually deteriorates over time. Based on comparisons between the estimates obtained by approximation with a Pareto law and estimates from the electronic files, we can estimate that the estimate obtained by approximation with a Pareto law underestimates the P99.99 threshold and the P99.99–100 level by about 5 percent in the late 1980s and about 10 percent in the late 1990s.<sup>13</sup> The P99.99 and P99.99–100 estimates given in Tables B-2 to B-4 are thus equal to the estimates obtained by approximation with a Pareto law, adjusted upward using a markup rate that rises linearly from 0 percent in 1970 to 5 percent in 1988, then from 5 percent in 1988 to 10 percent in 1997–1998. Such an adjustment procedure is not meant to provide estimates that are valid to a tenth of a percent, but comparing it with the estimates derived from electronic files that include all tax returns above the P99.99 threshold, and which therefore do not suffer from any sampling error, shows that the errors cannot exceed 1–2 percent, which is amply sufficient. This is the only adjustment of this kind that we have carried out.<sup>14</sup>

As for the period before 1970, we do not have electronic samples of tax returns that would make it possible to test the reliability of the technique of approximation by a Pareto law with the same precision. But the general form of the Pareto coefficients obtained (see Table B-1), which is very similar to that observed in other countries, strongly suggests that the distribution of top incomes, both in France and in other countries, has always been very well approximated by a Pareto law, even during periods when the Pareto coefficient was changing rapidly (see the studies by Feenberg and Poterba [1993] using American data cited above). Moreover, the fact that from the early 1920s, to the late 1960s the tax administration always used a large number of very high-income brackets makes the estimates extremely reliable: throughout this period, we always have at least five or six income brackets located within the top 1 percent, which generally makes it possible to pin down the endpoints of all of the fractiles we are attempting to estimate very closely, up to the P99.99 level (see Table B-1). In particular, we have observed that different estimates of a

given fractile obtained using the coefficients  $(a_p, k_i)$  corresponding to different successive thresholds  $s_i$  are always extremely close to one another, with discrepancies generally below 0.1–0.2 percent, and this is the case for the entire period studied (see section 1.1 for the example of the 1930 and 1970 tax years.) To more precisely test the permanence of the Paretian form of the French income distribution, we have also exploited the fact that the tax administration used a very large number of income brackets in tabulating the tax returns from the years 1942–1944 (more than twenty, versus the usual ten or so; see Table B-1). Via approximation by a Pareto law, and using only the information given by one in two brackets, we have estimated for the new brackets what the numbers of taxpayers and the corresponding income amounts should have been, and obtained average discrepancies for these new brackets, vis-à-vis the figures actually published by the tax administration, of about 0.1–0.2 percent, and in no case greater than 0.5 percent—that is, discrepancies similar to those obtained for the 1980s–1990s.

We may thus view the errors induced by the technique of approximation by a Pareto law as being generally below 0.5 percent for the entire 1915–1998 period, with maximum errors of about 1–2 percent for estimates of P99.99 and P99.99–100 in the 1980s–1990s. Clearly, such a level of precision is amply sufficient. In particular, these margins of error associated with the technique of approximation by a Pareto law for a given year are extremely small compared to actual fluctuations in top incomes from one year to another. *A fortiori*, it goes without saying that such margins of error are totally negligible if what we are interested in is the long-term evolution of income inequality.

### 1.3. Adjustments for Truncated Distributions, 1915–1965 Tax Years

While the reliability of the technique of approximation by a Pareto law leaves no room for doubt, adjustments arising from the very nature of the available raw data do have to be made. First, we must take into account the fact that only taxable taxpayers are included in the universe of the tables compiled by the tax administration, so not all taxpayers in the top decile of the income distribution are always counted in these tables. This problem obviously arises for the 1915–1924, 1935–1936, and 1947 tax years, when the number of taxable tax units was less than 10 percent of the total number of tax units (see Appendix A, Table A-2, column [3]). But it also arises for all the years in which the percentage of

taxable tax units was slightly above 10 percent—that is, for all the years of the interwar era and the immediate postwar era, until the share of taxable tax units definitively exceeded 20–30 percent in the 1950s–1960s. Indeed, the income thresholds below which the income distributions described by the tax administration’s distribution tables are “truncated” are not the same for all taxpayers: they depend on the threshold of taxability and thus the family characteristics of each category of taxpayers, so there is always a certain number of heads of large families whose incomes are above the P90 threshold but who are not taxable and are thus absent from the distribution tables, and this is the case even when the overall percentage of taxable tax units is slightly above 10 percent. To correct for this bias, we must thus estimate for each year the number and the incomes of taxpayers who were in this way excluded from the top decile as described by the distribution tables, but who must be taken into account in order to correctly estimate the income levels of the entire top decile of the distribution. Without this adjustment, we would be underestimating the P90 threshold of the top decile (since we would be forgetting some number of taxpayers whose incomes are above P90, but who are not counted in the distribution tables because of their family situation and dependents). However, this problem of adjusting for a truncated distribution, when it arises (that is, for the interwar era and the immediate postwar years), concerns incomes only in the neighborhoods of the P90 and P95 thresholds, not the very high incomes of the top 1 percent of the distribution (nor, *a fortiori*, the top fractiles): at those income levels, all tax units are taxable (except for a few very large families), and accounting for the few nontaxable tax units has negligible consequences for our income-level estimates (see below). The method used for undertaking these adjustments obviously depends on the available information about the family structure of the different income brackets, and we will distinguish between the 1945–1965 period (section 1.3.1), the 1919–1944 period (section 1.3.2), and the 1915–1918 period (section 1.3.3). The results obtained are reproduced in Tables B-2, B-3, and B-4.

### 1.3.1. The 1945–1965 Period

Since the 1945 tax year, we have very rich information allowing us to account for this “truncated distribution” phenomenon. For each bracket of taxable income, and for each number of family-quotient (FQ) shares, we know the number and the incomes of the corresponding taxable taxpayers; these show that large taxable families become increasingly rare and then disappear as we

consider income brackets close to the threshold of taxability for taxpayers with only 1 FQ share (see Appendix A, section 1.2). Given the nature of the available data, we have proceeded in the following way.

First, we have not attempted to estimate the number or the incomes of taxpayers with 6 or more shares of FQ and who were excluded from the top decile as described by the distribution tables due to nontaxability. These are tax units with eight or more dependent children,<sup>15</sup> and their numerical importance is sufficiently small that they may be neglected.

Then, for each year, we considered the lowest income bracket  $[s_i; s_{i+1}]$  such that all tax units with less than 6 shares of FQ and with income between  $s_i$  and  $s_{i+1}$  are taxable. For example, for the 1970 tax year, the threshold of taxability for taxpayers with 5.5 FQ shares was 15,950 francs,<sup>16</sup> and the lowest bracket such that all taxpayers with 5.5 shares (or less) of FQ were taxable was thus the bracket  $[20,000; 30,000]$ : all taxpayers with 5.5 shares of FQ and an income within this bracket were taxable and thus entered into the distribution table; by contrast, there were very few of them in the  $[15,000; 20,000]$  bracket and they disappeared completely from the  $[10,000; 15,000]$  bracket. Since the number of taxable taxpayers in the  $[20,000; 30,000]$  and subsequent brackets was already more than 15 percent of the total number of tax units (taxable and nontaxable) in the 1970 tax year (see Table B-1), the problem of truncated distributions does not arise for that year, since we are limiting ourselves to the top decile (it would arise if we were trying to estimate the incomes of the highest-income 20 percent of tax units). The same goes for all tax years since the 1966 tax year: since the 1966 tax year, the P90 threshold (and *a fortiori* all of the following thresholds and fractiles) can be estimated without making use of income brackets for which some taxpayers with 5.5 shares (or less) of FQ were excluded due to nontaxability. The problem of adjusting for truncated distributions thus only arises for the 1945–1965 tax years: for the 1966–1998 tax years, the estimates reproduced in Tables B-2 to B-4 are estimates obtained by approximation with a Pareto law based on the raw data reproduced in Table A-1, with no adjustments for truncated distributions.<sup>17</sup>

For the 1945–1965 tax years, we have proceeded in the following way. For the bracket  $[s_i; s_{i+1}]$  defined above, no adjustment is necessary. For the preceding bracket  $[s_{i-1}; s_i]$  we have assumed that the total number of tax units with 5.5 FQ shares (taxable and nontaxable) could be correctly estimated by assuming that the ratio between the total number of taxpayers with 5.5 FQ shares

and the total number of taxpayers with 5 FQ shares was the same in the  $[s_{i-1}; s_i]$  bracket as in the  $[s_i; s_{i+1}]$  bracket. Then we did the same thing moving step by step into the brackets  $[s_{i-2}; s_{i-1}]$ ,  $[s_{i-3}; s_{i-2}]$ , and so forth, and gradually taking tax units with 5 FQ shares, 4.5 shares, 4 shares, and so on, into account as the brackets in question came to include the corresponding threshold of taxability, until the adjusted numbers made it possible to estimate the P90 lower threshold of the top decile of the distribution. For the 1945–1965 tax years, the estimates reproduced in Tables B-2 to B-4 were obtained by approximation with a Pareto law based on the distribution tables adjusted in this way.

If we calculate the ratios between the estimates obtained by approximation with a Pareto law on the basis of the adjusted distribution tables and the estimates obtained by approximation with a Pareto law on the basis of the raw distribution tables reproduced in Table A-1, we observe that the adjustments mainly affect fractile 90–95. The adjustments affecting the top 1 percent (threshold P99 and level P99–100), and *a fortiori* all of the following fractiles (thresholds P99.5, P99.9, and P99.99, and levels P99.5–100, P99.9–100, and P99.99–100), are always strictly zero, which means that the income brackets corresponding to the top 1 percent (and *a fortiori* all the following fractiles) are at levels significantly above the threshold of taxability for tax units with 5.5 (or fewer) FQ shares. The only exception concerns the 1947 tax year (the year when the percentage of taxable tax units was at its lowest level of the postwar era; see Appendix A, Table A-2, column [3]), in which a very small number of large families in the top 1 percent had an income below the threshold of taxability, and for which we have thus made an adjustment, in accordance with the rules defined above. But this was an extremely small adjustment, since it resulted in our marking up the P99 threshold by 0.006 percent and the P99–100 level by 0.002 percent. The adjustments to the level of fractile P90–95 were larger: the upward adjustment to the top-decile average income level P90–100 reached 14 percent in 1945 and 12 percent in 1947, before definitively falling below the 1 percent level in 1955 and definitively below the 0.1 percent level in 1962 (if we except the years 1945 and 1947, the adjustment is always below 4 percent over the 1945–1954 period). The upward adjustment to the average income level of the top half-decile P95–100 never exceeds 0.5 percent (except in 1945 and 1947, when the adjustment reaches 2.5–3 percent), and falls definitively under the 0.1 percent level in 1955. However, we will note that adjustments to the thresholds, which exceed 90 percent for the P90 threshold in 1945 and 1947, are sig-

nificantly larger than the adjustments to the levels. This is explained by the fact that the exclusion of nontaxable taxpayers leads to extremely high Pareto coefficients at the P90 level for the interwar years and the immediate postwar years (see Table B-1), which tends to counterbalance the large underestimate of thresholds caused by this exclusion.

Insofar as the actual proportion of large families (taxable and nontaxable) is a slightly rising function of income, this adjustment procedure, based on the assumption that the ratio of the number of tax units with successive numbers of FQ shares is the same for successive income brackets, probably results in a slight overestimate of the corresponding top-income levels. But given that the brackets used by the tax administration during the years in question are relatively narrow, this local hypothesis seems reasonable, and the resulting overestimate is likely very small. Indeed, the results obtained for fractile P90–95 (the only one really affected by these adjustments) are entirely consistent with the evolutions observed for wages at a similar level during the same years, which represents a relatively robust test of reliability, insofar as the incomes of fractile P90–95 are overwhelmingly made up of wages. We have also tested the reliability of the adjustments by using the fact that in certain isolated years the percentage of taxable tax units suddenly exceeds 20 percent (for example, in 1946 and in 1949; see Appendix A, Table A-2, column [3]), years for which the adjustments become practically useless and we can compare the structure of income brackets by number of FQ shares to the adjusted structure obtained for the other years. The conclusion of the various reliability tests is that errors arising from these adjustments could only be 1 percent or 2 percent at maximum. A systematic analysis of the distribution tables from this period in which the evolution of the income distribution would be estimated separately for each group of taxpayers with the same number of family-quotient shares would obviously make it possible to improve the precision of these estimates, but we do not think that our results could end up being significantly altered.

### 1.3.2. The 1919–1944 Period

For the 1919–1944 tax years, we do not have sufficiently detailed information to carry out adjustments for truncated distributions, since the distribution tables give only the numbers and amounts of deductions for declared family situation and dependents in each of the income brackets used by the tax administration (see Appendix A, section 1.2). For example, for the 1930 tax year, we observed



that taxable taxpayers with income between 10,000 and 20,000 francs declared far fewer deductions for family dependents and family situation than the taxpayers in the next brackets. That is perfectly logical in the sense that, of all tax units with 1930 income between 10,000 and 20,000 francs, only unmarried taxpayers without dependent children were all taxable under the IGR (as soon as their income exceeded the standard exemption of 10,000 francs), so that the latter were artificially overrepresented in this income bracket. For example, a married taxpayer with one dependent child received deductions of 5,000 francs for family situation and 4,000 francs for family dependents, so that the threshold of taxability for this taxpayer was 19,000 francs: married couples with one dependent child and an annual income between 10,000 and 19,000 francs were not taxable, so they did not enter into the universe of the distribution table compiled by the tax administration. This phenomenon of “disappearing deductions in low brackets,” which is found for all of the years of the 1919–1944 period,<sup>18</sup> makes it possible to evaluate the extent to which the distributions in the distribution tables were truncated, just like the phenomenon of “disappearing high FQ in low brackets” observed in the 1945–1965 period. To carry out adjustments for truncated distributions for the 1919–1944 period, we also have a table for the 1937 tax year giving the number of taxpayers with one dependent child, two dependent children, and so on, up to thirteen dependent children or more for each income bracket used in the distribution table.<sup>19</sup> This table, which prefigures the postwar distribution tables showing the numbers of taxpayers with this or that number of FQ shares for each income bracket, was unfortunately compiled only once (for the 1937 tax year).<sup>20</sup> However, the distribution tables allow us to be certain that the distribution of family configurations by income bracket changed relatively slowly over the interwar era, and we mainly relied on the special 1937 table to adjust the truncated headcounts of the distribution tables (applying the same type of method as with the 1945–1965 period). The estimates reproduced in Tables B-2–B-4 were obtained by approximation using a Pareto law based on the distribution tables adjusted in this way. As was the case for the 1945–1965 period, these adjustments may be of some importance at the P90 and P95 threshold levels, but they are totally negligible for the incomes of higher fractiles.<sup>21</sup> Finally, as was the case with the 1945–1965 period, the best proof of the reliability of these adjustments is the very strong consistency between the changes obtained for the incomes of fractile P90–95 and the wages of fractile P90–95.

### 1.3.3. The 1915–1918 Period

The 1915–1918 tax years pose a problem. Since we limited ourselves to the P99–100 and higher fractiles, the 1915–1918 years present no problem of “truncated distributions.”<sup>22</sup> But the 1915–1918 years pose a problem of a quite different nature, one that is significantly more serious: the distribution tables compiled for the 1915–1918 tax years exclude a significant share of taxpayers who were actually taxed (see Appendix A, section 1.5). We started by estimating the level of fractiles P99–100, P99.5–100, and so on, applying to all figures in the 1915–1918 distribution tables (both numbers and incomes) the same markup coefficients as for the total number of taxable tax units (1.57 for 1915, 1.29 for 1916, 1.35 for 1917, and 1.28 for 1918; see Appendix A, Table A-9). This adjustment is sufficient for the year 1916, but it is insufficient for the year 1915, and it is too large for the years 1917–1918. If we were to proceed in this fashion, we would obtain an unacceptable total tax amount for 1916, too little tax for 1915, and too much tax for 1917–1918, which confirms what we noted in Appendix A on the basis of the overall statistics (see Appendix A, section 1.5, Table A-9). We thus slightly adjusted our estimates, so that the corresponding total tax would be as close as possible to the definitive total tax. For 1915, we increased the P99.5–99.9 level and the P99.5 threshold by 10 percent, and the P99.9–99.99 and P99.99–100 levels and P99.9 and P99.99 thresholds by 20 percent. For 1916, we did not carry out any additional adjustments. For 1917, we reduced the P99.9–99.99 and P99.99–100 levels and P99.9 and P99.99 thresholds by 5 percent. For 1918, we reduced the P99.9–99.99 and P99.99–100 levels and the P99.9 and P99.99 thresholds by 10 percent. These adjustments perhaps result in a slight overestimate of top-income levels for the years 1915–1918 (especially for 1915, when very high incomes appear to have been strongly overrepresented among late taxpayers). In any event, any such estimation errors could only reach 10 percent or 20 percent (at a maximum).

### 1.4. Moving from Taxable Income to Fiscal Income

To obtain homogeneous series expressed in terms of fiscal income (that is, before all exemptions or deductions), certain adjustments must be made to the estimates expressed in terms of taxable income and reproduced in Tables B-2 to B-4. First, it is important to take into account the fact that taxpayers were for a

long time entitled to deduct the amount of taxes owed from the previous year from their current year's taxable income (see Chapter 4, section 4.1.3), and that the "taxable income" appearing in the distribution tables compiled by the tax administration is always net of these deductions. To make these adjustments, we must distinguish between the case of deductibility of the previous year's IGR (section 1.4.1) and that of the deductibility of the previous year's schedular taxes (and the taxes that later formed the continuation of the schedular taxes (the proportional tax and complementary tax), which in section 1.4.2 we will consider conjointly with the schedular taxes strictly speaking) (section 1.4.2). Finally, we must take into account the case of categorical deductions and exemptions (section 1.4.3).

#### 1.4.1. The Deductibility of the Previous Year's IGR (1916–1947 Tax Years)

Since the distribution tables compiled by the tax administration do not give the amount of IGR deducted from taxable income, we have estimated these rates of deduction (and the corresponding markup rates) by assuming that taxpayers occupied the same fractile during the preceding year (see Table B-5). For example, the markup rate applied to fractile P99.99–100 in 1930 (32.1 percent) was calculated by applying the average tax rate of fractile P99.99–100 in 1929 (29.2 percent) to the ratio between the average taxable income of fractile P99.99–100 in 1929 and the average taxable income of fractile P99.99–100 in 1930.<sup>23</sup> This assumption causes the markup rates applicable to the highest fractiles to be somewhat overstated: the fact that some of the very wealthy taxpayers in a given year had been modest taxpayers during the previous year means that the IGR actually deducted was smaller than what we estimate. However, comparing the theoretical deduction rates we have estimated with the rates appearing in the composition tables for the 1932, 1934, and 1936–1937 tax years (these tables give the amount of taxes deducted for each income bracket; see Appendix A, section 2.2) shows that this overestimate could only be extremely small (interfractile mobility between two consecutive years was likely very limited).

#### 1.4.2. The Deductibility of the Previous Year's Schedular Taxes (1918–1970 Tax Years)

It is difficult to estimate with perfect precision the average schedular tax rates on the various fractiles of the income distribution: besides the fact that the

TABLE B-5

*Markup rates to apply to 1916–1947 incomes to account for the deductibility of the previous year's IGR*

Average IGR rates						
	P90–95	P95–99	P99–99.5	P99.5–99.9	P99.9–99.99	P99.99–100
1915			0.3	0.8	1.6	1.9
1916			1.3	2.9	5.6	8.7
1917			2.1	4.0	12.3	17.9
1918			2.3	4.3	12.0	17.7
1919	0.0	0.4	1.6	4.4	15.9	39.7
1920	0.1	0.7	2.3	5.9	17.4	41.9
1921	0.1	0.7	2.2	5.3	15.9	38.7
1922	0.1	0.9	2.4	6.0	17.2	39.9
1923	0.2	1.1	3.4	8.5	22.5	49.1
1924	0.4	1.4	4.6	11.4	27.3	56.8
1925	0.5	1.4	4.3	10.0	23.4	49.0
1926	0.3	0.9	2.7	6.2	13.7	26.2
1927	0.3	0.9	2.6	6.0	13.7	26.4
1928	0.2	0.9	3.1	7.0	15.7	29.5
1929	0.2	0.9	2.8	6.7	15.0	29.2
1930	0.2	0.9	2.8	6.4	14.5	28.2
1931	0.2	0.8	2.5	5.6	13.2	27.7
1932	0.2	0.8	2.6	5.6	13.5	29.3
1933	0.2	0.8	2.5	5.4	13.1	29.1
1934	0.1	0.5	1.7	3.8	10.8	23.0
1935	0.1	0.5	1.7	3.9	12.2	28.1
1936	0.2	0.7	2.3	5.4	19.3	40.2
1937	0.3	0.9	3.0	7.6	22.7	46.4
1938	0.5	1.2	3.4	8.6	24.1	47.3
1939	0.4	1.0	2.9	7.6	24.3	49.8
1940	0.3	0.8	2.5	6.0	20.9	45.5
1941	0.6	1.5	4.4	11.5	28.9	55.1
1942	0.9	2.2	6.6	14.8	33.5	56.6
1943	0.6	2.1	7.1	14.8	33.2	56.7
1944	1.1	2.9	8.3	15.7	31.9	54.5
1945	1.2	3.5	8.1	13.2	23.5	44.0
1946	4.0	7.0	10.2	15.1	27.0	48.4

*Explanation:* The average IGR rates for the various 1915–1946 income fractiles are from Table B-19 (see Appendix B, section 3). The markup rates for the various income fractiles of the 1916–1947 tax years were calculated by applying these average IGR rates to the income fractiles given in Table B-3 (for the 1945 tax year, only half the previous year's IGR was deductible; for the 1946 tax year, none was deductible, and for the 1947 tax year, only one-quarter of the previous year's IGR was deductible).

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Markup rate

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	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1916			0.2	0.7	1.3	1.4
1917			1.1	2.3	4.8	8.4
1918			1.9	3.6	12.1	19.2
1919	0.0	0.0	1.6	3.2	8.1	13.7
1920	0.0	0.4	1.3	3.6	14.4	34.0
1921	0.1	0.7	2.3	6.3	18.6	50.5
1922	0.1	0.7	2.0	4.7	14.3	35.2
1923	0.1	0.7	2.1	5.0	14.8	34.5
1924	0.2	1.0	3.1	7.9	22.4	53.9
1925	0.3	1.2	4.2	10.7	25.8	51.9
1926	0.4	1.3	3.7	8.6	19.3	37.2
1927	0.3	0.8	2.7	6.3	13.3	24.8
1928	0.3	0.8	2.4	5.6	12.9	25.0
1929	0.2	0.9	3.1	6.9	16.3	30.9
1930	0.2	0.8	2.7	6.9	15.3	32.1
1931	0.3	1.0	3.1	7.2	17.2	33.7
1932	0.2	0.8	2.6	6.1	14.6	32.3
1933	0.2	0.8	2.6	5.8	14.1	29.3
1934	0.2	0.9	2.7	5.7	13.8	31.7
1935	0.1	0.5	1.7	3.8	11.2	21.6
1936	0.1	0.5	1.6	3.6	11.3	25.8
1937	0.1	0.6	2.0	4.7	16.8	33.6
1938	0.3	0.8	2.8	7.0	22.3	49.0
1939	0.5	1.2	3.7	9.0	23.0	42.9
1940	0.4	1.1	3.1	8.4	28.4	69.5
1941	0.2	0.6	1.9	4.4	15.9	35.7
1942	0.5	1.2	3.6	9.9	27.5	59.8
1943	0.7	1.9	5.9	13.9	33.5	56.2
1944	0.5	1.8	6.6	14.6	34.7	68.6
1945	0.3	0.8	2.3	4.3	8.2	11.7
1946	0.0	0.0	0.0	0.0	0.0	0.0
1947	0.8	1.3	2.0	3.0	5.6	11.3

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composition tables only became annual starting in 1948, the tables by definition provide only indirect information about individual categorical income levels. However, it should be noted that this is a far smaller issue than the deductibility of the IGR, since average schedular tax rates have always been relatively low (compared to the top rates of the IGR). We have thus chosen to adopt approximate estimates to make this adjustment (see Table B-6). For the 1919–1958 tax years, we have assumed that the average schedular tax rates were 1 percent for P90–95, 3 percent for P95–99, 5 percent for P99–99.5, 7 percent for P99.5–99.9, 9 percent for P99.9–99.99, and 10 percent for P99.99–100. These rates are consistent with the average tax rates by fractile that we estimated for the schedular tax on wages and the schedular tax on BIC: the rates on the schedular wage tax are very low (1–2 percent) at the P90–95 fractile level, and they do not exceed 6–7 percent at higher fractile levels; the rates for the schedular tax on BIC and the IRVM go higher, and BIC and IRVM are larger for the higher fractiles, hence the assumption of an average rate rising to 10 percent at the P99.99–100 fractile level. It is likely that this 10 percent rate is a slight underestimate, given that the IRVM rate exceeded 20 percent by the 1930s and that the rate on BIC was 24 percent in the postwar era (however, one must take into account the fact that wages were totally exempt in the postwar era, which partially offsets the fact that the other schedular rates increased). This simplifying assumption thus probably causes us to slightly underestimate the level of very high incomes in the 1930s and in the postwar era (by a maximum of 5–10 percent). For the 1917–1918 tax years, we have adopted the following average schedular tax rates (in order to take into account the fact that all schedular rates rose sharply starting with the 1919 tax year): 0.5 percent for P90–95, 1 percent for P95–99, 2 percent for P99–99.5, 3 percent for P99.5–99.9, 4 percent for P99.9–99.99, and 5 percent for P99.99–100.<sup>24</sup> Finally, for the 1959–1969 tax years, we have assumed that the average rates declined linearly from their 1958 level to a 0 percent level in 1970. This is obviously an approximation, but the estimates thus obtained seem reasonable, given the gradual disappearance of the complementary tax over this period.

The right-hand part of Table B-6 gives the overall markup rates obtained by combining the effects of the deductibility of IGR and of the schedular taxes. For example, the overall markup rate applied to fractile P99.99–100 in 1930 (43.1 percent) was calculated by applying the average tax rate for fractile

P99.99–100 in 1929 (29.2 percent for the IGR, and 10 percent for the schedular taxes, thus 39.2 percent) to the ratio between the average taxable income of fractile P99.99–100 in 1929 and the average taxable income of fractile P99.99–100 in 1930.<sup>25</sup>

#### 1.4.3. Categorical Deductions and Exemptions

The final adjustment that should be taken into account to obtain consistent series has to do with the fact that the categorical deductions and exemptions determining the movement from fiscal income to taxable income have changed a great deal since 1915.<sup>26</sup> The main changes concern wage incomes: the 10 percent flat-rate deduction for work expenses appeared in 1934,<sup>27</sup> and the flat-rate exemption rate was 0 percent for the 1915–1952 tax years, 10 percent for the 1953 tax year, 15 percent for the 1954–1958 tax years, 19 percent for the 1959 tax year, and 20 percent for the 1960–1998 tax years. Based on these legislative changes and the (fiscal income)/(taxable income) ratios observed since 1970, we have adopted the rates of taxability and the markup rates shown in Table B-7.

### 1.5. The Results Obtained

Our final series (Tables B-8, B-9, and B-10) were obtained by applying the markup rates shown in Tables B-5, B-6, and B-7 to the series reproduced in Tables B-2, B-3, and B-4. The markup rates were applied to the intermediate levels P90–95, P95–99, P99–99.5, P99.5–99.9, P99.9–99.99, and P99.99–100, and then the levels P90–100, P95–100, P99–100, P99.5–100, P99.9–100, and P99.99–100 were calculated on the basis of the intermediate levels.<sup>28</sup> For example, for 1930, the P99.99–100 level for fiscal income (2,125,961) was obtained by applying the markup rates of 43.1 percent and 11.1 percent to the P99.99–100 level of taxable income (1,336,715);<sup>29</sup> the P99.9–99.99 level of fiscal income (471,435) was obtained by applying the markup rates of 24.5 percent and 13.6 percent to the P99.9–99.99 level of taxable income (333,321);<sup>30</sup> the P99.9–100 level of fiscal income (636,887) was obtained from the P99.9–99.99 and P99.99–100 levels of fiscal income.<sup>31</sup>

The series in Tables B-8, B-9, and B-10 were then converted into 1998 francs using the conversion rates shown in Appendix F (see Table F-1, column [7]), which gives us the series reproduced in Tables B-11, B-12, and B-13. For example, for 1930,

## APPENDIX B

TABLE B-6

*Average schedular tax rates for fractiles P90-95 to P99.99-100 (1917-1969 tax years) and the overall markup rates (IGR + schedular taxes) to apply to 1916-1970 incomes*

Average schedular tax rates						
	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1917-1918	0.5	1.0	2.0	3.0	4.0	5.0
1919-1958	1.0	3.0	5.0	7.0	9.0	10.0
1959	0.9	2.8	4.6	6.4	8.3	9.2
1960	0.8	2.5	4.2	5.8	7.5	8.3
1961	0.8	2.3	3.8	5.3	6.8	7.5
1962	0.7	2.0	3.3	4.7	6.0	6.7
1963	0.6	1.8	2.9	4.1	5.3	5.8
1964	0.5	1.5	2.5	3.5	4.5	5.0
1965	0.4	1.3	2.1	2.9	3.8	4.2
1966	0.3	1.0	1.7	2.3	3.0	3.3
1967	0.3	0.8	1.3	1.8	2.3	2.5
1968	0.2	0.5	0.8	1.2	1.5	1.7
1969	0.1	0.3	0.4	0.6	0.8	0.8

Overall markup rates						
	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1916			0.2	0.7	1.3	1.4
1917			2.7	4.8	8.2	13.2
1918			3.7	6.3	16.0	24.5
1919	0.0	0.0	5.1	8.4	14.1	21.5
1920	0.8	2.8	5.3	9.4	22.6	42.6
1921	1.0	3.6	7.3	13.7	28.3	62.6
1922	1.0	3.4	6.6	11.1	22.4	44.3
1923	1.0	3.4	6.4	10.9	22.6	43.1
1924	1.0	3.8	7.7	14.4	31.4	64.9
1925	1.2	3.7	8.8	17.3	34.3	61.0
1926	1.3	4.0	8.0	14.6	26.8	44.8
1927	1.2	3.7	7.8	13.3	22.0	34.2
1928	1.2	3.7	7.1	12.2	21.5	34.5
1929	1.1	3.7	8.1	13.8	25.7	41.4
1930	1.1	3.7	7.6	14.1	24.5	43.1
1931	1.3	4.2	8.6	15.1	27.8	45.7
1932	1.3	3.9	7.9	13.6	24.5	44.0
1933	1.2	3.8	7.7	13.0	23.5	39.3



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## Overall markup rates

	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1934	1.3	4.1	8.0	13.1	23.2	42.7
1935	1.2	3.6	6.8	11.0	20.4	31.0
1936	1.1	3.3	6.3	10.2	19.6	35.0
1937	1.0	3.3	6.4	10.7	24.6	42.0
1938	1.2	3.6	7.3	13.5	31.1	59.6
1939	1.6	4.4	9.2	16.4	31.6	52.0
1940	1.5	4.2	8.3	16.1	38.9	83.4
1941	1.0	3.0	5.6	9.5	22.8	43.5
1942	1.3	3.7	7.7	16.0	36.1	70.6
1943	1.6	4.4	10.4	20.4	42.5	66.2
1944	1.4	4.4	11.3	21.5	44.1	80.7
1945	0.8	2.4	5.0	8.2	12.8	16.0
1946	0.6	1.8	2.7	3.6	4.1	4.1
1947	1.6	3.5	5.9	8.6	13.0	20.6
1948	0.5	1.9	3.1	4.2	5.3	5.7
1949	0.8	2.4	4.0	5.5	6.8	7.2
1950	0.9	2.6	4.3	6.1	7.9	8.6
1951	0.8	2.3	3.9	5.6	7.3	8.4
1952	0.9	2.5	4.2	5.8	7.7	9.0
1953	1.0	3.1	5.1	7.1	9.1	9.8
1954	1.0	2.9	4.8	6.7	8.7	9.5
1955	0.9	2.7	4.5	6.4	8.2	9.1
1956	0.9	2.8	4.5	6.4	8.3	9.2
1957	0.9	2.6	4.5	6.3	8.1	9.0
1958	0.9	2.7	4.5	6.4	8.2	9.5
1959	1.0	2.8	4.7	6.5	8.5	9.3
1960	0.8	2.5	4.1	5.7	7.2	8.0
1961	0.8	2.2	3.7	5.3	6.8	7.5
1962	0.7	2.0	3.4	4.9	6.3	7.3
1963	0.6	1.8	3.0	4.3	5.6	6.2
1964	0.5	1.6	2.6	3.7	4.8	5.4
1965	0.5	1.4	2.3	3.3	4.2	4.6
1966	0.4	1.2	2.0	2.8	3.6	3.8
1967	0.3	0.9	1.5	2.1	2.7	2.9
1968	0.2	0.7	1.2	1.7	2.2	2.4
1969	0.2	0.5	0.8	1.1	1.4	1.5
1970	0.1	0.2	0.4	0.5	0.7	0.8

*Explanation:* The overall markup rates were obtained by combining the markup rates for the deduction of the previous year's IGR shown in Table B-5 and the markup rates for the deduction of schedular taxes (then of the proportional tax and the complementary tax) that can be calculated from the estimates of average tax rates by fractile shown here.

## APPENDIX B

TABLE B-7

*Markup rates to apply to move from taxable income to fiscal income*

	Rate of taxability observed (in %)						
	P0-100	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
RF70	72.7	72.9	74.0	76.9	79.0	81.5	84.5
RF75	70.0	70.7	72.7	76.0	78.5	78.9	87.0
RF79	68.5	69.2	71.3	74.3	80.8	86.3	82.6
RF84	71.1	71.3	73.9	75.9	78.9	79.8	87.0
RF90	66.8	70.2	71.6	74.4	80.4	88.4	96.1
EL88	69.8	71.2	71.8	72.8	77.4	85.4	93.2
EL89	69.9	70.6	72.2	75.2	79.5	87.6	93.2
EL90	70.1	70.5	73.3	74.9	79.4	85.1	91.8
EL91	69.9	70.2	72.7	75.8	77.7	84.1	88.6
EL92	69.5	70.8	72.3	74.0	76.8	78.3	90.1
EL93	69.1	70.0	71.9	74.3	78.4	83.3	90.2
EL94	68.2	68.9	70.6	73.6	74.9	78.5	87.3
EL95	68.6	69.5	71.4	73.3	75.4	82.5	89.4

	Rate of taxability observed (in %)						
1915-1952	85.0	85.0	86.0	86.0	86.0	88.0	90.0
1953	80.0	80.0	82.0	84.0	86.0	88.0	90.0
1954-1958	75.0	75.0	77.0	80.0	82.0	86.0	90.0
1959	71.0	71.0	73.0	76.0	79.0	85.0	90.0
1960-1998	70.0	70.0	72.0	75.0	78.0	84.0	90.0

	Markup rates applied to move from taxable income to fiscal income						
1915-1952	1.18	1.18	1.16	1.16	1.16	1.14	1.11
1953	1.25	1.25	1.22	1.19	1.16	1.14	1.11
1954-1958	1.33	1.33	1.30	1.25	1.22	1.16	1.11
1959	1.41	1.41	1.37	1.32	1.27	1.18	1.11
1960-1998	1.43	1.43	1.39	1.33	1.28	1.19	1.11

*Explanation:* The rates of taxability by fractile observed in the *Revenus fiscaux* studies and in the light DGI samples are from Piketty (1998, 29, 138-144, and 148-152); the markup rates applied are equal to the inverse of the assumed rates of taxability.

## APPENDIX B

TABLE B-8

*Estimate of the fiscal income distribution (levels P90-100 to P99.99-100)  
(1915-1998 tax years)*

	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1900-	6,474	9,782	27,333	43,157	115,085	431,568
1910						
1915			32,945	52,139	142,150	545,191
1916			41,571	66,494	189,028	762,696
1917			51,723	82,664	228,888	886,097
1918			57,047	90,719	243,774	911,142
1919	17,283	27,682	79,784	125,626	337,730	1,148,916
1920	21,841	34,652	99,012	155,737	420,782	1,575,471
1921	22,295	34,865	97,291	151,539	406,311	1,489,075
1922	23,988	37,542	103,197	159,792	419,083	1,452,296
1923	27,765	43,560	120,573	187,266	485,153	1,666,353
1924	30,860	47,271	131,549	203,722	516,550	1,749,559
1925	34,702	52,958	142,990	220,440	556,646	1,870,787
1926	38,772	59,624	164,286	253,198	643,600	2,217,954
1927	39,758	60,111	161,563	248,636	635,626	2,175,084
1928	42,306	63,708	170,890	262,082	670,068	2,304,013
1929	44,452	66,060	172,661	264,810	668,342	2,313,465
1930	45,191	66,310	168,406	254,942	636,887	2,125,961
1931	42,022	60,641	149,535	223,721	549,144	1,806,647
1932	39,783	56,897	135,511	199,530	477,712	1,530,251
1933	39,348	56,030	131,064	191,592	456,080	1,479,883
1934	37,414	53,148	124,298	181,647	431,938	1,387,725
1935	36,326	51,601	120,004	174,699	413,831	1,355,398
1936	38,456	55,086	128,503	187,785	450,679	1,519,342
1937	44,917	63,265	151,429	223,517	548,360	1,911,543
1938	49,348	69,141	165,623	243,421	586,355	2,032,385
1939	47,231	67,222	164,323	246,629	616,157	2,134,454
1940	43,794	62,383	149,468	221,572	548,454	1,847,485
1941	54,878	77,641	182,716	264,652	605,986	1,841,842
1942	66,691	94,793	219,488	314,407	693,526	2,019,552
1943	76,383	107,391	239,785	337,620	713,168	1,979,217
1944	85,630	117,471	243,551	334,651	676,449	1,779,975
1945	155,209	204,637	393,842	526,370	1,023,891	2,656,541
1946	267,054	363,090	749,436	1,031,641	2,124,299	5,840,497

(continued)

## APPENDIX B

TABLE B-8  
(continued)

	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1947	353,889	491,286	982,567	1,344,382	2,757,617	7,266,856
1948	579,905	769,667	1,569,615	2,151,026	4,362,270	11,262,828
1949	729,641	983,494	2,041,587	2,833,408	5,914,879	15,774,046
1950	840,518	1,136,808	2,361,503	3,272,968	6,842,316	18,518,159
1951	1,077,353	1,443,280	2,945,969	4,047,762	8,347,757	22,088,602
1952	1,270,030	1,710,643	3,505,824	4,797,113	9,667,751	24,731,369
1953	1,293,806	1,738,363	3,538,867	4,824,012	9,751,405	25,435,757
1954	1,402,739	1,886,292	3,823,027	5,183,650	10,247,246	26,647,203
1955	1,548,324	2,083,343	4,196,356	5,672,080	11,164,008	29,178,874
1956	1,695,412	2,280,543	4,623,313	6,205,243	12,116,316	31,853,161
1957	1,906,850	2,566,535	5,144,621	6,897,481	13,409,287	35,234,768
1958	2,126,924	2,843,009	5,626,615	7,522,030	14,623,900	37,276,895
1959	2,379,404	3,201,592	6,274,392	8,322,287	15,747,243	40,024,324
1960	26,382	35,657	70,951	94,745	179,285	454,362
1961	29,203	39,537	78,331	104,158	196,692	505,066
1962	32,004	43,107	84,416	111,569	208,588	520,028
1963	35,465	47,593	91,814	120,592	222,991	549,546
1964	38,920	52,302	101,007	132,615	243,472	592,881
1965	41,985	56,367	108,235	141,754	260,171	636,715
1966	44,231	59,236	113,521	148,953	274,606	685,989
1967	47,556	63,763	122,902	161,713	300,915	769,881
1968	50,146	66,512	126,369	165,851	310,167	803,397
1969	54,477	72,128	137,094	180,006	336,072	883,153
1970	59,997	79,479	150,720	197,451	364,946	961,021
1971	66,146	87,676	168,046	220,864	410,529	1,047,778
1972	72,330	96,209	186,500	246,417	462,882	1,214,456
1973	83,046	110,787	217,338	288,876	552,862	1,527,634
1974	94,638	125,475	241,502	318,122	592,967	1,514,787
1975	108,947	143,882	276,422	362,548	676,981	1,746,227
1976	124,198	163,992	315,838	414,041	779,006	2,012,810
1977	134,430	175,730	330,613	433,630	821,593	2,162,153
1978	150,982	197,872	375,132	491,840	927,141	2,401,990
1979	168,726	222,011	425,427	560,277	1,070,696	2,821,190
1980	189,266	247,962	470,754	618,326	1,176,080	3,082,552

## APPENDIX B

	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1981	215,004	280,381	528,387	692,003	1,321,425	3,487,645
1982	236,546	306,142	558,754	729,028	1,358,178	3,466,722
1983	262,991	337,498	604,401	778,723	1,409,048	3,456,515
1984	280,264	359,401	645,509	829,243	1,513,635	3,764,440
1985	298,567	383,844	692,200	895,768	1,638,259	4,091,357
1986	314,321	406,427	744,725	970,930	1,807,231	4,632,749
1987	324,903	423,123	793,758	1,050,306	2,024,282	5,456,496
1988	339,668	442,459	838,444	1,117,202	2,183,537	6,076,161
1989	357,411	469,917	904,966	1,214,399	2,420,221	6,863,135
1990	374,423	492,031	943,952	1,266,168	2,521,965	7,163,956
1991	382,079	498,857	939,233	1,249,355	2,441,448	6,770,463
1992	385,893	500,363	927,670	1,225,952	2,360,531	6,429,184
1993	387,554	500,749	920,374	1,214,715	2,332,755	6,346,624
1994	391,644	505,784	932,546	1,235,191	2,393,024	6,607,066
1995	397,706	513,700	944,617	1,247,719	2,402,748	6,595,355
1996	401,709	518,069	945,746	1,247,571	2,396,139	6,569,808
1997	409,128	528,344	971,950	1,287,764	2,499,843	6,972,718
1998	419,556	541,693	995,933	1,316,367	2,542,129	7,057,592

*Explanation:* In 1998, the average fiscal income of fractile P90-100 was 419,556 francs, the average fiscal income of fractile P95-100 was 541,693 francs, etc. All incomes appearing in this table are expressed in current francs (old francs for the 1915-1959 tax years and new francs for the 1960-1998 tax years).

the P99.99-100 level in 1998 francs (6,141,642) was obtained by applying the conversion rate of 2.889 to the P99.99-100 level in current francs (2,125,961).<sup>32</sup>

Finally, we used the results shown in Tables B-11 and B-12 and the estimated average income series in Appendix G (Table G-2, column [7]) to calculate the various fractiles' share of total income (Tables B-14 and B-15). For example, for 1930, the P99.99-100 share of total income (1.93 percent) was calculated by dividing the P99.99-100 level (6,141,642) by the average income at the time (31,778).<sup>33</sup> The shares for the years 1900-1910 come from Appendix I (section 2.1), and the incomes shown for 1900-1910 in Tables B-8 to B-13 were calculated based on these shares and the average income at the time.<sup>34</sup>

## APPENDIX B

TABLE B-9

*Estimate of the fiscal income distribution (levels P90-95 to P99.99-100)  
(1915-1998 tax years)*

	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1900-	3,165	5,395	11,508	25,175	79,920	431,568
1910						
1915			13,750	29,636	97,368	545,191
1916			16,648	35,860	125,288	762,696
1917			20,782	46,108	155,865	886,097
1918			23,375	52,455	169,622	911,142
1919	6,884	14,656	33,943	72,600	247,598	1,148,916
1920	9,030	18,562	42,286	89,476	292,483	1,575,471
1921	9,724	19,259	43,044	87,846	286,004	1,489,075
1922	10,435	21,128	46,602	94,969	304,281	1,452,296
1923	11,969	24,307	53,879	112,794	353,908	1,666,353
1924	14,448	26,202	59,376	125,515	379,549	1,749,559
1925	16,445	30,451	65,539	136,388	410,630	1,870,787
1926	17,919	33,459	75,373	155,597	468,672	2,217,954
1927	19,406	34,748	74,491	151,888	464,575	2,175,084
1928	20,904	36,912	79,699	160,086	488,518	2,304,013
1929	22,844	39,410	80,512	163,927	485,550	2,313,465
1930	24,072	40,786	81,870	159,455	471,435	2,125,961
1931	23,403	38,417	75,348	142,366	409,421	1,806,647
1932	22,670	37,243	71,493	129,984	360,763	1,530,251
1933	22,665	37,272	70,535	125,470	342,324	1,479,883
1934	21,680	35,361	66,949	119,074	325,739	1,387,725
1935	21,050	34,501	65,309	114,916	309,212	1,355,398
1936	21,827	36,732	69,221	122,061	331,938	1,519,342
1937	26,568	41,224	79,342	142,306	396,896	1,911,543
1938	29,555	45,020	87,826	157,687	425,686	2,032,385
1939	27,239	42,947	82,017	154,247	447,457	2,134,454
1940	25,205	40,611	77,364	139,852	404,117	1,847,485
1941	32,115	51,373	100,779	179,319	468,669	1,841,842
1942	38,589	63,619	124,570	219,628	546,190	2,019,552
1943	45,376	74,292	141,950	243,734	572,496	1,979,217
1944	53,789	85,951	152,451	249,201	553,835	1,779,975
1945	105,781	157,336	261,314	401,990	842,485	2,656,541
1946	171,017	266,503	467,232	758,476	1,711,388	5,840,497

## APPENDIX B

	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1947	216,492	368,465	620,752	991,074	2,256,590	7,266,856
1948	390,143	569,681	988,203	1,598,215	3,595,541	11,262,828
1949	475,787	718,971	1,249,766	2,063,040	4,819,417	15,774,046
1950	544,228	830,634	1,450,038	2,380,631	5,545,000	18,518,159
1951	711,426	1,067,608	1,844,176	2,972,763	6,820,997	22,088,602
1952	829,416	1,261,848	2,214,535	3,579,454	7,994,016	24,731,369
1953	849,248	1,288,238	2,253,721	3,592,163	8,008,699	25,435,757
1954	919,187	1,402,108	2,462,403	3,917,751	8,425,028	26,647,203
1955	1,013,304	1,555,090	2,720,633	4,299,097	9,162,356	29,178,874
1956	1,110,281	1,694,850	3,041,383	4,727,475	9,923,333	31,853,161
1957	1,247,166	1,922,013	3,391,761	5,269,529	10,984,233	35,234,768
1958	1,410,840	2,147,107	3,731,201	5,746,562	12,106,901	37,276,895
1959	1,557,216	2,433,392	4,226,497	6,466,048	13,049,789	40,024,324
1960	17,107	26,834	47,157	73,610	148,721	454,362
1961	18,870	29,838	52,505	81,025	162,428	505,066
1962	20,901	32,780	57,263	87,314	173,984	520,028
1963	23,336	36,538	63,036	94,993	186,708	549,546
1964	25,538	40,125	69,399	104,901	204,649	592,881
1965	27,602	43,401	74,716	112,149	218,333	636,715
1966	29,227	45,664	78,089	117,539	228,897	685,989
1967	31,350	48,978	84,092	126,912	248,808	769,881
1968	33,780	51,548	86,886	129,772	255,364	803,397
1969	36,825	55,887	94,183	140,990	275,285	883,153
1970	40,514	61,668	103,990	155,577	298,716	961,021
1971	44,616	67,583	115,228	173,447	339,724	1,047,778
1972	48,452	73,636	126,584	192,300	379,374	1,214,456
1973	55,304	84,150	145,800	222,879	444,554	1,527,634
1974	63,801	96,469	164,881	249,411	490,543	1,514,787
1975	74,013	110,747	190,296	283,940	558,176	1,746,227
1976	84,404	126,031	217,636	322,800	641,916	2,012,810
1977	93,129	137,010	227,597	336,639	672,642	2,162,153
1978	104,092	153,557	258,424	383,015	763,269	2,401,990
1979	115,442	171,157	290,577	432,672	876,197	2,821,190

(continued)

## APPENDIX B

TABLE B-9  
(continued)

	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1980	130,569	192,265	323,182	478,887	964,250	3,082,552
1981	149,628	218,379	364,772	534,647	1,080,734	3,487,645
1982	166,950	242,989	388,481	571,740	1,123,895	3,466,722
1983	188,485	270,772	430,079	621,142	1,181,552	3,456,515
1984	201,128	287,874	461,774	658,145	1,263,546	3,764,440
1985	213,289	306,755	488,633	710,145	1,365,693	4,091,357
1986	222,215	321,853	518,520	761,855	1,493,285	4,632,749
1987	226,682	330,464	537,210	806,812	1,642,925	5,456,496
1988	236,877	343,463	559,686	850,618	1,751,024	6,076,161
1989	244,905	361,154	595,534	912,943	1,926,564	6,863,135
1990	256,816	379,051	621,735	952,219	2,006,188	7,163,956
1991	265,300	388,763	629,111	951,331	1,960,447	6,770,463
1992	271,423	393,536	629,387	942,307	1,908,458	6,429,184
1993	274,360	395,842	626,032	935,205	1,886,770	6,346,624
1994	277,504	399,094	629,900	945,733	1,924,797	6,607,066
1995	281,713	405,970	641,515	958,962	1,936,902	6,595,355
1996	285,350	411,150	643,921	960,429	1,932,398	6,569,808
1997	289,912	417,443	656,136	984,745	2,002,857	6,972,718
1998	297,419	428,133	675,500	1,009,926	2,040,411	7,057,592

*Explanation:* In 1998, the average fiscal income of fractile P90-95 was 297,419 francs, the average fiscal income of fractile P95-99 was 428,133 francs, etc. All incomes appearing in this table are expressed in current francs (old francs for the 1915-1959 tax years and new francs for the 1960-1998 tax years).

## 2. *Estimating the Composition of the Various Top-Income Fractiles (1917, 1920, 1932, 1934, 1936-1937, 1945-1946, and 1948-1998 Tax Years)*

### 2.1. Difficulties in Connection with Estimating Composition

Estimating the composition of top incomes from the raw data by income bracket compiled by the tax administration (see Appendix A, section 2) poses far more difficulties than estimating the level of top incomes. On the one hand, while the levels follow a Pareto law, so that it is sufficient to estimate its structural par-



## APPENDIX B

TABLE B-10

*Estimate of the fiscal income distribution (thresholds P90 to P99.99)*  
*(1915–1998 tax years)*

	P90	P95	P99	P99.5	P99.9	P99.99
1900–1910	2,490	3,762	10,513	16,599	44,263	165,988
1915			10,866	19,214	56,355	224,670
1916			13,250	21,747	69,295	306,094
1917			15,698	27,299	83,544	383,791
1918			17,618	30,254	91,235	402,180
1919	5,559	8,730	26,830	48,877	143,618	540,121
1920	7,349	11,584	34,111	56,537	174,301	686,324
1921	7,993	12,414	34,502	57,810	170,978	746,723
1922	8,552	13,332	37,786	61,992	195,022	735,233
1923	9,797	15,313	43,135	70,636	227,636	836,578
1924	11,167	17,708	51,176	88,247	252,869	897,817
1925	13,093	20,079	55,473	95,335	268,769	970,479
1926	14,836	22,704	61,586	106,735	297,888	1,104,012
1927	16,178	24,356	61,344	102,436	284,250	1,058,966
1928	17,453	26,170	64,559	107,602	301,019	1,130,126
1929	19,225	28,387	67,890	110,459	307,793	1,132,839
1930	20,379	29,723	68,179	109,465	293,446	1,079,176
1931	19,488	28,266	63,538	102,078	267,621	924,112
1932	18,851	27,546	60,645	90,977	240,922	816,120
1933	18,812	27,691	60,102	89,127	227,863	762,744
1934	18,119	26,416	56,943	84,511	217,849	738,156
1935	17,630	25,517	55,428	81,970	205,240	673,075
1936	18,641	26,589	58,098	86,148	213,765	727,521
1937	21,866	30,048	66,593	99,778	257,302	867,840
1938	24,214	33,782	73,085	110,065	282,862	981,369
1939	22,364	31,775	69,129	106,295	283,365	1,036,866
1940	20,792	29,718	65,334	99,145	263,140	1,027,428
1941	26,110	37,504	84,882	127,758	315,027	1,035,909
1942	31,997	45,964	106,024	162,759	391,291	1,207,301
1943	39,225	54,511	121,446	183,460	420,902	1,154,782
1944	45,763	63,742	133,777	192,617	419,007	1,134,880
1945	92,002	123,028	230,379	313,164	601,923	1,523,920
1946	148,762	201,987	409,285	561,559	1,168,906	3,230,422

(continued)

## APPENDIX B

TABLE B-10  
(continued)

	P90	P95	P99	P99.5	P99.9	P99.99
1947	212,257	286,358	541,175	746,092	1,585,185	4,372,040
1948	336,221	433,145	856,498	1,184,993	2,477,148	6,576,182
1949	404,175	550,250	1,096,629	1,511,136	3,282,057	9,078,707
1950	475,491	643,215	1,251,750	1,757,656	3,716,490	10,479,119
1951	624,131	835,564	1,598,315	2,223,098	4,724,058	12,714,174
1952	722,378	964,318	1,931,369	2,694,993	5,618,474	14,832,211
1953	737,811	976,379	1,955,583	2,706,388	5,589,471	14,939,969
1954	797,549	1,055,199	2,122,023	2,949,643	5,881,899	15,379,410
1955	874,383	1,173,272	2,343,712	3,238,985	6,411,834	16,718,899
1956	947,889	1,286,716	2,651,393	3,560,650	6,994,189	18,023,883
1957	1,085,591	1,459,152	2,957,752	3,965,540	7,756,875	20,383,186
1958	1,224,140	1,622,290	3,258,544	4,358,730	8,393,716	21,741,404
1959	1,335,666	1,826,229	3,690,286	4,866,424	9,208,299	23,401,162
1960	14,688	19,990	41,199	56,054	105,083	263,374
1961	16,004	22,114	45,295	61,675	114,867	290,301
1962	18,128	24,550	49,156	66,593	124,019	307,580
1963	20,164	27,364	54,425	72,624	133,643	326,044
1964	21,946	29,831	60,210	80,504	146,624	353,180
1965	23,496	32,107	64,934	86,051	156,610	377,395
1966	25,400	33,875	67,789	89,525	161,974	399,170
1967	27,083	36,879	72,614	95,974	175,415	443,858
1968	29,041	39,102	75,545	98,670	179,339	459,171
1969	32,034	42,304	82,246	107,472	193,404	487,802
1970	35,324	46,487	90,522	118,420	215,889	524,565
1971	38,384	50,883	99,587	130,975	242,430	593,842
1972	42,055	55,401	110,266	143,584	270,385	676,306
1973	47,831	62,836	125,985	167,359	303,529	824,438
1974	55,687	72,827	142,588	190,241	345,600	869,614
1975	64,597	83,532	162,892	216,798	392,087	996,771
1976	73,877	95,573	190,280	245,829	450,968	1,149,226
1977	81,206	105,373	198,943	257,149	469,564	1,219,368
1978	91,374	117,910	225,945	291,897	536,506	1,372,832
1979	101,406	129,898	252,397	327,504	612,323	1,594,388
1980	114,979	147,884	280,315	363,261	675,771	1,751,723
1981	131,343	170,112	317,180	404,967	755,944	1,974,499

## APPENDIX B

	P90	P95	P99	P99.5	P99.9	P99.99
1982	147,200	187,045	340,476	437,592	797,051	2,015,491
1983	167,107	211,499	379,128	481,239	851,570	2,071,651
1984	178,110	226,207	406,038	508,165	906,556	2,237,194
1985	188,012	240,459	429,914	547,970	979,028	2,427,683
1986	196,005	248,460	454,599	583,627	1,060,342	2,700,253
1987	199,558	254,296	467,901	609,442	1,145,000	3,067,262
1988	203,905	267,403	486,168	633,247	1,201,866	3,329,729
1989	215,179	277,297	515,440	680,466	1,319,051	3,724,613
1990	224,896	291,927	538,271	710,172	1,374,680	3,894,194
1991	231,648	301,217	546,792	715,413	1,358,226	3,761,884
1992	236,100	304,246	548,712	713,234	1,333,639	3,633,055
1993	238,138	307,447	546,159	708,880	1,321,008	3,599,777
1994	240,358	310,482	548,684	714,520	1,341,796	3,715,931
1995	248,354	316,359	559,554	726,579	1,355,344	3,736,760
1996	251,676	321,280	562,036	728,738	1,354,776	3,736,109
1997	255,540	326,585	571,604	744,180	1,396,675	3,924,122
1998	262,095	335,578	589,168	765,113	1,427,576	3,997,574

*Explanation:* In 1998, the P90 fiscal income threshold that had to be exceeded to belong to the P90–100 fractile was 262,095 francs, the P90 fiscal income threshold that had to be exceeded to belong to the P95–100 fractile was 335,578 francs, etc. All incomes appearing in this table are expressed in current francs (old francs for the 1915–1959 tax years and new francs for the 1960–1998 tax years).

ameters, the income composition follows no obvious law. In particular, the composition of taxable income always changes extremely rapidly within the top 1 percent (for example, the investment income share is always much greater for the P99.9–100 and P99.99–100 fractiles than for the P99–99.5 and P99.5–99.9 fractiles), and most importantly, in a highly nonlinear way (and even sometimes in a nonmonotonic way), so that it is extremely difficult to infer such changes from information covering only a few taxable income brackets. Feenberg and Poterba (1993) hypothesize that the average amounts of the various types of categorical income can be approximated (between two taxable income thresholds) by a power function of the level of total taxable income. This method seems to give good results with the raw data compiled by the American tax

## APPENDIX B

TABLE B-11

*Estimate of the fiscal income distribution (levels 90-100 to P99.99-100)  
(1915-1998 tax years)*

	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1900-1910	129,815	196,165	548,107	865,432	2,307,820	8,654,324
1915			471,402	746,053	2,034,021	7,801,116
1916			531,103	849,512	2,415,001	9,744,093
1917			551,591	881,553	2,440,934	9,449,619
1918			469,058	745,920	2,004,385	7,491,680
1919	113,684	182,086	524,809	826,345	2,221,531	7,557,387
1920	104,560	165,892	474,005	745,572	2,014,436	7,542,353
1921	121,842	190,540	531,700	828,164	2,220,503	8,137,839
1922	136,418	213,492	586,861	908,705	2,383,245	8,258,939
1923	142,245	223,170	617,724	959,410	2,485,561	8,537,156
1924	138,808	212,629	591,711	916,347	2,323,458	7,869,569
1925	145,471	222,003	599,414	924,087	2,333,466	7,842,362
1926	124,928	192,119	529,352	815,841	2,073,775	7,146,573
1927	122,708	185,523	498,640	767,376	1,961,762	6,713,065
1928	130,832	197,019	528,484	810,498	2,072,206	7,125,235
1929	129,444	192,367	502,788	771,124	1,946,204	6,736,784
1930	130,551	191,562	486,504	736,496	1,839,890	6,141,642
1931	126,323	182,293	449,519	672,533	1,650,790	5,430,991
1932	131,277	187,748	447,161	658,408	1,576,353	5,049,522
1933	134,132	191,000	446,780	653,115	1,554,724	5,044,749
1934	133,132	189,120	442,293	646,359	1,536,978	4,937,988
1935	140,959	200,234	465,664	677,902	1,605,832	5,259,497
1936	139,074	199,213	464,719	679,107	1,629,839	5,494,563
1937	129,123	181,871	435,319	642,551	1,576,387	5,495,167
1938	124,879	174,966	419,122	615,993	1,483,814	5,143,094
1939	112,121	159,578	390,085	585,470	1,462,691	5,066,967
1940	87,658	124,865	299,175	443,498	1,097,784	3,697,922
1941	93,644	132,487	311,784	451,600	1,034,050	3,142,903
1942	94,755	134,682	311,851	446,713	985,368	2,869,397
1943	87,380	122,852	274,307	386,227	815,842	2,264,162
1944	80,097	109,880	227,813	313,025	632,736	1,664,951
1945	97,962	129,159	248,577	332,224	646,239	1,676,702
1946	110,454	150,175	309,970	426,691	878,619	2,415,654
1947	97,972	136,009	272,017	372,183	763,428	2,011,782

## APPENDIX B

	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1948	101,289	134,434	274,156	375,708	761,934	1,967,218
1949	112,582	151,751	315,012	437,188	912,651	2,433,894
1950	117,900	159,460	331,249	459,100	959,774	2,597,549
1951	129,940	174,075	355,316	488,204	1,006,830	2,664,124
1952	136,889	184,381	377,873	517,054	1,042,033	2,665,657
1953	141,864	190,609	388,031	528,946	1,069,227	2,788,992
1954	153,195	206,005	417,519	566,115	1,119,118	2,910,184
1955	167,587	225,496	454,203	613,932	1,208,364	3,158,248
1956	176,110	236,891	480,245	644,568	1,258,579	3,308,739
1957	192,304	258,833	518,831	695,606	1,352,317	3,553,401
1958	186,359	249,101	492,997	659,071	1,281,329	3,266,158
1959	196,494	264,392	518,148	687,266	1,300,429	3,305,263
1960	210,094	283,957	565,018	754,498	1,427,736	3,618,310
1961	225,130	304,793	603,864	802,963	1,516,312	3,893,599
1962	235,646	317,397	621,555	821,484	1,535,840	3,828,981
1963	249,166	334,379	645,067	847,256	1,566,691	3,860,997
1964	264,453	355,377	686,319	901,087	1,654,335	4,028,488
1965	278,319	373,661	717,492	939,692	1,724,686	4,220,810
1966	285,504	382,352	732,749	961,454	1,772,518	4,427,896
1967	299,186	401,145	773,202	1,017,365	1,893,115	4,843,467
1968	301,606	400,040	760,048	997,517	1,865,506	4,832,051
1969	307,655	407,341	774,232	1,016,574	1,897,945	4,987,553
1970	322,079	426,664	809,110	1,059,974	1,959,136	5,159,037
1971	336,579	446,132	855,088	1,123,847	2,088,946	5,331,540
1972	346,560	460,971	893,591	1,180,672	2,217,836	5,818,896
1973	370,832	494,708	970,498	1,289,942	2,468,742	6,821,475
1974	371,676	492,785	948,460	1,249,374	2,328,785	5,949,085
1975	382,714	505,434	971,023	1,273,568	2,378,117	6,134,193
1976	398,071	525,617	1,012,304	1,327,057	2,496,818	6,451,326
1977	393,843	514,844	968,611	1,270,422	2,407,054	6,334,544
1978	405,443	531,359	1,007,369	1,320,773	2,489,717	6,450,233
1979	408,928	538,070	1,031,073	1,357,898	2,594,960	6,837,491
1980	403,792	529,020	1,004,338	1,319,178	2,509,129	6,576,525

(continued)

## APPENDIX B

TABLE B-11  
(continued)

	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1981	404,502	527,499	994,090	1,301,910	2,486,083	6,561,533
1982	398,059	515,175	940,269	1,226,804	2,285,535	5,833,783
1983	403,796	518,193	927,996	1,195,649	2,163,448	5,307,122
1984	400,667	513,802	922,823	1,185,491	2,163,902	5,381,666
1985	403,434	518,664	935,325	1,210,392	2,213,672	5,528,382
1986	413,555	534,740	979,843	1,277,463	2,377,793	6,095,356
1987	414,624	539,968	1,012,954	1,340,347	2,583,287	6,963,306
1988	422,071	549,799	1,041,850	1,388,234	2,713,263	7,550,235
1989	428,272	563,084	1,084,388	1,455,170	2,900,063	8,223,846
1990	433,905	570,196	1,093,910	1,467,315	2,922,610	8,302,040
1991	429,047	560,181	1,054,691	1,402,936	2,741,572	7,602,748
1992	423,174	548,703	1,017,292	1,344,391	2,588,582	7,050,308
1993	416,663	538,359	989,501	1,305,950	2,507,964	6,823,305
1994	414,021	534,683	985,828	1,305,766	2,529,753	6,984,571
1995	413,402	533,973	981,897	1,296,961	2,497,574	6,855,646
1996	409,375	527,956	963,795	1,271,379	2,441,867	6,695,187
1997	411,992	532,043	978,754	1,296,779	2,517,342	7,021,527
1998	419,556	541,693	995,933	1,316,367	2,542,129	7,057,592

*Explanation:* In 1998, the average fiscal income of fractile P90-100 was 419,556 francs, the average fiscal income of fractile P95-100 was 541,693 francs, etc. All incomes appearing in this table are expressed in 1998 francs.

administration, probably because the latter uses a very large number of taxable income brackets, but it has not seemed to us very reliable for the French case, especially for very high incomes in the 1980s-1990s, when, as we have noted, the French tax administration used a very small number of top-income brackets. This problem is less acute for prior periods, when the numbers and levels of brackets used by the tax administration were high enough for the composition of income to change relatively slowly between two consecutive brackets. Also, for the 1988-1995 tax years we have estimates of the composition of fiscal income for the various top-income fractiles, obtained from the DGI samples of income tax returns; the samples were already useful to us in estimating the levels of the various top-income fractiles (see section 1.2), and these estimates

## APPENDIX B

TABLE B-12

*Estimate of the fiscal income distribution (levels P90-95 to P99.99-100)  
(1915-1998 tax years)*

	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1900-1910	63,465	108,179	230,782	504,836	1,602,653	8,654,324
1915			196,751	424,061	1,393,233	7,801,116
1916			212,693	458,140	1,600,657	9,744,093
1917			221,628	491,708	1,662,191	9,449,619
1918			192,197	431,303	1,394,686	7,491,680
1919	45,282	96,406	223,272	477,549	1,628,658	7,557,387
1920	43,228	88,864	202,439	428,356	1,400,223	7,542,353
1921	53,144	105,250	235,236	480,079	1,563,022	8,137,839
1922	59,344	120,150	265,017	540,070	1,730,390	8,258,939
1923	61,321	124,531	276,038	577,872	1,813,162	8,537,156
1924	64,988	117,858	267,075	564,569	1,707,223	7,869,569
1925	68,939	127,650	274,742	571,742	1,721,367	7,842,362
1926	57,738	107,810	242,864	501,357	1,510,131	7,146,573
1927	59,893	107,244	229,904	468,780	1,433,840	6,713,065
1928	64,646	114,153	246,470	495,071	1,510,759	7,125,235
1929	66,521	114,762	234,451	477,355	1,413,917	6,736,784
1930	69,541	117,826	236,512	460,647	1,361,917	6,141,642
1931	70,353	115,487	226,506	427,969	1,230,768	5,430,991
1932	74,807	122,894	235,913	428,922	1,190,446	5,049,522
1933	77,263	127,055	240,446	427,713	1,166,943	5,044,749
1934	77,145	125,827	238,227	423,704	1,159,088	4,937,988
1935	81,684	133,877	253,427	445,919	1,199,869	5,259,497
1936	78,934	132,837	250,330	441,424	1,200,425	5,494,563
1937	76,375	118,509	228,086	409,092	1,140,967	5,495,167
1938	74,791	113,927	222,250	399,038	1,077,228	5,143,094
1939	64,663	101,951	194,699	366,165	1,062,216	5,066,967
1940	50,450	81,287	154,851	279,927	808,879	3,697,922
1941	54,801	87,662	171,968	305,988	799,733	3,142,903
1942	54,827	90,390	176,989	312,049	776,031	2,869,397
1943	51,909	84,988	162,386	278,823	654,918	2,264,162
1944	50,313	80,397	142,600	233,098	518,045	1,664,951
1945	66,765	99,304	164,931	253,720	531,743	1,676,702
1946	70,734	110,227	193,249	313,709	707,837	2,415,654

(continued)

## APPENDIX B

TABLE B-12  
(continued)

	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1947	59,934	102,007	171,851	274,372	624,722	2,011,782
1948	68,144	99,503	172,604	279,152	628,014	1,967,218
1949	73,413	110,935	192,836	318,322	743,623	2,433,894
1950	76,339	116,513	203,397	333,932	777,799	2,597,549
1951	85,806	128,765	222,428	358,547	822,686	2,664,124
1952	89,398	136,008	238,692	385,809	861,631	2,665,657
1953	93,119	141,253	247,117	393,875	878,142	2,788,992
1954	100,386	153,126	268,923	427,864	920,111	2,910,184
1955	109,677	168,319	294,474	465,324	991,710	3,158,248
1956	115,330	176,052	315,923	491,065	1,030,784	3,308,739
1957	125,776	193,834	342,057	531,428	1,107,752	3,553,401
1958	123,616	188,127	326,923	503,507	1,060,792	3,266,158
1959	128,597	200,953	349,030	533,975	1,077,669	3,305,263
1960	136,231	213,692	375,537	586,189	1,184,339	3,618,310
1961	145,468	230,025	404,764	624,625	1,252,169	3,893,599
1962	153,895	241,357	421,626	642,895	1,281,047	3,828,981
1963	163,954	256,706	442,879	667,397	1,311,768	3,860,997
1964	173,528	272,642	471,551	712,774	1,390,541	4,028,488
1965	182,977	287,704	495,293	743,443	1,447,338	4,220,810
1966	188,655	294,753	504,044	758,688	1,477,476	4,427,896
1967	197,228	308,131	529,039	798,428	1,565,299	4,843,467
1968	203,172	310,039	522,579	780,520	1,535,890	4,832,051
1969	207,970	315,618	531,890	796,232	1,554,655	4,987,553
1970	217,493	331,053	558,246	835,184	1,603,591	5,159,037
1971	227,025	343,893	586,329	882,573	1,728,658	5,331,540
1972	232,149	352,816	606,509	921,381	1,817,719	5,818,896
1973	246,956	375,761	651,054	995,242	1,985,105	6,821,475
1974	250,567	378,866	647,546	979,521	1,926,530	5,949,085
1975	259,993	389,037	668,478	997,431	1,960,776	6,134,193
1976	270,525	403,945	697,551	1,034,617	2,057,429	6,451,326
1977	272,843	401,403	666,799	986,264	1,970,666	6,334,544
1978	279,527	412,356	693,964	1,028,537	2,049,660	6,450,233
1979	279,787	414,819	704,248	1,048,632	2,123,568	6,837,491
1980	278,564	410,190	689,499	1,021,690	2,057,196	6,576,525
1981	281,504	410,851	686,270	1,005,866	2,033,255	6,561,533



## APPENDIX B

	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1982	280,943	408,901	653,734	962,122	1,891,285	5,833,783
1983	289,400	415,742	660,343	953,700	1,814,151	5,307,122
1984	287,533	411,546	660,155	940,889	1,806,373	5,381,666
1985	288,204	414,498	660,258	959,572	1,845,371	5,528,382
1986	292,371	423,465	682,222	1,002,381	1,964,730	6,095,356
1987	289,280	421,722	685,560	1,029,612	2,096,618	6,963,306
1988	294,343	426,786	695,465	1,056,977	2,175,821	7,550,235
1989	293,460	432,758	713,607	1,093,946	2,308,531	8,223,846
1990	297,614	439,268	720,505	1,103,491	2,324,896	8,302,040
1991	297,913	436,554	706,447	1,068,277	2,201,442	7,602,748
1992	297,645	431,556	690,192	1,033,344	2,092,834	7,050,308
1993	294,967	425,573	673,052	1,005,447	2,028,481	6,823,305
1994	293,360	421,897	665,891	999,769	2,034,774	6,984,571
1995	292,831	421,992	666,833	996,808	2,013,343	6,855,646
1996	290,795	418,996	656,210	978,757	1,969,276	6,695,187
1997	291,941	420,365	660,729	991,638	2,016,877	7,021,527
1998	297,419	428,133	675,500	1,009,926	2,040,411	7,057,592

*Explanation:* In 1998, the average fiscal income of fractile P90-95 was 297,419 francs, the average fiscal income of fractile P95-99 was 428,133 francs, etc. All incomes appearing in this table are expressed in 1998 francs.

can be considered extremely reliable (due to the fact that the samples contain nearly all tax returns for very high incomes).

An additional difficulty comes from the fact that the amounts of categorical incomes reproduced in the tax administration's composition tables are always net of all the exemptions and deductions that the various income categories enjoy. For example, in the 1980s-1990s, the amounts shown for wages are always amounts net of the 10 percent and 20 percent deductions that wage earners enjoy. Since these rates of deductions / exemptions are higher than the rates enjoyed by most other categorical incomes, this means that the wage share derived from these raw data is less than the real wage share of fiscal income (that is, before accounting for exemptions and deductions). This poses a problem insofar as the various exemptions and deductions have not always existed, so that some

changes observed in the raw data are due more to the evolution of the exemptions and deductions granted to different types of categorical income than to genuine economic changes (for example, the appearance of the 20 percent deduction in the 1950s explains the artificial decline in the wage share in the raw data from this period). It is thus necessary to adjust for this type of bias if we wish to obtain homogeneous long-term estimates of the composition of fiscal income for the various top-income fractiles.

Given these difficulties, it is impossible to obtain long-term estimates as precise and homogeneous for the composition of the various top-income fractiles as those we obtained for the levels. The methodology we have used is thus relatively “pragmatic,” but it does give us estimates whose precision is amply sufficient for all of the major observed evolutions to be considered reliable.<sup>35</sup>

## 2.2. The Methodology Used

To obtain the results reproduced in Table B-16, we have applied the following methodology:

(i) For the 1917, 1920, 1932, 1934, 1936, 1937, 1945–1946, and 1948–1952 tax years, that is, before the appearance of the additional exemption for wage earners, we adopted the assumption that the average rate of categorical deductions and exemptions was approximately the same for all income categories (about 10 percent), and thus adjustments were not necessary to move from the composition of taxable income (in terms of net categorical incomes) to the composition of fiscal income (in terms of gross categorical incomes). To estimate the composition of taxable income for fractiles P90–100, P95–100, P99–100, P99.5–100, P99.9–100, and P99.99–100 (only P99–100, P99.5–100, P99.9–100, and P99.99–100 for the 1917 tax year), we have proceeded by linear extrapolation: we started from the raw data reproduced in the composition tables published by the tax administration (see Appendix A, section 2), which allowed us to calculate for each of the thresholds  $s_i$  the income composition of the tax units whose incomes were greater than  $s_i$ , then we assumed that the income composition of the tax units with incomes greater than  $y$  could be locally approximated by a linear function of  $y$ .<sup>36</sup> Then we obtained our estimates of the composition of taxable income for the intermediate fractiles P90–95, P95–99, P99–99.5, P99.5–99.9, and P99.9–99.99 (only P99–99.5, P99.5–99.9, and P99.9–99.99 for

## APPENDIX B

TABLE B-13

*Estimate of the fiscal income distribution (thresholds P90 to P99.99)*  
*(1915–1998 tax years)*

	P90	P95	P99	P99.5	P99.9	P99.99
1900–	49,929	75,448	210,810	332,859	887,623	3,328,586
1910						
1915			155,477	274,926	806,386	3,214,800
1916			169,283	277,835	885,303	3,910,608
1917			167,407	291,126	890,938	4,092,868
1918			144,857	248,758	750,159	3,306,848
1919	36,567	57,422	176,482	321,503	944,699	3,552,831
1920	35,180	55,456	163,303	270,666	834,441	3,285,682
1921	43,683	67,841	188,555	315,933	934,401	4,080,863
1922	48,636	75,816	214,882	352,536	1,109,054	4,181,131
1923	50,190	78,454	220,990	361,886	1,166,239	4,286,003
1924	50,230	79,649	230,191	396,936	1,137,412	4,038,407
1925	54,884	84,171	232,542	399,646	1,126,684	4,068,259
1926	47,803	73,157	198,440	343,914	959,839	3,557,289
1927	49,932	75,170	189,330	316,152	877,293	3,268,337
1928	53,974	80,932	199,650	332,763	930,910	3,494,950
1929	55,984	82,663	197,696	321,656	896,291	3,298,817
1930	58,873	85,867	196,960	316,231	847,731	3,117,607
1931	58,584	84,970	191,003	306,857	804,500	2,777,988
1932	62,206	90,896	200,116	300,207	794,993	2,693,031
1933	64,129	94,396	204,879	303,822	776,759	2,600,106
1934	64,474	93,998	202,624	300,717	775,181	2,626,606
1935	68,413	99,015	215,084	318,075	796,416	2,611,805
1936	67,415	96,158	210,105	311,548	773,062	2,631,012
1937	62,859	86,379	191,437	286,835	739,674	2,494,806
1938	61,274	85,488	184,946	278,527	715,803	2,483,424
1939	53,090	75,429	164,106	252,333	672,679	2,461,410
1940	41,617	59,484	130,772	198,448	526,701	2,056,498
1941	44,555	63,997	144,842	218,006	537,559	1,767,666
1942	45,462	65,306	150,639	231,249	555,950	1,715,343
1943	44,873	62,359	138,931	209,872	481,499	1,321,035
1944	42,805	59,623	125,132	180,170	391,931	1,061,543
1945	58,068	77,651	145,406	197,657	379,910	961,837

(continued)

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TABLE B-13  
(continued)

	P90	P95	P99	P99.5	P99.9	P99.99
1946	61,528	83,543	169,282	232,263	483,464	1,336,116
1947	58,762	79,276	149,821	206,551	438,848	1,210,371
1948	58,726	75,655	149,600	206,976	432,670	1,148,627
1949	62,363	84,902	169,207	233,164	506,413	1,400,821
1950	66,697	90,224	175,583	246,547	521,313	1,469,910
1951	75,277	100,778	192,774	268,130	569,772	1,533,467
1952	77,861	103,938	208,172	290,478	605,584	1,598,682
1953	80,900	107,058	214,427	296,751	612,877	1,638,145
1954	87,102	115,240	231,750	322,135	642,372	1,679,610
1955	94,641	126,992	253,678	350,580	694,001	1,809,612
1956	98,462	133,657	275,413	369,862	726,520	1,872,226
1957	109,481	147,154	298,287	399,922	782,275	2,055,630
1958	107,258	142,143	285,510	381,907	735,448	1,904,956
1959	110,301	150,813	304,749	401,876	760,434	1,932,500
1960	116,967	159,191	328,089	446,387	836,825	2,097,374
1961	123,373	170,476	349,183	475,454	885,522	2,237,955
1962	133,478	180,763	361,938	490,323	913,157	2,264,722
1963	141,670	192,253	382,380	510,241	938,948	2,290,716
1964	149,121	202,696	409,113	547,005	996,275	2,399,778
1965	155,757	212,839	430,452	570,439	1,038,172	2,501,767
1966	163,954	218,655	437,563	577,864	1,045,504	2,576,545
1967	170,385	232,010	456,826	603,788	1,103,568	2,792,395
1968	174,669	235,179	454,366	593,450	1,078,636	2,761,693
1969	180,912	238,908	464,477	606,943	1,092,240	2,754,834
1970	189,630	249,557	485,948	635,713	1,158,954	2,816,013
1971	195,315	258,913	506,741	666,458	1,233,586	3,021,719
1972	201,499	265,445	528,326	687,961	1,295,513	3,240,428
1973	213,584	280,587	562,572	747,323	1,355,374	3,681,435
1974	218,702	286,015	559,993	747,143	1,357,291	3,415,271
1975	226,918	293,434	572,210	761,575	1,377,335	3,501,485
1976	236,787	306,325	609,872	787,916	1,445,414	3,683,423
1977	237,911	308,716	582,851	753,379	1,375,699	3,572,430
1978	245,373	316,631	606,745	783,851	1,440,717	3,686,562
1979	245,770	314,823	611,714	793,744	1,484,038	3,864,189

## APPENDIX B

	P90	P95	P99	P99.5	P99.9	P99.99
1980	245,304	315,505	598,043	775,005	1,441,736	3,737,244
1981	247,104	320,044	596,731	761,891	1,422,207	3,714,752
1982	247,708	314,758	572,951	736,378	1,341,274	3,391,659
1983	256,575	324,734	582,111	738,893	1,307,498	3,180,807
1984	254,627	323,387	580,474	726,476	1,296,018	3,198,306
1985	254,048	324,917	580,915	740,436	1,322,896	3,280,369
1986	257,886	326,901	598,120	767,884	1,395,104	3,552,751
1987	254,666	324,520	597,112	777,739	1,461,192	3,914,286
1988	253,372	332,275	604,112	786,872	1,493,439	4,137,520
1989	257,842	332,275	617,633	815,377	1,580,571	4,463,069
1990	260,623	338,304	623,782	822,991	1,593,065	4,512,835
1991	260,124	338,245	614,008	803,357	1,525,190	4,224,328
1992	258,909	333,639	601,723	782,140	1,462,482	3,984,044
1993	256,025	330,538	587,180	762,123	1,420,226	3,870,149
1994	254,091	328,222	580,034	755,345	1,418,461	3,928,247
1995	258,155	328,844	581,637	755,254	1,408,833	3,884,234
1996	256,479	327,412	572,762	742,645	1,380,631	3,807,409
1997	257,329	328,871	575,606	749,389	1,406,451	3,951,591
1998	262,095	335,578	589,168	765,113	1,427,576	3,997,574

*Explanation:* In 1998, the P90 fiscal income threshold that had to be exceeded to belong to fractile P90–100 was 262,095 francs, the P95 fiscal income threshold that had to be exceeded to belong to fractile P95–100 was 335,578 francs, etc. All incomes appearing in this table are expressed in 1998 francs.

the 1917 tax year) by deducing them from the former, and from our estimates of the different fractiles' income levels.<sup>37</sup>

(ii) For the 1953–1970 tax years, we use the same method as for the 1917–1952 tax years to estimate the composition of taxable income for the various top-income fractiles. The only difference from the method used for the 1917–1952 period is that for the 1953–1970 period we made adjustments in order to move from the composition of taxable income to the composition of fiscal income. To do this, we assumed that all income categories in the years 1953–1970 enjoyed a 10 percent average rate of categorical deductions and exemptions, but

## APPENDIX B

TABLE B-14

*Estimate of the fiscal income distribution (in percentage of total fiscal income)  
(levels P90-100 to P99.99-100) (1915-1998 tax years)*

	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1900-	45.00	34.00	19.00	15.00	8.00	3.00
1910						
1915			18.31	14.49	7.90	3.03
1916			20.65	16.52	9.39	3.79
1917			20.09	16.05	8.89	3.44
1918			17.95	14.28	7.67	2.87
1919	42.25	33.84	19.50	15.36	8.26	2.81
1920	39.59	31.41	17.95	14.12	7.63	2.86
1921	39.70	31.04	17.32	13.49	7.23	2.65
1922	41.54	32.50	17.87	13.84	7.26	2.51
1923	43.54	34.15	18.91	14.68	7.61	2.61
1924	42.14	32.27	17.96	13.91	7.05	2.39
1925	44.07	33.63	18.16	14.00	7.07	2.38
1926	42.06	32.34	17.82	13.73	6.98	2.41
1927	42.95	32.47	17.45	13.43	6.87	2.35
1928	42.75	32.19	17.27	13.24	6.77	2.33
1929	41.59	30.90	16.15	12.39	6.25	2.16
1930	41.08	30.14	15.31	11.59	5.79	1.93
1931	41.12	29.67	14.63	10.95	5.37	1.77
1932	43.44	31.06	14.80	10.89	5.22	1.67
1933	44.87	31.95	14.95	10.92	5.20	1.69
1934	46.01	32.68	15.28	11.17	5.31	1.71
1935	46.61	33.10	15.40	11.21	5.31	1.74
1936	44.10	31.58	14.74	10.77	5.17	1.74
1937	42.90	30.21	14.46	10.67	5.24	1.83
1938	42.52	29.79	14.27	10.49	5.05	1.75
1939	38.24	27.21	13.30	9.98	4.99	1.73
1940	39.11	27.85	13.35	9.89	4.90	1.65
1941	38.70	27.37	12.88	9.33	4.27	1.30
1942	35.04	24.90	11.53	8.26	3.64	1.06
1943	32.26	22.68	10.13	7.13	3.01	0.84
1944	29.42	20.18	8.37	5.75	2.32	0.61
1945	29.70	19.58	7.54	5.04	1.96	0.51

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	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1946	32.87	22.34	9.22	6.35	2.61	0.72
1947	33.20	23.05	9.22	6.31	2.59	0.68
1948	32.35	21.46	8.75	6.00	2.43	0.63
1949	32.20	21.70	9.01	6.25	2.61	0.70
1950	31.97	21.62	8.98	6.23	2.60	0.70
1951	32.93	22.06	9.00	6.19	2.55	0.68
1952	33.19	22.35	9.16	6.27	2.53	0.65
1953	32.89	22.10	9.00	6.13	2.48	0.65
1954	33.53	22.55	9.14	6.20	2.45	0.64
1955	34.42	23.16	9.33	6.30	2.48	0.65
1956	34.36	23.11	9.37	6.29	2.46	0.65
1957	34.74	23.38	9.37	6.28	2.44	0.64
1958	34.05	22.76	9.01	6.02	2.34	0.60
1959	35.88	24.14	9.46	6.27	2.37	0.60
1960	36.11	24.40	9.71	6.48	2.45	0.62
1961	36.82	24.92	9.88	6.57	2.48	0.64
1962	35.88	24.16	9.46	6.25	2.34	0.58
1963	36.41	24.43	9.43	6.19	2.29	0.56
1964	36.84	24.75	9.56	6.28	2.30	0.56
1965	37.15	24.94	9.58	6.27	2.30	0.56
1966	36.46	24.41	9.36	6.14	2.26	0.57
1967	36.21	24.27	9.36	6.16	2.29	0.59
1968	34.80	23.08	8.77	5.76	2.15	0.56
1969	33.96	22.48	8.55	5.61	2.09	0.55
1970	33.14	21.95	8.33	5.45	2.02	0.53
1971	33.35	22.10	8.47	5.57	2.07	0.53
1972	33.03	21.97	8.52	5.63	2.11	0.55
1973	33.90	22.61	8.87	5.90	2.26	0.62
1974	33.33	22.09	8.50	5.60	2.09	0.53
1975	33.41	22.06	8.48	5.56	2.08	0.54
1976	33.19	21.91	8.44	5.53	2.08	0.54
1977	31.68	20.71	7.79	5.11	1.94	0.51
1978	31.38	20.56	7.80	5.11	1.93	0.50

(continued)

## APPENDIX B

TABLE B-14  
(continued)

	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1979	31.03	20.42	7.82	5.15	1.97	0.52
1980	30.69	20.11	7.63	5.01	1.91	0.50
1981	30.73	20.04	7.55	4.95	1.89	0.50
1982	29.93	19.37	7.07	4.61	1.72	0.44
1983	30.43	19.53	6.99	4.51	1.63	0.40
1984	30.52	19.57	7.03	4.51	1.65	0.41
1985	31.05	19.96	7.20	4.66	1.70	0.43
1986	31.39	20.30	7.44	4.85	1.81	0.46
1987	31.73	20.66	7.75	5.13	1.98	0.53
1988	32.09	20.90	7.92	5.28	2.06	0.57
1989	32.42	21.31	8.21	5.51	2.20	0.62
1990	32.64	21.45	8.23	5.52	2.20	0.62
1991	32.44	21.18	7.97	5.30	2.07	0.57
1992	32.23	20.90	7.75	5.12	1.97	0.54
1993	32.22	20.81	7.65	5.05	1.94	0.53
1994	32.37	20.90	7.71	5.10	1.98	0.55
1995	32.41	20.93	7.70	5.08	1.96	0.54
1996	32.25	20.79	7.59	5.01	1.92	0.53
1997	32.42	20.93	7.70	5.10	1.98	0.55
1998	32.50	20.98	7.72	5.10	1.97	0.55

*Explanation:* In 1998, the P90-100 fractile's share of total fiscal income was 32.50 percent, the P95-100 fractile's share was 20.98 percent, etc.

that wages and retirement pensions enjoyed an additional exemption rate (on top of the 10 percent rate) equal to 10 percent for the 1953 tax year, 15 percent for the 1954-1958 tax years, 19 percent for the 1959 tax year, and 20 percent for the 1960-1970 tax years.<sup>38</sup> The estimates of the composition of fiscal income reproduced in Table B-16 were thus deduced from the estimates of the composition of taxable income by applying the rates of adjustment implied by these assumptions about average rates of deductions and exemptions for the different income categories.

(iii) For the 1971-1998 tax years, the situation is more complicated: on the one hand, the income brackets used by the tax administration became less and



## APPENDIX B

TABLE B-15

*Estimate of the fiscal income distribution (in percentage of total fiscal income)  
(levels P90-95 to P99.99-100) (1915-1998 tax years)*

	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1900-	11.00	15.00	4.00	7.00	5.00	3.00
1910						
1915			3.82	6.59	4.87	3.03
1916			4.14	7.13	5.60	3.79
1917			4.04	7.16	5.45	3.44
1918			3.68	6.60	4.80	2.87
1919	8.41	14.33	4.15	7.10	5.45	2.81
1920	8.18	13.46	3.83	6.49	4.77	2.86
1921	8.66	13.72	3.83	6.26	4.58	2.65
1922	9.04	14.63	4.03	6.58	4.74	2.51
1923	9.38	15.25	4.22	7.08	4.99	2.61
1924	9.86	14.31	4.05	6.86	4.66	2.39
1925	10.44	15.47	4.16	6.93	4.69	2.38
1926	9.72	14.52	4.09	6.75	4.58	2.41
1927	10.48	15.02	4.02	6.56	4.52	2.35
1928	10.56	14.92	4.03	6.47	4.44	2.33
1929	10.69	14.75	3.77	6.13	4.09	2.16
1930	10.94	14.83	3.72	5.80	3.86	1.93
1931	11.45	15.04	3.69	5.57	3.61	1.77
1932	12.38	16.26	3.90	5.68	3.54	1.67
1933	12.92	17.00	4.02	5.72	3.51	1.69
1934	13.33	17.39	4.12	5.86	3.60	1.71
1935	13.50	17.71	4.19	5.90	3.57	1.74
1936	12.51	16.85	3.97	5.60	3.43	1.74
1937	12.69	15.75	3.79	5.44	3.41	1.83
1938	12.73	15.52	3.78	5.44	3.30	1.75
1939	11.03	13.91	3.32	4.99	3.26	1.73
1940	11.25	14.51	3.45	5.00	3.25	1.65
1941	11.32	14.49	3.55	5.06	2.97	1.30
1942	10.14	13.37	3.27	4.62	2.58	1.06
1943	9.58	12.55	3.00	4.12	2.18	0.84
1944	9.24	11.81	2.62	3.43	1.71	0.61
1945	10.12	12.04	2.50	3.08	1.45	0.51
1946	10.52	13.12	2.88	3.73	1.90	0.72

(continued)

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TABLE B-15  
(continued)

	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1947	10.16	13.83	2.91	3.72	1.91	0.68
1948	10.88	12.71	2.76	3.57	1.80	0.63
1949	10.50	12.69	2.76	3.64	1.91	0.70
1950	10.35	12.64	2.76	3.62	1.90	0.70
1951	10.87	13.05	2.82	3.63	1.88	0.68
1952	10.84	13.19	2.89	3.74	1.88	0.65
1953	10.80	13.10	2.86	3.65	1.83	0.65
1954	10.99	13.41	2.94	3.75	1.81	0.64
1955	11.26	13.83	3.02	3.82	1.83	0.65
1956	11.25	13.74	3.08	3.83	1.81	0.65
1957	11.36	14.01	3.09	3.84	1.80	0.64
1958	11.29	13.75	2.99	3.68	1.74	0.60
1959	11.74	14.68	3.19	3.90	1.77	0.60
1960	11.71	14.69	3.23	4.03	1.83	0.62
1961	11.90	15.05	3.31	4.09	1.84	0.64
1962	11.71	14.70	3.21	3.92	1.76	0.58
1963	11.98	15.00	3.24	3.90	1.73	0.56
1964	12.09	15.19	3.28	3.97	1.74	0.56
1965	12.21	15.36	3.31	3.97	1.74	0.56
1966	12.04	15.05	3.22	3.88	1.70	0.57
1967	11.93	14.92	3.20	3.86	1.70	0.59
1968	11.72	14.31	3.02	3.60	1.60	0.56
1969	11.48	13.94	2.94	3.52	1.54	0.55
1970	11.19	13.63	2.87	3.44	1.49	0.53
1971	11.25	13.63	2.90	3.50	1.54	0.53
1972	11.06	13.45	2.89	3.51	1.56	0.55
1973	11.29	13.74	2.98	3.64	1.63	0.62
1974	11.23	13.59	2.90	3.51	1.55	0.53
1975	11.35	13.59	2.92	3.48	1.54	0.54
1976	11.28	13.47	2.91	3.45	1.54	0.54
1977	10.97	12.92	2.68	3.17	1.43	0.51
1978	10.82	12.77	2.69	3.18	1.43	0.50
1979	10.62	12.59	2.67	3.18	1.45	0.52
1980	10.59	12.47	2.62	3.11	1.41	0.50
1981	10.69	12.49	2.61	3.06	1.39	0.50

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	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1982	10.56	12.30	2.46	2.89	1.28	0.44
1983	10.91	12.53	2.49	2.88	1.23	0.40
1984	10.95	12.54	2.51	2.87	1.24	0.41
1985	11.09	12.76	2.54	2.95	1.28	0.43
1986	11.10	12.86	2.59	3.04	1.34	0.46
1987	11.07	12.91	2.62	3.15	1.44	0.53
1988	11.19	12.98	2.64	3.21	1.49	0.57
1989	11.11	13.10	2.70	3.31	1.57	0.62
1990	11.19	13.22	2.71	3.32	1.57	0.62
1991	11.26	13.20	2.67	3.23	1.50	0.57
1992	11.33	13.15	2.63	3.15	1.43	0.54
1993	11.40	13.16	2.60	3.11	1.41	0.53
1994	11.47	13.19	2.60	3.13	1.43	0.55
1995	11.48	13.23	2.61	3.13	1.42	0.54
1996	11.45	13.20	2.58	3.08	1.40	0.53
1997	11.49	13.23	2.60	3.12	1.43	0.55
1998	11.52	13.27	2.62	3.13	1.42	0.55

*Explanation:* In 1998, the P90-95 fractile's share of total fiscal income was 11.52 percent, the P95-99 fractile's share was 13.27 percent, etc.

less fine over time, which makes the method of linear extrapolation less and less precise for very high incomes; on the other hand, because of the establishment of a cap on the 20 percent exemption and new categorical deductions and exemptions for nonwage incomes (extension of the 20 percent exemption to self-employed workers, creation of flat-rate exemptions for investment incomes, etc.), it becomes impossible starting from the 1970s to make simple assumptions about the average rates of categorical deductions and exemptions by income category (the additional exemption rate falls below 20 percent for high wages, and the overall rate of categorical deductions and exemptions can rise significantly above 10 percent for certain categories of nonwage income, notably small investment incomes), so it is difficult to move from estimates of the composition of taxable income to estimates of the composition of fiscal income (the estimates thus obtained would be valid in their broad outlines, but at certain points

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TABLE B-16

*Estimate of the composition of top incomes (1917, 1920, 1932, 1934, 1936-1937, 1945-1946, and 1948-1998 tax years)*

1917	RF	RCM	BA	BIC	BNC	TSP	1920	RF	RCM
P90-100							P90-100	6.8	19.7
P95-100							P95-100	7.0	21.0
P99-100	13.0	34.1	1.0	35.2	2.9	13.8	P99-100	7.1	27.2
P99.5-100	11.8	36.0	0.8	37.6	2.6	11.2	P99.5-100	6.6	29.4
P99.9-100	8.8	37.3	0.5	42.5	2.1	8.7	P99.9-100	5.0	33.3
P99.99-100	6.8	39.9	0.4	45.2	1.6	5.9	P99.99-100	3.2	39.3
P90-95							P90-95	4.8	7.8
P95-99							P95-99	6.9	12.3
P99-99.5	17.6	26.8	1.9	25.6	4.3	23.8	P99-99.5	8.7	18.6
P99.5-99.9	15.3	34.4	1.1	31.7	3.2	14.4	P99.5-99.9	8.4	24.8
P99.9-99.99	10.1	35.7	0.6	40.8	2.4	10.4	P99.9-99.99	6.1	29.9
P99.99-100	6.8	39.9	0.4	45.2	1.6	5.9	P99.99-100	3.2	39.3
1934	RF	RCM	BA	BIC	BNC	TSP	1936	RF	RCM
P90-100	11.9	17.7	0.3	11.6	4.7	53.8	P90-100	10.6	18.0
P95-100	12.8	19.8	0.3	12.5	5.3	49.4	P95-100	11.2	20.1
P99-100	15.8	29.7	0.3	14.6	6.7	32.7	P99-100	13.1	29.8
P99.5-100	15.9	33.7	0.3	15.2	6.3	28.6	P99.5-100	12.8	34.1
P99.9-100	14.1	43.8	0.2	16.8	4.3	20.8	P99.9-100	10.3	44.1
P99.99-100	9.5	52.5	0.2	20.7	2.0	15.2	P99.99-100	6.4	53.3
P90-95	7.7	7.5	0.2	7.7	1.9	75.1	P90-95	7.5	7.6
P95-99	9.7	9.9	0.3	10.3	3.9	66.0	P95-99	9.4	10.2
P99-99.5	15.4	18.1	0.4	12.8	7.9	45.5	P99-99.5	13.9	18.2
P99.5-99.9	17.5	25.4	0.3	14.0	8.0	34.8	P99.5-99.9	15.4	25.3
P99.9-99.99	16.4	39.6	0.2	14.8	5.4	23.5	P99.9-99.99	12.5	38.6
P99.99-100	9.5	52.5	0.2	20.7	2.0	15.2	P99.99-100	6.4	53.3
1945	RF	RCM	BA	BIC	BNC	TSP	1946	RF	RCM
P90-100	4.0	5.8	1.3	24.5	5.2	59.1	P90-100	2.3	5.6
P95-100	4.2	6.5	1.4	27.1	6.0	54.9	P95-100	2.5	6.8
P99-100	4.9	9.6	1.7	35.6	8.0	40.1	P99-100	3.0	11.0

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BA	BIC	BNC	TSP	1932	RF	RCM	BA	BIC	BNC	TSP
1.8	32.6	4.1	35.0	P90-100	9.8	16.1	0.5	13.3	4.6	55.7
1.9	35.3	4.3	30.4	P95-100	10.5	18.2	0.5	14.7	5.2	50.9
1.5	42.7	4.4	17.1	P99-100	12.7	27.9	0.5	18.8	6.5	33.5
1.2	44.5	3.9	14.4	P99.5-100	12.6	31.5	0.5	20.0	6.1	29.3
0.8	48.1	2.7	10.1	P99.9-100	11.1	41.5	0.3	22.8	4.4	19.9
0.6	50.3	1.2	5.4	P99.99-100	7.4	51.5	0.2	25.2	2.0	13.7
1.1	7.1	1.5	77.7	P90-95	6.8	6.3	0.4	6.8	1.9	77.8
2.5	25.1	4.3	48.9	P95-99	8.3	8.7	0.5	10.7	4.0	67.8
2.5	35.6	5.9	28.6	P99-99.5	12.8	17.1	0.6	15.0	7.7	46.7
1.8	40.1	5.4	19.5	P99.5-99.9	13.9	23.6	0.6	18.0	7.5	36.3
0.9	46.8	3.5	12.8	P99.9-99.99	12.7	37.1	0.4	21.7	5.5	22.6
0.6	50.3	1.2	5.4	P99.99-100	7.4	51.5	0.2	25.2	2.0	13.7
BA	BIC	BNC	TSP	1937	RF	RCM	BA	BIC	BNC	TSP
0.4	13.6	4.7	52.8	P90-100	8.8	16.9	0.3	14.6	3.9	55.4
0.4	14.8	5.2	48.4	P95-100	9.5	19.6	0.4	16.5	4.5	49.5
0.4	18.8	6.4	31.5	P99-100	11.2	29.7	0.4	22.7	5.4	30.6
0.4	20.1	5.9	26.7	P99.5-100	10.8	34.0	0.4	24.8	4.8	25.3
0.2	22.2	3.7	19.5	P99.9-100	8.3	42.6	0.3	26.9	2.8	19.0
0.1	25.2	1.5	13.5	P99.99-100	4.5	52.2	0.2	29.2	1.2	12.8
0.3	7.9	1.9	74.9	P90-95	5.8	6.5	0.2	7.1	1.6	78.7
0.4	10.7	4.1	65.3	P95-99	7.9	9.8	0.3	10.3	3.7	67.9
0.5	15.0	8.2	44.1	P99-99.5	12.5	17.9	0.5	17.1	7.1	44.8
0.5	18.6	8.0	32.3	P99.5-99.9	13.2	25.2	0.5	22.4	6.8	31.8
0.3	20.6	5.1	22.9	P99.9-99.99	10.3	37.7	0.3	25.7	3.7	22.3
0.1	25.2	1.5	13.5	P99.99-100	4.5	52.2	0.2	29.2	1.2	12.8
BA	BIC	BNC	TSP	1948	RF	RCM	BA	BIC	BNC	TSP
2.4	29.5	4.4	55.8	P90-100	1.4	3.5	2.5	31.2	4.2	57.1
2.8	33.9	5.1	48.9	P95-100	1.5	4.3	2.7	33.9	4.9	52.7
3.7	46.4	6.5	29.4	P99-100	1.7	7.7	3.2	43.1	6.1	38.2

(continued)

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(continued)

1945	RF	RCM	BA	BIC	BNC	TSP	1946	RF	RCM
P99.5-100	5.0	11.3	1.8	39.6	8.3	33.9	P99.5-100	2.9	12.8
P99.9-100	4.3	14.4	2.0	50.7	6.7	21.9	P99.9-100	2.2	15.4
P99.99-100	2.5	13.8	1.9	67.5	3.0	11.2	P99.99-100	1.3	16.6
P90-95	3.4	3.0	0.8	13.6	2.1	77.0	P90-95	1.8	2.3
P95-99	3.8	4.7	1.2	22.2	4.8	63.3	P95-99	2.2	4.0
P99-99.5	4.7	6.3	1.6	27.9	7.3	52.2	P99-99.5	3.1	7.3
P99.5-99.9	5.3	9.5	1.7	32.9	9.3	41.2	P99.5-99.9	3.4	10.8
P99.9-99.99	5.0	14.5	2.0	45.1	8.0	25.4	P99.9-99.99	2.6	15.0
P99.99-100	2.5	13.8	1.9	67.5	3.0	11.2	P99.99-100	1.3	16.6
1949	RF	RCM	BA	BIC	BNC	TSP	1950	RF	RCM
P90-100	0.5	4.4	1.2	26.8	4.7	62.3	P90-100	0.7	5.3
P95-100	0.5	5.7	1.3	30.2	5.8	56.4	P95-100	0.7	6.7
P99-100	0.6	10.8	1.1	38.4	7.6	41.5	P99-100	0.7	12.3
P99.5-100	0.5	13.5	1.0	41.0	7.4	36.6	P99.5-100	0.6	15.4
P99.9-100	0.3	20.2	0.6	42.4	5.1	31.3	P99.9-100	0.4	22.5
P99.99-100	0.1	30.9	0.2	41.2	2.6	25.1	P99.99-100	0.1	33.8
P90-95	0.4	1.0	1.1	18.5	1.7	77.2	P90-95	0.6	1.4
P95-99	0.5	2.5	1.4	24.9	4.7	66.0	P95-99	0.7	3.2
P99-99.5	0.7	4.9	1.5	32.9	8.2	51.9	P99-99.5	0.8	5.4
P99.5-99.9	0.6	8.4	1.2	40.0	9.2	40.6	P99.5-99.9	0.8	10.3
P99.9-99.99	0.4	16.2	0.8	42.8	6.0	33.7	P99.9-99.99	0.5	18.1
P99.99-100	0.1	30.9	0.2	41.2	2.6	25.1	P99.99-100	0.1	33.8
1952	RF	RCM	BA	BIC	BNC	TSP	1953	RF	RCM
P90-100	0.9	4.5	0.4	26.7	5.4	62.1	P90-100	0.9	4.8
P95-100	0.9	5.8	0.4	29.7	6.6	56.6	P95-100	0.9	6.1
P99-100	0.9	10.6	0.4	36.5	9.0	42.5	P99-100	0.9	11.2
P99.5-100	0.8	13.1	0.4	37.5	8.5	39.6	P99.5-100	0.8	14.0
P99.9-100	0.6	20.5	0.3	37.7	6.9	34.1	P99.9-100	0.5	21.8
P99.99-100	0.3	32.7	0.5	33.2	4.6	28.7	P99.99-100	0.2	32.5

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BA	BIC	BNC	TSP	1948	RF	RCM	BA	BIC	BNC	TSP
3.8	51.0	6.1	23.5	P99.5-100	1.7	9.7	3.0	46.8	5.7	33.1
2.7	60.7	3.9	15.0	P99.9-100	1.2	14.3	2.0	53.6	3.7	25.2
0.4	73.8	0.5	7.5	P99.99-100	0.9	19.7	0.7	60.1	1.9	16.7
1.3	17.1	2.3	75.1	P90-95	1.2	1.1	1.6	20.2	1.7	74.2
2.1	25.5	4.2	61.9	P95-99	1.4	2.1	2.5	28.1	4.1	61.9
3.6	36.6	7.4	41.9	P99-99.5	1.9	3.6	3.5	35.1	7.0	49.0
4.5	43.9	7.7	29.7	P99.5-99.9	2.0	6.4	3.8	41.8	7.2	38.9
3.6	55.6	5.2	18.0	P99.9-99.99	1.4	12.3	2.5	51.3	4.3	28.3
0.4	73.8	0.5	7.5	P99.99-100	0.9	19.7	0.7	60.1	1.9	16.7
BA	BIC	BNC	TSP	1951	RF	RCM	BA	BIC	BNC	TSP
1.1	25.8	5.0	62.1	P90-100	1.0	5.0	0.8	26.2	5.4	61.6
1.1	28.3	6.0	57.1	P95-100	1.0	6.1	0.9	28.6	6.3	57.1
1.1	34.0	7.9	44.0	P99-100	1.0	10.9	0.9	34.9	8.1	44.2
1.0	35.5	7.8	39.7	P99.5-100	1.0	13.6	0.8	36.7	7.9	40.0
0.6	36.4	5.9	34.2	P99.9-100	0.6	21.3	0.5	37.2	5.9	34.5
0.1	34.6	1.8	29.6	P99.99-100	0.3	31.7	0.3	35.5	4.2	27.9
1.0	19.3	2.4	75.3	P90-95	0.9	1.4	0.6	17.2	2.3	77.5
1.2	24.8	4.9	65.2	P95-99	1.0	3.2	0.9	24.8	5.2	64.9
1.4	30.7	8.1	53.6	P99-99.5	1.2	4.9	1.1	31.1	8.4	53.3
1.2	34.8	9.2	43.7	P99.5-99.9	1.2	8.0	1.0	36.3	9.5	44.0
0.8	37.1	7.5	36.0	P99.9-99.99	0.7	17.5	0.6	37.8	6.5	37.0
0.1	34.6	1.8	29.6	P99.99-100	0.3	31.7	0.3	35.5	4.2	27.9
BA	BIC	BNC	TSP	1954	RF	RCM	BA	BIC	BNC	TSP
0.7	29.4	4.8	59.4	P90-100	0.8	4.8	0.5	28.6	6.0	59.3
0.7	32.2	5.9	54.2	P95-100	0.9	6.0	0.5	31.5	7.5	53.6
0.7	38.2	8.2	40.8	P99-100	0.8	10.9	0.5	36.6	11.1	40.1
0.6	38.5	7.9	38.3	P99.5-100	0.8	13.7	0.4	37.0	10.8	37.5
0.4	37.3	6.7	33.4	P99.9-100	0.5	21.5	0.3	35.8	9.2	32.8
0.3	33.7	3.7	29.6	P99.99-100	0.3	32.6	0.3	33.4	5.3	28.3

(continued)

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(continued)

1952	RF	RCM	BA	BIC	BNC	TSP	1953	RF	RCM
P90-95	0.8	1.2	0.4	18.0	2.0	77.7	P90-95	0.8	1.4
P95-99	0.9	2.6	0.5	25.2	5.1	65.6	P95-99	0.9	2.7
P99-99.5	1.1	5.1	0.5	34.4	10.1	48.8	P99-99.5	1.2	5.1
P99.5-99.9	1.0	7.9	0.4	37.4	9.7	43.6	P99.5-99.9	1.0	8.5
P99.9-99.99	0.6	16.2	0.3	39.3	7.7	36.0	P99.9-99.99	0.7	18.1
P99.99-100	0.3	32.7	0.5	33.2	4.6	28.7	P99.99-100	0.2	32.5
1955	RF	RCM	BA	BIC	BNC	TSP	1956	RF	RCM
P90-100	0.8	4.8	0.5	27.2	6.2	60.5	P90-100	1.2	4.7
P95-100	0.8	6.2	0.5	30.3	8.0	54.2	P95-100	1.3	6.1
P99-100	0.8	11.0	0.4	34.9	11.1	41.9	P99-100	1.3	11.0
P99.5-100	0.7	13.9	0.3	35.5	11.2	38.5	P99.5-100	1.2	13.7
P99.9-100	0.5	21.5	0.2	34.3	9.9	33.6	P99.9-100	0.9	21.2
P99.99-100	0.2	32.4	0.1	32.2	6.0	29.2	P99.99-100	0.3	33.6
P90-95	0.7	1.4	0.5	19.2	1.8	76.8	P90-95	1.0	1.5
P95-99	0.8	3.0	0.6	27.4	5.9	62.6	P95-99	1.3	2.7
P99-99.5	1.0	4.6	0.6	33.6	11.1	49.6	P99-99.5	1.5	5.6
P99.5-99.9	0.8	8.8	0.4	36.5	12.0	42.0	P99.5-99.9	1.4	8.7
P99.9-99.99	0.6	17.7	0.2	35.3	11.4	35.4	P99.9-99.99	1.1	17.0
P99.99-100	0.2	32.4	0.1	32.2	6.0	29.2	P99.99-100	0.3	33.6
1958	RF	RCM	BA	BIC	BNC	TSP	1959	RF	RCM
P90-100	1.4	4.1	0.5	21.7	6.3	66.0	P90-100	1.6	3.9
P95-100	1.5	5.3	0.5	24.0	8.2	60.5	P95-100	1.8	5.1
P99-100	1.6	9.4	0.5	28.9	11.9	47.9	P99-100	1.9	8.8
P99.5-100	1.5	11.7	0.4	30.5	12.7	43.4	P99.5-100	1.9	10.8
P99.9-100	1.2	18.2	0.3	31.9	11.1	37.4	P99.9-100	1.6	16.8
P99.99-100	0.7	29.7	0.2	32.5	7.9	29.1	P99.99-100	1.1	27.1
P90-95	1.2	1.5	0.5	16.3	2.2	78.5	P90-95	1.4	1.5
P95-99	1.5	2.6	0.6	20.8	5.8	69.0	P95-99	1.7	2.6
P99-99.5	1.7	4.8	0.6	25.8	10.3	57.2	P99-99.5	2.0	4.9



APPENDIX B

BA	BIC	BNC	TSP	1954	RF	RCM	BA	BIC	BNC	TSP
0.5	20.6	1.8	75.2	P90-95	0.8	1.4	0.5	20.5	1.9	75.3
0.7	28.4	4.3	63.2	P95-99	0.9	2.8	0.6	28.1	5.2	62.8
0.9	37.7	8.9	46.7	P99-99.5	1.1	4.7	0.6	36.0	11.8	46.4
0.7	39.6	8.8	41.9	P99.5-99.9	0.9	8.4	0.5	37.9	12.0	40.9
0.4	38.8	7.8	35.0	P99.9-99.99	0.6	17.6	0.3	37.0	10.7	34.6
0.3	33.7	3.7	29.6	P99.99-100	0.3	32.6	0.3	33.4	5.3	28.3
BA	BIC	BNC	TSP	1957	RF	RCM	BA	BIC	BNC	TSP
0.4	24.0	6.3	63.3	P90-100	1.4	4.4	0.6	25.8	6.3	61.5
0.5	26.9	8.1	57.2	P95-100	1.4	5.7	0.6	28.5	8.0	55.8
0.4	32.0	11.6	43.8	P99-100	1.5	10.0	0.6	33.3	11.3	43.5
0.3	33.3	12.1	39.5	P99.5-100	1.4	12.5	0.5	34.6	12.1	38.9
0.3	32.4	10.6	34.7	P99.9-100	1.1	19.7	0.4	34.3	10.3	34.3
0.3	30.4	6.9	28.7	P99.99-100	0.6	31.9	0.3	33.1	7.8	26.5
0.4	17.7	2.1	77.4	P90-95	1.2	1.5	0.5	19.0	2.3	75.6
0.5	23.4	5.6	66.7	P95-99	1.4	2.7	0.6	25.3	5.8	64.3
0.5	29.5	10.6	52.6	P99-99.5	1.6	4.8	0.7	30.6	9.6	53.1
0.4	34.0	13.1	42.8	P99.5-99.9	1.6	7.8	0.5	35.0	13.4	42.0
0.3	33.3	11.9	37.0	P99.9-99.99	1.2	15.3	0.5	34.8	11.3	37.3
0.3	30.4	6.9	28.7	P99.99-100	0.6	31.9	0.3	33.1	7.8	26.5
BA	BIC	BNC	TSP	1960	RF	RCM	BA	BIC	BNC	TSP
0.5	25.3	6.4	62.3	P90-100	2.1	4.8	0.7	23.0	6.7	62.7
0.4	28.1	8.4	56.2	P95-100	2.2	6.2	0.7	25.3	8.9	56.7
0.3	32.6	12.3	44.0	P99-100	2.5	11.0	0.6	28.8	13.6	43.6
0.3	33.8	12.9	40.3	P99.5-100	2.4	13.6	0.5	29.5	13.9	40.0
0.2	35.5	12.0	34.0	P99.9-100	2.1	21.2	0.3	29.9	12.4	34.1
0.1	36.0	9.7	26.1	P99.99-100	1.5	35.4	0.2	27.2	8.9	26.8
0.5	19.3	2.0	75.6	P90-95	1.6	1.7	0.7	18.2	2.1	75.7
0.5	25.2	5.8	64.5	P95-99	2.1	2.9	0.8	22.9	5.6	65.8
0.4	30.2	11.1	51.6	P99-99.5	2.6	5.0	0.8	27.2	12.9	51.7

(continued)

## APPENDIX B

TABLE B-16  
(continued)

1958	RF	RCM	BA	BIC	BNC	TSP	1959	RF	RCM
P99.5-99.9	1.7	7.5	0.5	29.6	13.7	47.4	P99.5-99.9	2.1	7.0
P99.9-99.99	1.4	14.2	0.3	31.8	12.3	40.5	P99.9-99.99	1.8	13.2
P99.99-100	0.7	29.7	0.2	32.5	7.9	29.1	P99.99-100	1.1	27.1
1961	RF	RCM	BA	BIC	BNC	TSP	1962	RF	RCM
P90-100	2.1	4.6	0.6	23.4	6.9	62.4	P90-100	2.2	4.5
P95-100	2.3	6.0	0.6	26.3	9.4	55.4	P95-100	2.4	5.8
P99-100	2.5	10.5	0.5	29.0	14.8	42.7	P99-100	2.7	9.9
P99.5-100	2.5	13.1	0.4	29.4	15.2	39.5	P99.5-100	2.7	12.4
P99.9-100	2.2	20.5	0.3	29.6	13.9	33.6	P99.9-100	2.3	19.6
P99.99-100	1.6	34.0	0.2	27.6	10.1	26.7	P99.99-100	1.6	33.2
P90-95	1.6	1.4	0.7	16.9	1.5	78.1	P90-95	1.7	1.8
P95-99	2.2	2.9	0.7	24.5	5.7	64.2	P95-99	2.3	3.0
P99-99.5	2.7	4.8	0.7	28.0	14.2	50.1	P99-99.5	2.8	4.4
P99.5-99.9	2.7	8.4	0.5	29.4	16.0	43.4	P99.5-99.9	2.9	7.9
P99.9-99.99	2.4	15.8	0.3	30.5	15.3	36.2	P99.9-99.99	2.6	14.9
P99.99-100	1.6	34.0	0.2	27.6	10.1	26.7	P99.99-100	1.6	33.2
1964	RF	RCM	BA	BIC	BNC	TSP	1965	RF	RCM
P90-100	2.0	4.1	1.1	21.3	7.8	63.7	P90-100	2.3	4.0
P95-100	2.3	5.2	1.1	23.9	10.6	56.9	P95-100	2.6	5.2
P99-100	2.8	9.0	1.1	27.6	17.9	41.7	P99-100	3.2	9.2
P99.5-100	2.8	11.1	1.0	28.6	19.0	37.6	P99.5-100	3.3	11.5
P99.9-100	2.7	17.0	0.8	29.1	18.8	31.7	P99.9-100	3.3	17.7
P99.99-100	2.2	29.8	0.5	25.0	16.8	26.0	P99.99-100	2.8	30.8
P90-95	1.4	1.6	1.0	15.9	1.8	78.5	P90-95	1.6	1.4
P95-99	2.1	2.7	1.2	21.5	5.7	67.2	P95-99	2.2	2.5
P99-99.5	2.7	4.6	1.3	25.6	15.8	50.8	P99-99.5	3.1	4.6
P99.5-99.9	2.9	7.5	1.1	28.4	19.2	41.4	P99.5-99.9	3.4	7.6
P99.9-99.99	2.9	12.8	0.9	30.6	19.6	33.8	P99.9-99.99	3.4	13.5
P99.99-100	2.2	29.8	0.5	25.0	16.8	26.0	P99.99-100	2.8	30.8

APPENDIX B

BA	BIC	BNC	TSP	1960	RF	RCM	BA	BIC	BNC	TSP
0.4	32.8	13.6	44.5	P99.5-99.9	2.6	8.7	0.6	29.3	14.9	43.9
0.2	35.4	12.9	36.9	P99.9-99.99	2.3	16.2	0.4	30.9	13.7	36.7
0.1	36.0	9.7	26.1	P99.99-100	1.5	35.4	0.2	27.2	8.9	26.8
BA	BIC	BNC	TSP	1963	RF	RCM	BA	BIC	BNC	TSP
0.8	22.3	6.4	63.9	P90-100	2.2	4.2	0.6	22.5	6.6	63.9
0.8	25.0	8.5	57.5	P95-100	2.5	5.5	0.6	25.5	8.9	57.0
0.8	28.8	13.2	44.6	P99-100	2.9	9.5	0.5	29.5	14.4	43.4
0.7	29.9	14.1	40.2	P99.5-100	2.8	11.8	0.5	30.5	15.4	38.9
0.4	30.8	13.8	33.1	P99.9-100	2.6	18.4	0.3	30.7	15.4	32.6
0.2	26.6	11.8	26.7	P99.99-100	1.7	31.5	0.3	25.5	14.4	26.7
0.8	16.6	1.9	77.3	P90-95	1.7	1.6	0.6	16.2	1.7	78.4
0.9	22.5	5.4	66.2	P95-99	2.3	2.8	0.6	23.0	5.3	66.1
1.0	26.3	11.5	54.3	P99-99.5	2.9	4.5	0.6	27.3	12.1	52.9
0.9	29.5	14.3	44.9	P99.5-99.9	3.0	7.7	0.5	30.6	15.5	43.0
0.5	32.3	14.6	35.5	P99.9-99.99	2.9	14.0	0.3	32.5	15.8	34.8
0.2	26.6	11.8	26.7	P99.99-100	1.7	31.5	0.3	25.5	14.4	26.7
BA	BIC	BNC	TSP	1966	RF	RCM	BA	BIC	BNC	TSP
1.1	21.9	7.8	63.0	P90-100	2.5	4.0	1.1	21.3	7.8	63.4
1.1	24.3	10.5	56.3	P95-100	2.8	5.1	1.1	23.2	10.3	57.4
1.1	27.3	17.8	41.5	P99-100	3.5	9.4	1.0	26.2	17.6	42.3
1.0	28.1	19.0	37.2	P99.5-100	3.6	12.0	0.9	27.2	18.5	37.9
0.7	28.1	18.2	32.0	P99.9-100	3.4	19.2	0.7	27.1	17.4	32.3
0.3	24.4	16.5	25.3	P99.99-100	2.6	35.5	0.3	22.6	13.9	25.2
1.1	16.7	1.8	77.6	P90-95	1.9	1.8	1.0	17.3	2.7	75.6
1.1	22.3	5.6	66.5	P95-99	2.4	2.3	1.1	21.3	5.5	67.6
1.3	25.7	15.3	50.5	P99-99.5	3.3	4.1	1.2	24.4	15.8	51.6
1.1	28.2	19.5	40.6	P99.5-99.9	3.7	7.5	1.1	27.3	19.3	41.4
0.8	29.5	18.9	34.4	P99.9-99.99	3.7	13.6	0.8	28.7	18.6	34.8
0.3	24.4	16.5	25.3	P99.99-100	2.6	35.5	0.3	22.6	13.9	25.2

(continued)

## APPENDIX B

TABLE B-16  
(continued)

1967	RF	RCM	BA	BIC	BNC	TSP	1968	RF	RCM
P90-100	2.8	4.4	1.3	21.6	7.9	62.0	P90-100	2.9	4.2
P95-100	3.2	5.7	1.3	23.6	10.7	55.6	P95-100	3.3	5.5
P99-100	3.9	10.3	1.3	26.2	17.6	40.7	P99-100	4.2	10.1
P99.5-100	4.0	13.2	1.1	26.8	18.7	36.1	P99.5-100	4.4	13.1
P99.9-100	3.9	21.4	0.8	26.1	17.4	30.5	P99.9-100	4.3	21.3
P99.99-100	2.9	39.6	0.3	21.1	13.4	22.8	P99.99-100	3.2	38.6
P90-95	2.0	1.5	1.2	17.4	1.9	76.1	P90-95	2.0	1.4
P95-99	2.7	2.7	1.3	21.9	6.2	65.4	P95-99	2.7	2.6
P99-99.5	3.7	4.4	1.6	25.0	15.3	50.4	P99-99.5	3.8	4.3
P99.5-99.9	4.1	8.1	1.4	27.4	19.6	39.7	P99.5-99.9	4.4	8.0
P99.9-99.99	4.2	14.9	0.9	28.0	18.9	33.3	P99.9-99.99	4.7	15.0
P99.99-100	2.9	39.6	0.3	21.1	13.4	22.8	P99.99-100	3.2	38.6
1970	RF	RCM	BA	BIC	BNC	TSP	1971	RF	RCM
P90-100	3.0	4.0	1.8	17.2	7.5	66.4	P90-100	3.1	4.0
P95-100	3.5	5.3	2.0	19.4	10.2	59.6	P95-100	3.6	5.2
P99-100	4.4	9.9	2.3	22.7	16.8	43.9	P99-100	4.6	9.7
P99.5-100	4.5	12.6	2.2	24.0	17.7	39.0	P99.5-100	4.8	12.4
P99.9-100	4.4	21.0	1.9	23.5	16.5	32.8	P99.9-100	4.7	20.7
P99.99-100	3.6	39.9	1.3	18.9	12.4	24.0	P99.99-100	3.9	39.2
P90-95	2.0	1.6	1.4	12.9	2.2	80.0	P90-95	1.9	1.2
P95-99	2.9	2.3	1.9	17.2	6.0	69.9	P95-99	3.0	2.2
P99-99.5	4.1	4.3	2.4	20.4	15.2	54.1	P99-99.5	4.2	3.9
P99.5-99.9	4.6	7.5	2.5	24.4	18.6	43.1	P99.5-99.9	4.8	6.9
P99.9-99.99	4.7	14.8	2.1	25.2	18.0	36.0	P99.9-99.99	5.0	14.1
P99.99-100	3.6	39.9	1.3	18.9	12.4	24.0	P99.99-100	3.9	39.2
1973	RF	RCM	BA	BIC	BNC	TSP	1974	RF	RCM
P90-100	2.9	3.7	2.1	15.9	7.6	67.9	P90-100	2.7	3.6
P95-100	3.4	4.9	2.3	18.4	10.4	60.6	P95-100	3.3	4.7
P99-100	4.3	9.0	2.4	22.8	17.5	44.0	P99-100	4.2	8.7
P99.5-100	4.3	11.2	2.3	22.9	18.1	41.3	P99.5-100	4.2	10.8

APPENDIX B

BA	BIC	BNC	TSP	1969	RF	RCM	BA	BIC	BNC	TSP
1.1	19.4	7.5	64.9	P90-100	2.8	3.9	1.3	18.3	7.5	66.2
1.2	21.1	10.3	58.7	P95-100	3.3	5.2	1.4	20.4	10.3	59.6
1.2	23.8	17.0	43.8	P99-100	4.1	9.7	1.4	23.2	16.9	44.9
1.1	24.5	18.4	38.7	P99.5-100	4.2	12.4	1.3	24.2	18.2	39.8
0.7	23.7	18.0	32.1	P99.9-100	4.1	20.3	0.9	23.6	17.9	33.4
0.3	18.7	16.2	23.1	P99.99-100	3.0	37.1	0.3	20.7	16.4	22.7
1.0	15.9	1.7	78.2	P90-95	1.9	1.5	1.1	14.1	2.0	79.6
1.2	19.5	6.0	68.2	P95-99	2.8	2.3	1.4	18.7	6.1	69.1
1.4	22.4	14.3	54.2	P99-99.5	3.8	4.2	1.6	21.2	14.4	55.4
1.3	25.1	18.7	42.9	P99.5-99.9	4.3	7.7	1.6	24.7	18.4	43.9
0.9	25.5	18.7	35.4	P99.9-99.99	4.5	14.5	1.1	24.8	18.6	37.3
0.3	18.7	16.2	23.1	P99.99-100	3.0	37.1	0.3	20.7	16.4	22.7
BA	BIC	BNC	TSP	1972	RF	RCM	BA	BIC	BNC	TSP
1.7	16.6	7.6	67.0	P90-100	3.0	3.8	0.6	16.4	7.4	68.7
1.9	18.9	10.5	59.9	P95-100	3.6	5.1	0.7	19.0	10.3	61.3
2.0	23.0	17.4	43.2	P99-100	4.5	9.4	1.0	23.9	17.2	44.0
2.0	24.4	18.6	37.9	P99.5-100	4.6	11.8	1.1	24.9	18.3	39.3
1.6	24.0	17.3	31.6	P99.9-100	4.6	19.8	0.9	24.7	17.2	32.7
1.2	19.7	13.0	23.1	P99.99-100	3.9	37.7	0.7	20.8	12.9	24.0
1.3	11.7	1.4	82.4	P90-95	1.8	1.2	0.4	11.0	1.4	84.2
1.8	16.1	5.7	71.3	P95-99	2.9	2.0	0.6	15.6	5.5	73.5
2.2	20.2	15.0	54.6	P99-99.5	4.2	4.4	0.8	21.8	14.8	53.9
2.2	24.6	19.4	42.1	P99.5-99.9	4.7	6.3	1.2	25.0	19.0	43.8
1.8	25.5	18.9	34.7	P99.9-99.99	4.9	13.3	1.0	26.1	18.8	35.9
1.2	19.7	13.0	23.1	P99.99-100	3.9	37.7	0.7	20.8	12.9	24.0
BA	BIC	BNC	TSP	1975	RF	RCM	BA	BIC	BNC	TSP
1.7	15.6	7.5	69.0	P90-100	2.7	3.5	1.2	14.9	8.0	69.7
1.9	18.5	10.3	61.2	P95-100	3.2	4.6	1.3	17.4	11.0	62.5
2.3	23.8	17.5	43.5	P99-100	4.2	8.3	1.6	22.0	18.6	45.5
2.3	23.7	17.2	41.8	P99.5-100	4.3	10.6	1.7	22.3	19.9	41.1

(continued)

APPENDIX B

TABLE B-16  
(continued)

1973	RF	RCM	BA	BIC	BNC	TSP	1974	RF	RCM
P99.9-100	4.3	19.1	2.0	23.0	17.2	34.4	P99.9-100	4.3	18.5
P99.99-100	3.7	36.5	1.5	19.9	13.0	25.4	P99.99-100	3.7	35.4
P90-95	1.8	1.3	1.6	10.5	1.7	83.1	P90-95	1.6	1.2
P95-99	2.8	2.0	2.2	15.3	5.4	72.4	P95-99	2.6	2.1
P99-99.5	4.2	4.1	2.6	22.8	16.2	50.1	P99-99.5	4.2	3.8
P99.5-99.9	4.2	6.2	2.5	22.8	18.6	45.7	P99.5-99.9	4.2	5.8
P99.9-99.99	4.6	11.9	2.2	24.3	18.9	38.1	P99.9-99.99	4.5	12.3
P99.99-100	3.7	36.5	1.5	19.9	13.0	25.4	P99.99-100	3.7	35.4
1976	RF	RCM	BA	BIC	BNC	TSP	1977	RF	RCM
P90-100	2.6	3.4	0.9	15.1	8.0	69.9	P90-100	2.6	3.4
P95-100	3.2	4.5	1.0	18.1	11.2	62.1	P95-100	3.2	4.6
P99-100	4.0	8.3	1.1	22.1	18.5	46.1	P99-100	4.2	8.9
P99.5-100	4.2	10.5	1.1	22.4	20.4	41.4	P99.5-100	4.5	11.8
P99.9-100	4.3	18.2	1.0	22.9	19.7	33.8	P99.9-100	4.6	20.3
P99.99-100	3.7	34.7	0.9	21.1	14.7	24.9	P99.99-100	3.9	37.6
P90-95	1.6	1.2	0.8	9.2	1.7	85.4	P90-95	1.5	1.0
P95-99	2.6	1.8	0.9	15.3	6.0	73.5	P95-99	2.5	1.8
P99-99.5	3.7	3.6	1.0	21.6	14.5	55.7	P99-99.5	3.5	2.9
P99.5-99.9	4.1	5.5	1.2	22.0	20.9	46.3	P99.5-99.9	4.4	6.3
P99.9-99.99	4.5	12.0	1.1	23.6	21.7	37.1	P99.9-99.99	4.8	13.6
P99.99-100	3.7	34.7	0.9	21.1	14.7	24.9	P99.99-100	3.9	37.6
1979	RF	RCM	BA	BIC	BNC	TSP	1980	RF	RCM
P90-100	2.8	3.6	1.3	14.1	8.6	69.6	P90-100	2.8	3.9
P95-100	3.4	4.8	1.4	16.4	11.9	62.0	P95-100	3.4	5.2
P99-100	4.6	9.1	1.7	19.8	21.2	43.6	P99-100	4.6	9.5
P99.5-100	4.7	11.4	1.8	19.2	21.2	41.7	P99.5-100	4.7	11.9
P99.9-100	4.8	19.9	1.7	19.9	20.6	33.1	P99.9-100	4.8	20.7
P99.99-100	4.2	36.8	1.6	19.0	14.7	23.8	P99.99-100	4.2	37.8

APPENDIX B

BA	BIC	BNC	TSP	1975	RF	RCM	BA	BIC	BNC	TSP
2.0	24.0	16.5	34.6	P99.9-100	4.4	18.3	1.6	22.8	19.2	33.8
1.6	21.3	12.4	25.6	P99.99-100	3.8	35.0	1.3	20.6	14.3	25.0
1.1	9.6	1.5	84.9	P90-95	1.7	1.4	1.0	9.9	2.0	84.0
1.7	14.8	5.4	73.5	P95-99	2.5	2.0	1.2	14.3	5.8	74.1
2.3	24.1	18.2	47.3	P99-99.5	3.8	3.0	1.2	21.2	15.6	55.2
2.5	23.4	17.7	46.4	P99.5-99.9	4.3	5.7	1.8	22.0	20.4	45.8
2.2	25.0	18.1	37.9	P99.9-99.99	4.6	12.1	1.7	23.6	21.0	37.1
1.6	21.3	12.4	25.6	P99.99-100	3.8	35.0	1.3	20.6	14.3	25.0
BA	BIC	BNC	TSP	1978	RF	RCM	BA	BIC	BNC	TSP
0.9	14.4	7.7	71.0	P90-100	2.8	3.4	1.2	14.2	8.4	70.0
1.0	17.0	10.7	63.6	P95-100	3.4	4.6	1.3	16.7	11.8	62.2
1.1	20.8	17.5	47.5	P99-100	4.5	8.7	1.5	20.1	20.3	44.9
1.2	21.5	19.9	41.2	P99.5-100	4.7	11.2	1.5	20.2	21.9	40.4
1.1	21.9	19.1	33.0	P99.9-100	4.8	19.5	1.4	20.7	21.2	32.3
0.9	20.1	13.8	23.7	P99.99-100	4.2	36.3	1.3	19.5	15.3	23.4
0.8	9.2	1.7	85.8	P90-95	1.6	1.1	1.1	9.2	1.7	85.2
0.9	14.5	6.2	74.1	P95-99	2.7	1.8	1.2	14.5	6.1	73.7
1.0	19.3	12.7	60.6	P99-99.5	4.1	3.5	1.3	19.9	17.1	54.1
1.2	21.2	20.4	46.5	P99.5-99.9	4.6	5.9	1.6	19.8	22.4	45.8
1.1	22.6	21.1	36.6	P99.9-99.99	5.0	13.1	1.5	21.2	23.4	35.7
0.9	20.1	13.8	23.7	P99.99-100	4.2	36.3	1.3	19.5	15.3	23.4
BA	BIC	BNC	TSP	1981	RF	RCM	BA	BIC	BNC	TSP
1.3	13.5	8.4	70.1	P90-100	3.0	4.1	1.2	12.5	8.3	70.9
1.4	16.1	12.0	61.8	P95-100	3.5	5.4	1.3	14.0	11.3	64.6
1.8	19.5	21.1	43.4	P99-100	5.0	10.0	1.6	18.0	20.1	45.4
1.9	18.7	20.4	42.5	P99.5-100	5.1	12.6	1.7	17.3	19.8	43.5
1.8	19.4	19.8	33.4	P99.9-100	5.2	22.0	1.7	18.0	19.3	33.9
1.7	18.7	14.0	23.7	P99.99-100	4.6	39.5	1.6	17.4	13.3	23.7

(continued)

APPENDIX B

TABLE B-16  
(continued)

1979	RF	RCM	BA	BIC	BNC	TSP	1980	RF	RCM
P90-95	1.7	1.4	1.1	9.5	2.1	84.3	P90-95	1.5	1.4
P95-99	2.6	1.9	1.2	14.2	5.6	74.6	P95-99	2.6	2.4
P99-99.5	4.5	4.2	1.6	20.9	21.3	47.4	P99-99.5	4.6	4.6
P99.5-99.9	4.6	5.7	1.9	18.7	21.6	47.5	P99.5-99.9	4.5	6.0
P99.9-99.99	5.0	13.4	1.8	20.2	22.8	36.7	P99.9-99.99	5.0	14.2
P99.99-100	4.2	36.8	1.6	19.0	14.7	23.8	P99.99-100	4.2	37.8
1982	RF	RCM	BA	BIC	BNC	TSP	1983	RF	RCM
P90-100	3.0	3.7	1.3	11.8	8.1	72.1	P90-100	3.1	3.4
P95-100	3.6	4.8	1.4	13.7	11.3	65.2	P95-100	3.8	4.4
P99-100	5.0	8.8	1.8	17.2	19.1	48.0	P99-100	5.2	7.9
P99.5-100	5.2	11.5	1.9	16.8	19.7	44.8	P99.5-100	5.5	10.3
P99.9-100	5.5	20.4	1.9	17.8	19.4	35.0	P99.9-100	5.9	18.5
P99.99-100	4.9	37.1	1.9	17.8	13.5	24.8	P99.99-100	5.4	34.2
P90-95	1.8	1.7	1.0	8.1	2.1	85.3	P90-95	1.8	1.7
P95-99	2.8	2.4	1.2	11.6	6.5	75.6	P95-99	2.9	2.3
P99-99.5	4.7	3.4	1.7	17.9	17.9	54.5	P99-99.5	4.6	3.2
P99.5-99.9	5.0	5.8	1.9	16.2	19.8	51.2	P99.5-99.9	5.3	5.2
P99.9-99.99	5.7	14.2	1.9	17.8	21.6	38.8	P99.9-99.99	6.0	12.9
P99.99-100	4.9	37.1	1.9	17.8	13.5	24.8	P99.99-100	5.4	34.2
1985	RF	RCM	BA	BIC	BNC	TSP	1986	RF	RCM
P90-100	3.1	3.8	1.5	9.4	8.5	73.7	P90-100	3.2	3.9
P95-100	3.7	4.8	1.9	10.9	12.0	66.7	P95-100	3.8	4.7
P99-100	5.2	8.2	2.7	13.6	20.5	49.8	P99-100	5.2	8.0
P99.5-100	5.3	10.4	2.8	13.2	20.7	47.6	P99.5-100	5.3	10.2
P99.9-100	5.7	18.9	3.0	14.4	21.0	36.9	P99.9-100	5.8	18.6
P99.99-100	5.3	34.7	3.3	15.5	14.6	26.6	P99.99-100	5.4	34.0
P90-95	1.9	1.9	0.9	6.5	1.8	87.1	P90-95	2.0	2.3
P95-99	2.9	2.7	1.4	9.2	7.0	76.7	P95-99	2.9	2.7
P99-99.5	5.0	3.8	2.3	14.5	20.2	54.2	P99-99.5	5.0	3.5
P99.5-99.9	5.0	5.1	2.7	12.4	20.5	54.2	P99.5-99.9	5.0	4.8



APPENDIX B

BA	BIC	BNC	TSP	1981	RF	RCM	BA	BIC	BNC	TSP
1.0	8.3	1.6	86.2	P90-95	2.0	1.6	0.9	9.4	2.5	83.5
1.2	13.9	6.0	73.9	P95-99	2.6	2.4	1.0	11.5	5.7	76.7
1.6	21.2	22.7	45.2	P99-99.5	4.8	4.7	1.5	19.3	20.6	49.1
1.9	18.2	20.8	48.5	P99.5-99.9	4.9	6.3	1.7	16.8	20.2	50.0
1.9	19.7	22.1	37.1	P99.9-99.99	5.5	15.2	1.7	18.2	21.6	37.8
1.7	18.7	14.0	23.7	P99.99-100	4.6	39.5	1.6	17.4	13.3	23.7
BA	BIC	BNC	TSP	1984	RF	RCM	BA	BIC	BNC	TSP
1.3	10.9	8.3	73.0	P90-100	3.1	3.5	1.6	9.8	8.2	73.7
1.6	12.8	11.7	65.9	P95-100	3.7	4.5	1.9	11.4	11.6	66.9
2.1	15.3	19.7	49.8	P99-100	5.2	8.2	2.7	14.1	20.1	49.6
2.3	15.1	21.1	45.7	P99.5-100	5.3	10.4	2.8	13.4	19.8	48.4
2.4	16.2	21.1	35.9	P99.9-100	5.7	18.8	3.0	14.6	20.0	37.9
2.5	16.9	15.0	26.0	P99.99-100	5.3	34.7	3.1	15.5	14.1	27.4
0.9	7.3	2.0	86.3	P90-95	1.9	1.7	1.0	6.9	1.9	86.7
1.3	11.2	6.9	75.4	P95-99	2.8	2.3	1.4	9.8	6.5	77.2
1.7	15.8	16.9	57.7	P99-99.5	5.2	4.2	2.4	15.5	20.8	51.9
2.3	14.4	21.0	51.8	P99.5-99.9	5.0	5.1	2.7	12.7	19.6	54.9
2.4	15.9	23.3	39.4	P99.9-99.99	5.9	13.1	2.9	14.2	22.1	41.7
2.5	16.9	15.0	26.0	P99.99-100	5.3	34.7	3.1	15.5	14.1	27.4
BA	BIC	BNC	TSP	1987	RF	RCM	BA	BIC	BNC	TSP
1.4	9.4	9.1	73.0	P90-100	3.3	4.3	1.4	9.4	9.2	72.4
1.7	10.9	12.5	66.4	P95-100	3.9	5.3	1.6	10.8	12.6	65.8
2.3	13.6	21.5	49.4	P99-100	5.3	9.0	2.0	13.3	21.1	49.3
2.5	13.3	22.2	46.5	P99.5-100	5.4	11.7	2.2	13.0	22.0	45.8
2.7	14.5	22.6	35.9	P99.9-100	5.8	21.1	2.4	14.1	22.1	34.5
3.0	16.0	15.7	25.8	P99.99-100	5.3	37.6	2.6	15.4	14.8	24.2
0.9	6.8	2.6	85.4	P90-95	2.1	2.4	1.1	6.8	2.7	84.9
1.3	9.2	7.0	76.9	P95-99	3.0	3.0	1.3	9.3	7.3	76.1
1.9	14.2	20.0	55.3	P99-99.5	5.1	3.4	1.7	13.8	19.2	56.8
2.4	12.5	22.0	53.4	P99.5-99.9	5.1	5.3	2.1	12.2	21.9	53.4

(continued)

APPENDIX B

TABLE B-16  
(continued)

1985	RF	RCM	BA	BIC	BNC	TSP	1986	RF	RCM
P99.9-99.99	5.9	13.2	3.0	14.0	23.3	40.7	P99.9-99.99	5.9	12.8
P99.99-100	5.3	34.7	3.3	15.5	14.6	26.6	P99.99-100	5.4	34.0
1988	RF	RCM	BA	BIC	BNC	TSP	1989	RF	RCM
P90-100	3.5	4.5	1.4	9.1	9.5	72.0	P90-100	4.0	4.8
P95-100	4.1	5.6	1.6	10.5	13.0	65.2	P95-100	4.7	6.0
P99-100	5.6	9.5	1.9	12.9	21.4	48.8	P99-100	6.0	10.6
P99.5-100	5.7	12.4	2.0	12.8	22.6	44.4	P99.5-100	6.4	13.4
P99.9-100	6.2	22.3	2.2	13.8	22.6	33.0	P99.9-100	6.9	23.4
P99.99-100	5.7	39.1	2.4	15.2	14.9	22.8	P99.99-100	5.7	38.3
P90-95	2.2	2.5	1.2	6.5	2.7	85.0	P90-95	2.5	2.5
P95-99	3.3	3.3	1.4	9.0	7.9	75.2	P95-99	4.0	3.3
P99-99.5	5.3	3.9	1.7	13.0	19.1	57.0	P99-99.5	5.3	4.9
P99.5-99.9	5.5	6.2	1.9	12.2	22.6	51.6	P99.5-99.9	6.1	6.9
P99.9-99.99	6.3	15.9	2.1	13.3	25.5	36.8	P99.9-99.99	7.3	17.4
P99.99-100	5.7	39.1	2.4	15.2	14.9	22.8	P99.99-100	5.7	38.3
1991	RF	RCM	BA	BIC	BNC	TSP	1992	RF	RCM
P90-100	4.7	4.0	1.6	7.5	9.6	72.6	P90-100	4.6	4.3
P95-100	5.5	5.1	2.0	8.8	13.5	65.3	P95-100	5.1	5.3
P99-100	6.9	9.8	2.3	12.1	22.0	47.0	P99-100	6.7	10.2
P99.5-100	7.8	12.7	2.3	13.1	22.0	42.1	P99.5-100	7.7	13.6
P99.9-100	8.9	25.2	2.6	11.9	22.5	28.9	P99.9-100	7.9	22.8
P99.99-100	10.7	42.3	1.9	14.5	11.3	19.3	P99.99-100	7.5	42.4
P90-95	3.4	2.0	0.9	5.1	2.3	86.4	P90-95	3.4	2.6
P95-99	4.6	2.1	1.8	6.7	8.2	76.5	P95-99	4.2	2.3
P99-99.5	5.1	4.1	2.2	9.9	22.2	56.5	P99-99.5	4.7	3.2
P99.5-99.9	7.1	4.8	2.1	13.9	21.7	50.6	P99.5-99.9	7.6	7.7
P99.9-99.99	8.2	18.6	2.9	11.0	26.9	32.6	P99.9-99.99	8.0	15.9
P99.99-100	10.7	42.3	1.9	14.5	11.3	19.3	P99.99-100	7.5	42.4

APPENDIX B

BA	BIC	BNC	TSP	1987	RF	RCM	BA	BIC	BNC	TSP
2.6	14.0	25.1	39.6	P99.9-99.99	5.9	14.5	2.3	13.6	25.0	38.7
3.0	16.0	15.7	25.8	P99.99-100	5.3	37.6	2.6	15.4	14.8	24.2
BA	BIC	BNC	TSP	1990	RF	RCM	BA	BIC	BNC	TSP
1.8	8.4	10.0	71.1	P90-100	4.2	4.3	1.8	8.5	9.5	71.7
2.0	10.2	13.8	63.1	P95-100	4.7	5.6	2.1	10.3	13.3	64.1
2.4	12.9	22.7	45.5	P99-100	6.1	10.2	2.7	13.2	21.2	46.6
2.6	13.0	23.6	41.0	P99.5-100	6.7	13.2	2.9	13.7	23.7	39.9
2.2	13.8	22.4	31.4	P99.9-100	6.5	22.6	2.8	12.7	19.4	35.9
2.0	15.1	17.3	21.5	P99.99-100	5.4	39.1	3.0	14.1	17.2	21.1
1.4	4.7	2.5	86.5	P90-95	3.1	1.8	1.3	5.2	2.4	86.2
1.8	8.6	8.4	73.9	P95-99	3.8	2.7	1.7	8.5	8.3	75.0
2.0	12.7	20.8	54.3	P99-99.5	5.0	4.3	2.3	12.2	16.3	60.0
2.8	12.4	24.5	47.4	P99.5-99.9	6.7	6.9	2.9	14.3	26.5	42.6
2.3	13.3	24.3	35.3	P99.9-99.99	7.0	15.9	2.8	12.1	20.3	41.9
2.0	15.1	17.3	21.5	P99.99-100	5.4	39.1	3.0	14.1	17.2	21.1
BA	BIC	BNC	TSP	1993	RF	RCM	BA	BIC	BNC	TSP
1.4	7.0	9.5	73.2	P90-100	4.3	3.9	1.0	6.6	9.1	75.0
1.6	8.1	13.5	66.6	P95-100	5.0	5.1	1.1	7.7	12.7	68.4
1.8	9.3	22.3	49.8	P99-100	7.0	10.7	1.3	9.8	22.0	49.1
2.1	10.6	21.9	44.2	P99.5-100	7.6	14.8	1.3	10.3	25.7	40.3
1.6	8.4	19.4	39.9	P99.9-100	8.3	27.0	1.2	11.1	20.5	31.9
1.1	12.1	13.9	22.9	P99.99-100	6.8	45.4	1.1	9.8	13.8	23.1
1.0	5.0	1.9	86.0	P90-95	3.1	1.8	0.8	4.5	2.6	87.1
1.5	7.4	8.2	76.4	P95-99	3.8	2.0	1.1	6.4	7.4	79.3
1.3	6.5	23.1	61.2	P99-99.5	6.0	3.0	1.2	8.9	15.1	65.7
2.3	12.0	23.4	46.9	P99.5-99.9	7.1	6.9	1.4	9.8	29.1	45.8
1.8	7.1	21.4	45.9	P99.9-99.99	8.9	20.2	1.3	11.6	23.0	35.2
1.1	12.1	13.9	22.9	P99.99-100	6.8	45.4	1.1	9.8	13.8	23.1

(continued)

## APPENDIX B

TABLE B-16  
(continued)

1994	RF	RCM	BA	BIC	BNC	TSP	1995	RF	RCM
P90-100	4.5	4.8	1.1	6.3	9.3	73.9	P90-100	4.0	5.0
P95-100	5.7	6.5	1.3	7.0	12.4	67.2	P95-100	4.6	6.8
P99-100	7.0	12.4	1.3	9.3	21.7	48.4	P99-100	6.1	13.5
P99.5-100	7.0	16.2	1.3	9.1	22.6	43.8	P99.5-100	6.3	17.8
P99.9-100	7.4	29.8	1.2	7.9	22.7	30.9	P99.9-100	6.4	30.7
P99.99-100	5.5	50.5	0.6	7.8	14.8	20.7	P99.99-100	5.4	53.3
P90-95	2.5	1.9	0.9	5.1	3.6	86.0	P90-95	2.8	1.8
P95-99	4.9	2.9	1.2	5.7	6.9	78.4	P95-99	3.7	2.9
P99-99.5	7.0	5.0	1.1	9.7	19.8	57.4	P99-99.5	5.6	5.4
P99.5-99.9	6.7	6.8	1.4	9.9	22.5	52.7	P99.5-99.9	6.2	9.6
P99.9-99.99	8.1	22.5	1.5	7.9	25.5	34.5	P99.9-99.99	6.8	22.0
P99.99-100	5.5	50.5	0.6	7.8	14.8	20.7	P99.99-100	5.4	53.3
1997	RF	RCM	BA	BIC	BNC	TSP	1998	RF	RCM
P90-100	3.9	5.6	1.4	4.8	8.3	76.0	P90-100	4.0	5.5
P95-100	4.5	7.6	1.7	5.6	11.4	69.2	P95-100	4.6	7.5
P99-100	5.9	15.1	1.6	7.1	19.5	50.9	P99-100	6.0	15.0
P99.5-100	6.1	19.8	1.5	7.5	21.3	43.7	P99.5-100	6.2	19.7
P99.9-100	6.1	33.7	1.4	6.4	17.9	34.5	P99.9-100	6.2	33.6
P99.99-100	5.0	56.8	0.9	5.4	10.1	21.8	P99.99-100	5.1	56.7
P90-95	2.8	1.7	0.9	3.2	2.3	89.1	P90-95	2.9	1.6
P95-99	3.7	3.3	1.8	4.7	6.8	79.6	P95-99	3.8	3.2
P99-99.5	5.4	5.0	1.6	6.3	15.6	66.1	P99-99.5	5.5	4.9
P99.5-99.9	6.1	10.5	1.6	8.2	23.6	49.9	P99.5-99.9	6.2	10.4
P99.9-99.99	6.6	23.7	1.6	6.8	21.3	40.0	P99.9-99.99	6.7	23.6
P99.99-100	5.0	56.8	0.9	5.4	10.1	21.8	P99.99-100	5.1	56.7

*Acronyms:* RF = Revenus fonciers (real estate income); RCM = Revenus de capitaux mobiliers (investment income); BA = Bénéfices agricoles (farm profits); BIC = Bénéfices industriels et commerciaux (industrial and commercial profits); BNC = Bénéfices non commerciaux (noncommercial profits); TSP = Traitements, salaires, pensions et rentes viagères (fees, wages, pensions, and annuities).

*Explanation:* In 1998, the RF share of total income for fractile P90-100 was 4.0 percent, the RCM share was 5.5 percent, etc.

APPENDIX B

BA	BIC	BNC	TSP	1996	RF	RCM	BA	BIC	BNC	TSP
1.4	6.0	8.8	74.9	P90-100	4.0	5.3	1.5	5.0	8.4	75.7
1.6	7.1	12.1	67.8	P95-100	4.7	7.1	1.8	5.9	11.7	68.9
1.3	9.1	20.9	49.0	P99-100	6.2	14.0	1.6	7.5	19.9	50.8
1.3	9.7	22.8	42.2	P99.5-100	6.4	18.3	1.5	7.9	21.6	44.3
1.2	8.4	19.5	33.9	P99.9-100	6.5	31.4	1.4	6.8	18.4	35.5
0.8	7.3	11.2	22.0	P99.99-100	5.4	54.2	0.9	5.9	10.6	22.9
0.2	3.9	2.7	87.8	P90-95	2.8	1.8	1.0	3.3	2.3	88.8
0.5	5.9	7.0	78.9	P95-99	3.8	3.2	1.9	5.0	6.9	79.2
1.1	8.1	17.3	62.1	P99-99.5	5.6	5.1	1.7	6.8	16.4	64.4
1.2	10.5	24.9	47.5	P99.5-99.9	6.4	9.5	1.6	8.6	23.7	50.2
1.3	8.8	22.6	38.5	P99.9-99.99	7.0	21.8	1.6	7.2	21.7	40.7
0.8	7.3	11.2	22.0	P99.99-100	5.4	54.2	0.9	5.9	10.6	22.9
BA	BIC	BNC	TSP							
1.3	4.7	8.4	76.1							
1.6	5.5	11.5	69.3							
1.5	7.0	19.6	51.0							
1.4	7.4	21.4	43.8							
1.3	6.3	18.0	34.6							
0.8	5.3	10.2	21.9							
0.8	3.1	2.4	89.2							
1.7	4.6	6.9	79.7							
1.5	6.2	15.7	66.2							
1.5	8.1	23.7	50.0							
1.5	6.7	21.4	40.1							
0.8	5.3	10.2	21.9							

## APPENDIX B

TABLE B-17

*The evolution of the composition of top incomes (RF, RCM, BA, BIC, BNC, TSP)  
(1917, 1920, 1932, 1934, 1936–1937, 1945–1946, and 1948–1998 tax years)*

	P90–100						P95–100					
	RF	RCM	BA	BIC	BNC	TSP	RF	RCM	BA	BIC	BNC	TSP
1917												
1920	6.8	19.7	1.8	32.6	4.1	35.0	7.0	21.0	1.9	35.3	4.3	30.4
1932	9.8	16.1	0.5	13.3	4.6	55.7	10.5	18.2	0.5	14.7	5.2	50.9
1934	11.9	17.7	0.3	11.6	4.7	53.8	12.8	19.8	0.3	12.5	5.3	49.4
1936	10.6	18.0	0.4	13.6	4.7	52.8	11.2	20.1	0.4	14.8	5.2	48.4
1937	8.8	16.9	0.3	14.6	3.9	55.4	9.5	19.6	0.4	16.5	4.5	49.5
1945	4.0	5.8	1.3	24.5	5.2	59.1	4.2	6.5	1.4	27.1	6.0	54.9
1946	2.3	5.6	2.4	29.5	4.4	55.8	2.5	6.8	2.8	33.9	5.1	48.9
1948	1.4	3.5	2.5	31.2	4.2	57.1	1.5	4.3	2.7	33.9	4.9	52.7
1949	0.5	4.4	1.2	26.8	4.7	62.3	0.5	5.7	1.3	30.2	5.8	56.4
1950	0.7	5.3	1.1	25.8	5.0	62.1	0.7	6.7	1.1	28.3	6.0	57.1
1951	1.0	5.0	0.8	26.2	5.4	61.6	1.0	6.1	0.9	28.6	6.3	57.1
1952	0.9	4.5	0.4	26.7	5.4	62.1	0.9	5.8	0.4	29.7	6.6	56.6
1953	0.9	4.8	0.7	29.4	4.8	59.4	0.9	6.1	0.7	32.2	5.9	54.2
1954	0.8	4.8	0.5	28.6	6.0	59.3	0.9	6.0	0.5	31.5	7.5	53.6
1955	0.8	4.8	0.5	27.2	6.2	60.5	0.8	6.2	0.5	30.3	8.0	54.2
1956	1.2	4.7	0.4	24.0	6.3	63.3	1.3	6.1	0.5	26.9	8.1	57.2
1957	1.4	4.4	0.6	25.8	6.3	61.5	1.4	5.7	0.6	28.5	8.0	55.8
1958	1.4	4.1	0.5	21.7	6.3	66.0	1.5	5.3	0.5	24.0	8.2	60.5
1959	1.6	3.9	0.5	25.3	6.4	62.3	1.8	5.1	0.4	28.1	8.4	56.2
1960	2.1	4.8	0.7	23.0	6.7	62.7	2.2	6.2	0.7	25.3	8.9	56.7
1961	2.1	4.6	0.6	23.4	6.9	62.4	2.3	6.0	0.6	26.3	9.4	55.4
1962	2.2	4.5	0.8	22.3	6.4	63.9	2.4	5.8	0.8	25.0	8.5	57.5
1963	2.2	4.2	0.6	22.5	6.6	63.9	2.5	5.5	0.6	25.5	8.9	57.0
1964	2.0	4.1	1.1	21.3	7.8	63.7	2.3	5.2	1.1	23.9	10.6	56.9
1965	2.3	4.0	1.1	21.9	7.8	63.0	2.6	5.2	1.1	24.3	10.5	56.3
1966	2.5	4.0	1.1	21.3	7.8	63.4	2.8	5.1	1.1	23.2	10.3	57.4
1967	2.8	4.4	1.3	21.6	7.9	62.0	3.2	5.7	1.3	23.6	10.7	55.6
1968	2.9	4.2	1.1	19.4	7.5	64.9	3.3	5.5	1.2	21.1	10.3	58.7
1969	2.8	3.9	1.3	18.3	7.5	66.2	3.3	5.2	1.4	20.4	10.3	59.6
1970	3.0	4.0	1.8	17.2	7.5	66.4	3.5	5.3	2.0	19.4	10.2	59.6

APPENDIX B

P99-100						P99.5-100					
RF	RCM	BA	BIC	BNC	TSP	RF	RCM	BA	BIC	BNC	TSP
13.0	34.1	1.0	35.2	2.9	13.8	11.8	36.0	0.8	37.6	2.6	11.2
7.1	27.2	1.5	42.7	4.4	17.1	6.6	29.4	1.2	44.5	3.9	14.4
12.7	27.9	0.5	18.8	6.5	33.5	12.6	31.5	0.5	20.0	6.1	29.3
15.8	29.7	0.3	14.6	6.7	32.7	15.9	33.7	0.3	15.2	6.3	28.6
13.1	29.8	0.4	18.8	6.4	31.5	12.8	34.1	0.4	20.1	5.9	26.7
11.2	29.7	0.4	22.7	5.4	30.6	10.8	34.0	0.4	24.8	4.8	25.3
4.9	9.6	1.7	35.6	8.0	40.1	5.0	11.3	1.8	39.6	8.3	33.9
3.0	11.0	3.7	46.4	6.5	29.4	2.9	12.8	3.8	51.0	6.1	23.5
1.7	7.7	3.2	43.1	6.1	38.2	1.7	9.7	3.0	46.8	5.7	33.1
0.6	10.8	1.1	38.4	7.6	41.5	0.5	13.5	1.0	41.0	7.4	36.6
0.7	12.3	1.1	34.0	7.9	44.0	0.6	15.4	1.0	35.5	7.8	39.7
1.0	10.9	0.9	34.9	8.1	44.2	1.0	13.6	0.8	36.7	7.9	40.0
0.9	10.6	0.4	36.5	9.0	42.5	0.8	13.1	0.4	37.5	8.5	39.6
0.9	11.2	0.7	38.2	8.2	40.8	0.8	14.0	0.6	38.5	7.9	38.3
0.8	10.9	0.5	36.6	11.1	40.1	0.8	13.7	0.4	37.0	10.8	37.5
0.8	11.0	0.4	34.9	11.1	41.9	0.7	13.9	0.3	35.5	11.2	38.5
1.3	11.0	0.4	32.0	11.6	43.8	1.2	13.7	0.3	33.3	12.1	39.5
1.5	10.0	0.6	33.3	11.3	43.5	1.4	12.5	0.5	34.6	12.1	38.9
1.6	9.4	0.5	28.9	11.9	47.9	1.5	11.7	0.4	30.5	12.7	43.4
1.9	8.8	0.3	32.6	12.3	44.0	1.9	10.8	0.3	33.8	12.9	40.3
2.5	11.0	0.6	28.8	13.6	43.6	2.4	13.6	0.5	29.5	13.9	40.0
2.5	10.5	0.5	29.0	14.8	42.7	2.5	13.1	0.4	29.4	15.2	39.5
2.7	9.9	0.8	28.8	13.2	44.6	2.7	12.4	0.7	29.9	14.1	40.2
2.9	9.5	0.5	29.5	14.4	43.4	2.8	11.8	0.5	30.5	15.4	38.9
2.8	9.0	1.1	27.6	17.9	41.7	2.8	11.1	1.0	28.6	19.0	37.6
3.2	9.2	1.1	27.3	17.8	41.5	3.3	11.5	1.0	28.1	19.0	37.2
3.5	9.4	1.0	26.2	17.6	42.3	3.6	12.0	0.9	27.2	18.5	37.9
3.9	10.3	1.3	26.2	17.6	40.7	4.0	13.2	1.1	26.8	18.7	36.1
4.2	10.1	1.2	23.8	17.0	43.8	4.4	13.1	1.1	24.5	18.4	38.7
4.1	9.7	1.4	23.2	16.9	44.9	4.2	12.4	1.3	24.2	18.2	39.8
4.4	9.9	2.3	22.7	16.8	43.9	4.5	12.6	2.2	24.0	17.7	39.0

(continued)

## APPENDIX B

TABLE B-17  
(continued)

	P90-100						P95-100					
	RF	RCM	BA	BIC	BNC	TSP	RF	RCM	BA	BIC	BNC	TSP
1971	3.1	4.0	1.7	16.6	7.6	67.0	3.6	5.2	1.9	18.9	10.5	59.9
1972	3.0	3.8	0.6	16.4	7.4	68.7	3.6	5.1	0.7	19.0	10.3	61.3
1973	2.9	3.7	2.1	15.9	7.6	67.9	3.4	4.9	2.3	18.4	10.4	60.6
1974	2.7	3.6	1.7	15.6	7.5	69.0	3.3	4.7	1.9	18.5	10.3	61.2
1975	2.7	3.5	1.2	14.9	8.0	69.7	3.2	4.6	1.3	17.4	11.0	62.5
1976	2.6	3.4	0.9	15.1	8.0	69.9	3.2	4.5	1.0	18.1	11.2	62.1
1977	2.6	3.4	0.9	14.4	7.7	71.0	3.2	4.6	1.0	17.0	10.7	63.6
1978	2.8	3.4	1.2	14.2	8.4	70.0	3.4	4.6	1.3	16.7	11.8	62.2
1979	2.8	3.6	1.3	14.1	8.6	69.6	3.4	4.8	1.4	16.4	11.9	62.0
1980	2.8	3.9	1.3	13.5	8.4	70.1	3.4	5.2	1.4	16.1	12.0	61.8
1981	3.0	4.1	1.2	12.5	8.3	70.9	3.5	5.4	1.3	14.0	11.3	64.6
1982	3.0	3.7	1.3	11.8	8.1	72.1	3.6	4.8	1.4	13.7	11.3	65.2
1983	3.1	3.4	1.3	10.9	8.3	73.0	3.8	4.4	1.6	12.8	11.7	65.9
1984	3.1	3.5	1.6	9.8	8.2	73.7	3.7	4.5	1.9	11.4	11.6	66.9
1985	3.1	3.8	1.5	9.4	8.5	73.7	3.7	4.8	1.9	10.9	12.0	66.7
1986	3.2	3.9	1.4	9.4	9.1	73.0	3.8	4.7	1.7	10.9	12.5	66.4
1987	3.3	4.3	1.4	9.4	9.2	72.4	3.9	5.3	1.6	10.8	12.6	65.8
1988	3.5	4.5	1.4	9.1	9.5	72.0	4.1	5.6	1.6	10.5	13.0	65.2
1989	4.0	4.8	1.8	8.4	10.0	71.1	4.7	6.0	2.0	10.2	13.8	63.1
1990	4.2	4.3	1.8	8.5	9.5	71.7	4.7	5.6	2.1	10.3	13.3	64.1
1991	4.7	4.0	1.6	7.5	9.6	72.6	5.5	5.1	2.0	8.8	13.5	65.3
1992	4.6	4.3	1.4	7.0	9.5	73.2	5.1	5.3	1.6	8.1	13.5	66.6
1993	4.3	3.9	1.0	6.6	9.1	75.0	5.0	5.1	1.1	7.7	12.7	68.4
1994	4.5	4.8	1.1	6.3	9.3	73.9	5.7	6.5	1.3	7.0	12.4	67.2
1995	4.0	5.0	1.4	6.0	8.8	74.9	4.6	6.8	1.6	7.1	12.1	67.8
1996	4.0	5.3	1.5	5.0	8.4	75.7	4.7	7.1	1.8	5.9	11.7	68.9
1997	3.9	5.6	1.4	4.8	8.3	76.0	4.5	7.6	1.7	5.6	11.4	69.2
1998	4.0	5.5	1.3	4.7	8.4	76.1	4.6	7.5	1.6	5.5	11.5	69.3



APPENDIX B

P99-100						P99.5-100					
RF	RCM	BA	BIC	BNC	TSP	RF	RCM	BA	BIC	BNC	TSP
4.6	9.7	2.0	23.0	17.4	43.2	4.8	12.4	2.0	24.4	18.6	37.9
4.5	9.4	1.0	23.9	17.2	44.0	4.6	11.8	1.1	24.9	18.3	39.3
4.3	9.0	2.4	22.8	17.5	44.0	4.3	11.2	2.3	22.9	18.1	41.3
4.2	8.7	2.3	23.8	17.5	43.5	4.2	10.8	2.3	23.7	17.2	41.8
4.2	8.3	1.6	22.0	18.6	45.5	4.3	10.6	1.7	22.3	19.9	41.1
4.0	8.3	1.1	22.1	18.5	46.1	4.2	10.5	1.1	22.4	20.4	41.4
4.2	8.9	1.1	20.8	17.5	47.5	4.5	11.8	1.2	21.5	19.9	41.2
4.5	8.7	1.5	20.1	20.3	44.9	4.7	11.2	1.5	20.2	21.9	40.4
4.6	9.1	1.7	19.8	21.2	43.6	4.7	11.4	1.8	19.2	21.2	41.7
4.6	9.5	1.8	19.5	21.1	43.4	4.7	11.9	1.9	18.7	20.4	42.5
5.0	10.0	1.6	18.0	20.1	45.4	5.1	12.6	1.7	17.3	19.8	43.5
5.0	8.8	1.8	17.2	19.1	48.0	5.2	11.5	1.9	16.8	19.7	44.8
5.2	7.9	2.1	15.3	19.7	49.8	5.5	10.3	2.3	15.1	21.1	45.7
5.2	8.2	2.7	14.1	20.1	49.6	5.3	10.4	2.8	13.4	19.8	48.4
5.2	8.2	2.7	13.6	20.5	49.8	5.3	10.4	2.8	13.2	20.7	47.6
5.2	8.0	2.3	13.6	21.5	49.4	5.3	10.2	2.5	13.3	22.2	46.5
5.3	9.0	2.0	13.3	21.1	49.3	5.4	11.7	2.2	13.0	22.0	45.8
5.6	9.5	1.9	12.9	21.4	48.8	5.7	12.4	2.0	12.8	22.6	44.4
6.0	10.6	2.4	12.9	22.7	45.5	6.4	13.4	2.6	13.0	23.6	41.0
6.1	10.2	2.7	13.2	21.2	46.6	6.7	13.2	2.9	13.7	23.7	39.9
6.9	9.8	2.3	12.1	22.0	47.0	7.8	12.7	2.3	13.1	22.0	42.1
6.7	10.2	1.8	9.3	22.3	49.8	7.7	13.6	2.1	10.6	21.9	44.2
7.0	10.7	1.3	9.8	22.0	49.1	7.6	14.8	1.3	10.3	25.7	40.3
7.0	12.4	1.3	9.3	21.7	48.4	7.0	16.2	1.3	9.1	22.6	43.8
6.1	13.5	1.3	9.1	20.9	49.0	6.3	17.8	1.3	9.7	22.8	42.2
6.2	14.0	1.6	7.5	19.9	50.8	6.4	18.3	1.5	7.9	21.6	44.3
5.9	15.1	1.6	7.1	19.5	50.9	6.1	19.8	1.5	7.5	21.3	43.7
6.0	15.0	1.5	7.0	19.6	51.0	6.2	19.7	1.4	7.4	21.4	43.8

(continued)

## APPENDIX B

TABLE B-17  
(continued)

	P99.9-100						P99.99-100					
	RF	RCM	BA	BIC	BNC	TSP	RF	RCM	BA	BIC	BNC	TSP
1917	8.8	37.3	0.5	42.5	2.1	8.7	6.8	39.9	0.4	45.2	1.6	5.9
1920	5.0	33.3	0.8	48.1	2.7	10.1	3.2	39.3	0.6	50.3	1.2	5.4
1932	11.1	41.5	0.3	22.8	4.4	19.9	7.4	51.5	0.2	25.2	2.0	13.7
1934	14.1	43.8	0.2	16.8	4.3	20.8	9.5	52.5	0.2	20.7	2.0	15.2
1936	10.3	44.1	0.2	22.2	3.7	19.5	6.4	53.3	0.1	25.2	1.5	13.5
1937	8.3	42.6	0.3	26.9	2.8	19.0	4.5	52.2	0.2	29.2	1.2	12.8
1945	4.3	14.4	2.0	50.7	6.7	21.9	2.5	13.8	1.9	67.5	3.0	11.2
1946	2.2	15.4	2.7	60.7	3.9	15.0	1.3	16.6	0.4	73.8	0.5	7.5
1948	1.2	14.3	2.0	53.6	3.7	25.2	0.9	19.7	0.7	60.1	1.9	16.7
1949	0.3	20.2	0.6	42.4	5.1	31.3	0.1	30.9	0.2	41.2	2.6	25.1
1950	0.4	22.5	0.6	36.4	5.9	34.2	0.1	33.8	0.1	34.6	1.8	29.6
1951	0.6	21.3	0.5	37.2	5.9	34.5	0.3	31.7	0.3	35.5	4.2	27.9
1952	0.6	20.5	0.3	37.7	6.9	34.1	0.3	32.7	0.5	33.2	4.6	28.7
1953	0.5	21.8	0.4	37.3	6.7	33.4	0.2	32.5	0.3	33.7	3.7	29.6
1954	0.5	21.5	0.3	35.8	9.2	32.8	0.3	32.6	0.3	33.4	5.3	28.3
1955	0.5	21.5	0.2	34.3	9.9	33.6	0.2	32.4	0.1	32.2	6.0	29.2
1956	0.9	21.2	0.3	32.4	10.6	34.7	0.3	33.6	0.3	30.4	6.9	28.7
1957	1.1	19.7	0.4	34.3	10.3	34.3	0.6	31.9	0.3	33.1	7.8	26.5
1958	1.2	18.2	0.3	31.9	11.1	37.4	0.7	29.7	0.2	32.5	7.9	29.1
1959	1.6	16.8	0.2	35.5	12.0	34.0	1.1	27.1	0.1	36.0	9.7	26.1
1960	2.1	21.2	0.3	29.9	12.4	34.1	1.5	35.4	0.2	27.2	8.9	26.8
1961	2.2	20.5	0.3	29.6	13.9	33.6	1.6	34.0	0.2	27.6	10.1	26.7
1962	2.3	19.6	0.4	30.8	13.8	33.1	1.6	33.2	0.2	26.6	11.8	26.7
1963	2.6	18.4	0.3	30.7	15.4	32.6	1.7	31.5	0.3	25.5	14.4	26.7
1964	2.7	17.0	0.8	29.1	18.8	31.7	2.2	29.8	0.5	25.0	16.8	26.0
1965	3.3	17.7	0.7	28.1	18.2	32.0	2.8	30.8	0.3	24.4	16.5	25.3
1966	3.4	19.2	0.7	27.1	17.4	32.3	2.6	35.5	0.3	22.6	13.9	25.2
1967	3.9	21.4	0.8	26.1	17.4	30.5	2.9	39.6	0.3	21.1	13.4	22.8
1968	4.3	21.3	0.7	23.7	18.0	32.1	3.2	38.6	0.3	18.7	16.2	23.1
1969	4.1	20.3	0.9	23.6	17.9	33.4	3.0	37.1	0.3	20.7	16.4	22.7
1970	4.4	21.0	1.9	23.5	16.5	32.8	3.6	39.9	1.3	18.9	12.4	24.0
1971	4.7	20.7	1.6	24.0	17.3	31.6	3.9	39.2	1.2	19.7	13.0	23.1
1972	4.6	19.8	0.9	24.7	17.2	32.7	3.9	37.7	0.7	20.8	12.9	24.0

## APPENDIX B

P90-95						P95-99					
RF	RCM	BA	BIC	BNC	TSP	RF	RCM	BA	BIC	BNC	TSP
4.8	7.8	1.1	7.1	1.5	77.7	6.9	12.3	2.5	25.1	4.3	48.9
6.8	6.3	0.4	6.8	1.9	77.8	8.3	8.7	0.5	10.7	4.0	67.8
7.7	7.5	0.2	7.7	1.9	75.1	9.7	9.9	0.3	10.3	3.9	66.0
7.5	7.6	0.3	7.9	1.9	74.9	9.4	10.2	0.4	10.7	4.1	65.3
5.8	6.5	0.2	7.1	1.6	78.7	7.9	9.8	0.3	10.3	3.7	67.9
3.4	3.0	0.8	13.6	2.1	77.0	3.8	4.7	1.2	22.2	4.8	63.3
1.8	2.3	1.3	17.1	2.3	75.1	2.2	4.0	2.1	25.5	4.2	61.9
1.2	1.1	1.6	20.2	1.7	74.2	1.4	2.1	2.5	28.1	4.1	61.9
0.4	1.0	1.1	18.5	1.7	77.2	0.5	2.5	1.4	24.9	4.7	66.0
0.6	1.4	1.0	19.3	2.4	75.3	0.7	3.2	1.2	24.8	4.9	65.2
0.9	1.4	0.6	17.2	2.3	77.5	1.0	3.2	0.9	24.8	5.2	64.9
0.8	1.2	0.4	18.0	2.0	77.7	0.9	2.6	0.5	25.2	5.1	65.6
0.8	1.4	0.5	20.6	1.8	75.2	0.9	2.7	0.7	28.4	4.3	63.2
0.8	1.4	0.5	20.5	1.9	75.3	0.9	2.8	0.6	28.1	5.2	62.8
0.7	1.4	0.5	19.2	1.8	76.8	0.8	3.0	0.6	27.4	5.9	62.6
1.0	1.5	0.4	17.7	2.1	77.4	1.3	2.7	0.5	23.4	5.6	66.7
1.2	1.5	0.5	19.0	2.3	75.6	1.4	2.7	0.6	25.3	5.8	64.3
1.2	1.5	0.5	16.3	2.2	78.5	1.5	2.6	0.6	20.8	5.8	69.0
1.4	1.5	0.5	19.3	2.0	75.6	1.7	2.6	0.5	25.2	5.8	64.5
1.6	1.7	0.7	18.2	2.1	75.7	2.1	2.9	0.8	22.9	5.6	65.8
1.6	1.4	0.7	16.9	1.5	78.1	2.2	2.9	0.7	24.5	5.7	64.2
1.7	1.8	0.8	16.6	1.9	77.3	2.3	3.0	0.9	22.5	5.4	66.2
1.7	1.6	0.6	16.2	1.7	78.4	2.3	2.8	0.6	23.0	5.3	66.1
1.4	1.6	1.0	15.9	1.8	78.5	2.1	2.7	1.2	21.5	5.7	67.2
1.6	1.4	1.1	16.7	1.8	77.6	2.2	2.5	1.1	22.3	5.6	66.5
1.9	1.8	1.0	17.3	2.7	75.6	2.4	2.3	1.1	21.3	5.5	67.6
2.0	1.5	1.2	17.4	1.9	76.1	2.7	2.7	1.3	21.9	6.2	65.4
2.0	1.4	1.0	15.9	1.7	78.2	2.7	2.6	1.2	19.5	6.0	68.2
1.9	1.5	1.1	14.1	2.0	79.6	2.8	2.3	1.4	18.7	6.1	69.1
2.0	1.6	1.4	12.9	2.2	80.0	2.9	2.3	1.9	17.2	6.0	69.9
1.9	1.2	1.3	11.7	1.4	82.4	3.0	2.2	1.8	16.1	5.7	71.3
1.8	1.2	0.4	11.0	1.4	84.2	2.9	2.0	0.6	15.6	5.5	73.5

(continued)

APPENDIX B

TABLE B-17  
(continued)

	P99.9-100						P99.99-100					
	RF	RCM	BA	BIC	BNC	TSP	RF	RCM	BA	BIC	BNC	TSP
1973	4.3	19.1	2.0	23.0	17.2	34.4	3.7	36.5	1.5	19.9	13.0	25.4
1974	4.3	18.5	2.0	24.0	16.5	34.6	3.7	35.4	1.6	21.3	12.4	25.6
1975	4.4	18.3	1.6	22.8	19.2	33.8	3.8	35.0	1.3	20.6	14.3	25.0
1976	4.3	18.2	1.0	22.9	19.7	33.8	3.7	34.7	0.9	21.1	14.7	24.9
1977	4.6	20.3	1.1	21.9	19.1	33.0	3.9	37.6	0.9	20.1	13.8	23.7
1978	4.8	19.5	1.4	20.7	21.2	32.3	4.2	36.3	1.3	19.5	15.3	23.4
1979	4.8	19.9	1.7	19.9	20.6	33.1	4.2	36.8	1.6	19.0	14.7	23.8
1980	4.8	20.7	1.8	19.4	19.8	33.4	4.2	37.8	1.7	18.7	14.0	23.7
1981	5.2	22.0	1.7	18.0	19.3	33.9	4.6	39.5	1.6	17.4	13.3	23.7
1982	5.5	20.4	1.9	17.8	19.4	35.0	4.9	37.1	1.9	17.8	13.5	24.8
1983	5.9	18.5	2.4	16.2	21.1	35.9	5.4	34.2	2.5	16.9	15.0	26.0
1984	5.7	18.8	3.0	14.6	20.0	37.9	5.3	34.7	3.1	15.5	14.1	27.4
1985	5.7	18.9	3.0	14.4	21.0	36.9	5.3	34.7	3.3	15.5	14.6	26.6
1986	5.8	18.6	2.7	14.5	22.6	35.9	5.4	34.0	3.0	16.0	15.7	25.8
1987	5.8	21.1	2.4	14.1	22.1	34.5	5.3	37.6	2.6	15.4	14.8	24.2
1988	6.2	22.3	2.2	13.8	22.6	33.0	5.7	39.1	2.4	15.2	14.9	22.8
1989	6.9	23.4	2.2	13.8	22.4	31.4	5.7	38.3	2.0	15.1	17.3	21.5
1990	6.5	22.6	2.8	12.7	19.4	35.9	5.4	39.1	3.0	14.1	17.2	21.1
1991	8.9	25.2	2.6	11.9	22.5	28.9	10.7	42.3	1.9	14.5	11.3	19.3
1992	7.9	22.8	1.6	8.4	19.4	39.9	7.5	42.4	1.1	12.1	13.9	22.9
1993	8.3	27.0	1.2	11.1	20.5	31.9	6.8	45.4	1.1	9.8	13.8	23.1
1994	7.4	29.8	1.2	7.9	22.7	30.9	5.5	50.5	0.6	7.8	14.8	20.7
1995	6.4	30.7	1.2	8.4	19.5	33.9	5.4	53.3	0.8	7.3	11.2	22.0
1996	6.5	31.4	1.4	6.8	18.4	35.5	5.4	54.2	0.9	5.9	10.6	22.9
1997	6.1	33.7	1.4	6.4	17.9	34.5	5.0	56.8	0.9	5.4	10.1	21.8
1998	6.2	33.6	1.3	6.3	18.0	34.6	5.1	56.7	0.8	5.3	10.2	21.9
	P99-99.5						P99.5-99.9					
	RF	RCM	BA	BIC	BNC	TSP	RF	RCM	BA	BIC	BNC	TSP
1917	17.6	26.8	1.9	25.6	4.3	23.8	15.3	34.4	1.1	31.7	3.2	14.4
1920	8.7	18.6	2.5	35.6	5.9	28.6	8.4	24.8	1.8	40.1	5.4	19.5
1932	12.8	17.1	0.6	15.0	7.7	46.7	13.9	23.6	0.6	18.0	7.5	36.3

APPENDIX B

P90-95						P95-99					
RF	RCM	BA	BIC	BNC	TSP	RF	RCM	BA	BIC	BNC	TSP
1.8	1.3	1.6	10.5	1.7	83.1	2.8	2.0	2.2	15.3	5.4	72.4
1.6	1.2	1.1	9.6	1.5	84.9	2.6	2.1	1.7	14.8	5.4	73.5
1.7	1.4	1.0	9.9	2.0	84.0	2.5	2.0	1.2	14.3	5.8	74.1
1.6	1.2	0.8	9.2	1.7	85.4	2.6	1.8	0.9	15.3	6.0	73.5
1.5	1.0	0.8	9.2	1.7	85.8	2.5	1.8	0.9	14.5	6.2	74.1
1.6	1.1	1.1	9.2	1.7	85.2	2.7	1.8	1.2	14.5	6.1	73.7
1.7	1.4	1.1	9.5	2.1	84.3	2.6	1.9	1.2	14.2	5.6	74.6
1.5	1.4	1.0	8.3	1.6	86.2	2.6	2.4	1.2	13.9	6.0	73.9
2.0	1.6	0.9	9.4	2.5	83.5	2.6	2.4	1.0	11.5	5.7	76.7
1.8	1.7	1.0	8.1	2.1	85.3	2.8	2.4	1.2	11.6	6.5	75.6
1.8	1.7	0.9	7.3	2.0	86.3	2.9	2.3	1.3	11.2	6.9	75.4
1.9	1.7	1.0	6.9	1.9	86.7	2.8	2.3	1.4	9.8	6.5	77.2
1.9	1.9	0.9	6.5	1.8	87.1	2.9	2.7	1.4	9.2	7.0	76.7
2.0	2.3	0.9	6.8	2.6	85.4	2.9	2.7	1.3	9.2	7.0	76.9
2.1	2.4	1.1	6.8	2.7	84.9	3.0	3.0	1.3	9.3	7.3	76.1
2.2	2.5	1.2	6.5	2.7	85.0	3.3	3.3	1.4	9.0	7.9	75.2
2.5	2.5	1.4	4.7	2.5	86.5	4.0	3.3	1.8	8.6	8.4	73.9
3.1	1.8	1.3	5.2	2.4	86.2	3.8	2.7	1.7	8.5	8.3	75.0
3.4	2.0	0.9	5.1	2.3	86.4	4.6	2.1	1.8	6.7	8.2	76.5
3.4	2.6	1.0	5.0	1.9	86.0	4.2	2.3	1.5	7.4	8.2	76.4
3.1	1.8	0.8	4.5	2.6	87.1	3.8	2.0	1.1	6.4	7.4	79.3
2.5	1.9	0.9	5.1	3.6	86.0	4.9	2.9	1.2	5.7	6.9	78.4
2.8	1.8	0.2	3.9	2.7	87.8	3.7	2.9	0.5	5.9	7.0	78.9
2.8	1.8	1.0	3.3	2.3	88.8	3.8	3.2	1.9	5.0	6.9	79.2
2.8	1.7	0.9	3.2	2.3	89.1	3.7	3.3	1.8	4.7	6.8	79.6
2.9	1.6	0.8	3.1	2.4	89.2	3.8	3.2	1.7	4.6	6.9	79.7
P99.9-99.99						P99.99-100					
RF	RCM	BA	BIC	BNC	TSP	RF	RCM	BA	BIC	BNC	TSP
10.1	35.7	0.6	40.8	2.4	10.4	6.8	39.9	0.4	45.2	1.6	5.9
6.1	29.9	0.9	46.8	3.5	12.8	3.2	39.3	0.6	50.3	1.2	5.4
12.7	37.1	0.4	21.7	5.5	22.6	7.4	51.5	0.2	25.2	2.0	13.7

(continued)

## APPENDIX B

TABLE B-17  
(continued)

	P99-99.5						P99.5-99.9					
	RF	RCM	BA	BIC	BNC	TSP	RF	RCM	BA	BIC	BNC	TSP
1934	15.4	18.1	0.4	12.8	7.9	45.5	17.5	25.4	0.3	14.0	8.0	34.8
1936	13.9	18.2	0.5	15.0	8.2	44.1	15.4	25.3	0.5	18.6	8.0	32.3
1937	12.5	17.9	0.5	17.1	7.1	44.8	13.2	25.2	0.5	22.4	6.8	31.8
1945	4.7	6.3	1.6	27.9	7.3	52.2	5.3	9.5	1.7	32.9	9.3	41.2
1946	3.1	7.3	3.6	36.6	7.4	41.9	3.4	10.8	4.5	43.9	7.7	29.7
1948	1.9	3.6	3.5	35.1	7.0	49.0	2.0	6.4	3.8	41.8	7.2	38.9
1949	0.7	4.9	1.5	32.9	8.2	51.9	0.6	8.4	1.2	40.0	9.2	40.6
1950	0.8	5.4	1.4	30.7	8.1	53.6	0.8	10.3	1.2	34.8	9.2	43.7
1951	1.2	4.9	1.1	31.1	8.4	53.3	1.2	8.0	1.0	36.3	9.5	44.0
1952	1.1	5.1	0.5	34.4	10.1	48.8	1.0	7.9	0.4	37.4	9.7	43.6
1953	1.2	5.1	0.9	37.7	8.9	46.7	1.0	8.5	0.7	39.6	8.8	41.9
1954	1.1	4.7	0.6	36.0	11.8	46.4	0.9	8.4	0.5	37.9	12.0	40.9
1955	1.0	4.6	0.6	33.6	11.1	49.6	0.8	8.8	0.4	36.5	12.0	42.0
1956	1.5	5.6	0.5	29.5	10.6	52.6	1.4	8.7	0.4	34.0	13.1	42.8
1957	1.6	4.8	0.7	30.6	9.6	53.1	1.6	7.8	0.5	35.0	13.4	42.0
1958	1.7	4.8	0.6	25.8	10.3	57.2	1.7	7.5	0.5	29.6	13.7	47.4
1959	2.0	4.9	0.4	30.2	11.1	51.6	2.1	7.0	0.4	32.8	13.6	44.5
1960	2.6	5.0	0.8	27.2	12.9	51.7	2.6	8.7	0.6	29.3	14.9	43.9
1961	2.7	4.8	0.7	28.0	14.2	50.1	2.7	8.4	0.5	29.4	16.0	43.4
1962	2.8	4.4	1.0	26.3	11.5	54.3	2.9	7.9	0.9	29.5	14.3	44.9
1963	2.9	4.5	0.6	27.3	12.1	52.9	3.0	7.7	0.5	30.6	15.5	43.0
1964	2.7	4.6	1.3	25.6	15.8	50.8	2.9	7.5	1.1	28.4	19.2	41.4
1965	3.1	4.6	1.3	25.7	15.3	50.5	3.4	7.6	1.1	28.2	19.5	40.6
1966	3.3	4.1	1.2	24.4	15.8	51.6	3.7	7.5	1.1	27.3	19.3	41.4
1967	3.7	4.4	1.6	25.0	15.3	50.4	4.1	8.1	1.4	27.4	19.6	39.7
1968	3.8	4.3	1.4	22.4	14.3	54.2	4.4	8.0	1.3	25.1	18.7	42.9
1969	3.8	4.2	1.6	21.2	14.4	55.4	4.3	7.7	1.6	24.7	18.4	43.9
1970	4.1	4.3	2.4	20.4	15.2	54.1	4.6	7.5	2.5	24.4	18.6	43.1
1971	4.2	3.9	2.2	20.2	15.0	54.6	4.8	6.9	2.2	24.6	19.4	42.1
1972	4.2	4.4	0.8	21.8	14.8	53.9	4.7	6.3	1.2	25.0	19.0	43.8
1973	4.2	4.1	2.6	22.8	16.2	50.1	4.2	6.2	2.5	22.8	18.6	45.7
1974	4.2	3.8	2.3	24.1	18.2	47.3	4.2	5.8	2.5	23.4	17.7	46.4
1975	3.8	3.0	1.2	21.2	15.6	55.2	4.3	5.7	1.8	22.0	20.4	45.8

## APPENDIX B

P99.9-99.99						P99.99-100					
RF	RCM	BA	BIC	BNC	TSP	RF	RCM	BA	BIC	BNC	TSP
16.4	39.6	0.2	14.8	5.4	23.5	9.5	52.5	0.2	20.7	2.0	15.2
12.5	38.6	0.3	20.6	5.1	22.9	6.4	53.3	0.1	25.2	1.5	13.5
10.3	37.7	0.3	25.7	3.7	22.3	4.5	52.2	0.2	29.2	1.2	12.8
5.0	14.5	2.0	45.1	8.0	25.4	2.5	13.8	1.9	67.5	3.0	11.2
2.6	15.0	3.6	55.6	5.2	18.0	1.3	16.6	0.4	73.8	0.5	7.5
1.4	12.3	2.5	51.3	4.3	28.3	0.9	19.7	0.7	60.1	1.9	16.7
0.4	16.2	0.8	42.8	6.0	33.7	0.1	30.9	0.2	41.2	2.6	25.1
0.5	18.1	0.8	37.1	7.5	36.0	0.1	33.8	0.1	34.6	1.8	29.6
0.7	17.5	0.6	37.8	6.5	37.0	0.3	31.7	0.3	35.5	4.2	27.9
0.6	16.2	0.3	39.3	7.7	36.0	0.3	32.7	0.5	33.2	4.6	28.7
0.7	18.1	0.4	38.8	7.8	35.0	0.2	32.5	0.3	33.7	3.7	29.6
0.6	17.6	0.3	37.0	10.7	34.6	0.3	32.6	0.3	33.4	5.3	28.3
0.6	17.7	0.2	35.3	11.4	35.4	0.2	32.4	0.1	32.2	6.0	29.2
1.1	17.0	0.3	33.3	11.9	37.0	0.3	33.6	0.3	30.4	6.9	28.7
1.2	15.3	0.5	34.8	11.3	37.3	0.6	31.9	0.3	33.1	7.8	26.5
1.4	14.2	0.3	31.8	12.3	40.5	0.7	29.7	0.2	32.5	7.9	29.1
1.8	13.2	0.2	35.4	12.9	36.9	1.1	27.1	0.1	36.0	9.7	26.1
2.3	16.2	0.4	30.9	13.7	36.7	1.5	35.4	0.2	27.2	8.9	26.8
2.4	15.8	0.3	30.5	15.3	36.2	1.6	34.0	0.2	27.6	10.1	26.7
2.6	14.9	0.5	32.3	14.6	35.5	1.6	33.2	0.2	26.6	11.8	26.7
2.9	14.0	0.3	32.5	15.8	34.8	1.7	31.5	0.3	25.5	14.4	26.7
2.9	12.8	0.9	30.6	19.6	33.8	2.2	29.8	0.5	25.0	16.8	26.0
3.4	13.5	0.8	29.5	18.9	34.4	2.8	30.8	0.3	24.4	16.5	25.3
3.7	13.6	0.8	28.7	18.6	34.8	2.6	35.5	0.3	22.6	13.9	25.2
4.2	14.9	0.9	28.0	18.9	33.3	2.9	39.6	0.3	21.1	13.4	22.8
4.7	15.0	0.9	25.5	18.7	35.4	3.2	38.6	0.3	18.7	16.2	23.1
4.5	14.5	1.1	24.8	18.6	37.3	3.0	37.1	0.3	20.7	16.4	22.7
4.7	14.8	2.1	25.2	18.0	36.0	3.6	39.9	1.3	18.9	12.4	24.0
5.0	14.1	1.8	25.5	18.9	34.7	3.9	39.2	1.2	19.7	13.0	23.1
4.9	13.3	1.0	26.1	18.8	35.9	3.9	37.7	0.7	20.8	12.9	24.0
4.6	11.9	2.2	24.3	18.9	38.1	3.7	36.5	1.5	19.9	13.0	25.4
4.5	12.3	2.2	25.0	18.1	37.9	3.7	35.4	1.6	21.3	12.4	25.6
4.6	12.1	1.7	23.6	21.0	37.1	3.8	35.0	1.3	20.6	14.3	25.0

(continued)

## APPENDIX B

TABLE B-17  
(continued)

	P99-99.5						P99.5-99.9					
	RF	RCM	BA	BIC	BNC	TSP	RF	RCM	BA	BIC	BNC	TSP
1976	3.7	3.6	1.0	21.6	14.5	55.7	4.1	5.5	1.2	22.0	20.9	46.3
1977	3.5	2.9	1.0	19.3	12.7	60.6	4.4	6.3	1.2	21.2	20.4	46.5
1978	4.1	3.5	1.3	19.9	17.1	54.1	4.6	5.9	1.6	19.8	22.4	45.8
1979	4.5	4.2	1.6	20.9	21.3	47.4	4.6	5.7	1.9	18.7	21.6	47.5
1980	4.6	4.6	1.6	21.2	22.7	45.2	4.5	6.0	1.9	18.2	20.8	48.5
1981	4.8	4.7	1.5	19.3	20.6	49.1	4.9	6.3	1.7	16.8	20.2	50.0
1982	4.7	3.4	1.7	17.9	17.9	54.5	5.0	5.8	1.9	16.2	19.8	51.2
1983	4.6	3.2	1.7	15.8	16.9	57.7	5.3	5.2	2.3	14.4	21.0	51.8
1984	5.2	4.2	2.4	15.5	20.8	51.9	5.0	5.1	2.7	12.7	19.6	54.9
1985	5.0	3.8	2.3	14.5	20.2	54.2	5.0	5.1	2.7	12.4	20.5	54.2
1986	5.0	3.5	1.9	14.2	20.0	55.3	5.0	4.8	2.4	12.5	22.0	53.4
1987	5.1	3.4	1.7	13.8	19.2	56.8	5.1	5.3	2.1	12.2	21.9	53.4
1988	5.3	3.9	1.7	13.0	19.1	57.0	5.5	6.2	1.9	12.2	22.6	51.6
1989	5.3	4.9	2.0	12.7	20.8	54.3	6.1	6.9	2.8	12.4	24.5	47.4
1990	5.0	4.3	2.3	12.2	16.3	60.0	6.7	6.9	2.9	14.3	26.5	42.6
1991	5.1	4.1	2.2	9.9	22.2	56.5	7.1	4.8	2.1	13.9	21.7	50.6
1992	4.7	3.2	1.3	6.5	23.1	61.2	7.6	7.7	2.3	12.0	23.4	46.9
1993	6.0	3.0	1.2	8.9	15.1	65.7	7.1	6.9	1.4	9.8	29.1	45.8
1994	7.0	5.0	1.1	9.7	19.8	57.4	6.7	6.8	1.4	9.9	22.5	52.7
1995	5.6	5.4	1.1	8.1	17.3	62.1	6.2	9.6	1.2	10.5	24.9	47.5
1996	5.6	5.1	1.7	6.8	16.4	64.4	6.4	9.5	1.6	8.6	23.7	50.2
1997	5.4	5.0	1.6	6.3	15.6	66.1	6.1	10.5	1.6	8.2	23.6	49.9
1998	5.5	4.9	1.5	6.2	15.7	66.2	6.2	10.4	1.5	8.1	23.7	50.0

*Explanation:* See Table B-16.

they contain inconsistencies of several percentage points). We have thus proceeded in the following way: for the 1988–1995 tax years, we have used in Table B-16 the fiscal-income composition estimates for fractiles P90–100, P95–100, P99–100, P99.5–100, P99.9–100, P99.99–100, P90–95, P95–99, P99–99.5, P99.5–99.9, and P99.9–99.99 derived from the DGI samples of income tax returns, estimates that can be considered perfectly reliable (see section 2.1);<sup>39</sup>



APPENDIX B

P99.9-99.99						P99.99-100					
RF	RCM	BA	BIC	BNC	TSP	RF	RCM	BA	BIC	BNC	TSP
4.5	12.0	1.1	23.6	21.7	37.1	3.7	34.7	0.9	21.1	14.7	24.9
4.8	13.6	1.1	22.6	21.1	36.6	3.9	37.6	0.9	20.1	13.8	23.7
5.0	13.1	1.5	21.2	23.4	35.7	4.2	36.3	1.3	19.5	15.3	23.4
5.0	13.4	1.8	20.2	22.8	36.7	4.2	36.8	1.6	19.0	14.7	23.8
5.0	14.2	1.9	19.7	22.1	37.1	4.2	37.8	1.7	18.7	14.0	23.7
5.5	15.2	1.7	18.2	21.6	37.8	4.6	39.5	1.6	17.4	13.3	23.7
5.7	14.2	1.9	17.8	21.6	38.8	4.9	37.1	1.9	17.8	13.5	24.8
6.0	12.9	2.4	15.9	23.3	39.4	5.4	34.2	2.5	16.9	15.0	26.0
5.9	13.1	2.9	14.2	22.1	41.7	5.3	34.7	3.1	15.5	14.1	27.4
5.9	13.2	3.0	14.0	23.3	40.7	5.3	34.7	3.3	15.5	14.6	26.6
5.9	12.8	2.6	14.0	25.1	39.6	5.4	34.0	3.0	16.0	15.7	25.8
5.9	14.5	2.3	13.6	25.0	38.7	5.3	37.6	2.6	15.4	14.8	24.2
6.3	15.9	2.1	13.3	25.5	36.8	5.7	39.1	2.4	15.2	14.9	22.8
7.3	17.4	2.3	13.3	24.3	35.3	5.7	38.3	2.0	15.1	17.3	21.5
7.0	15.9	2.8	12.1	20.3	41.9	5.4	39.1	3.0	14.1	17.2	21.1
8.2	18.6	2.9	11.0	26.9	32.6	10.7	42.3	1.9	14.5	11.3	19.3
8.0	15.9	1.8	7.1	21.4	45.9	7.5	42.4	1.1	12.1	13.9	22.9
8.9	20.2	1.3	11.6	23.0	35.2	6.8	45.4	1.1	9.8	13.8	23.1
8.1	22.5	1.5	7.9	25.5	34.5	5.5	50.5	0.6	7.8	14.8	20.7
6.8	22.0	1.3	8.8	22.6	38.5	5.4	53.3	0.8	7.3	11.2	22.0
7.0	21.8	1.6	7.2	21.7	40.7	5.4	54.2	0.9	5.9	10.6	22.9
6.6	23.7	1.6	6.8	21.3	40.0	5.0	56.8	0.9	5.4	10.1	21.8
6.7	23.6	1.5	6.7	21.4	40.1	5.1	56.7	0.8	5.3	10.2	21.9

then, for the 1971-1987 tax years, we have joined together the composition estimates obtained for the years 1970 and 1988, using as an indicator of change the taxable-income composition estimates for fractiles P90-100, P95-100, P99-100, and P99.5-100 for the 1970-1988 tax years obtained by linear extrapolation from the raw figures appearing in the composition tables;<sup>40</sup> and for the years 1996-1998, we have done the same thing, applying to the estimates for the

## APPENDIX B

TABLE B-18

*The evolution of the composition of top incomes (capital income, mixed income, labor income)  
(1917, 1920, 1932, 1934, 1936-1937, 1945-1946, and 1948-1998 tax years)*

	P90-100					P95-100				
	Capital	Mixed	Labor	Mixed	Labor	Capital	Mixed	Labor	Mixed	Labor
1917										
1920	26.5	38.4	35.0	52.3	47.7	28.1	41.6	30.4	57.8	42.2
1932	25.9	18.4	55.7	24.8	75.2	28.7	20.4	50.9	28.6	71.4
1934	29.5	16.6	53.8	23.6	76.4	32.6	18.0	49.4	26.8	73.2
1936	28.5	18.6	52.8	26.1	73.9	31.3	20.4	48.4	29.6	70.4
1937	25.7	18.9	55.4	25.4	74.6	29.2	21.3	49.5	30.1	69.9
1945	9.8	31.0	59.1	34.4	65.6	10.7	34.4	54.9	38.6	61.4
1946	7.9	36.3	55.8	39.4	60.6	9.3	41.8	48.9	46.1	53.9
1948	5.0	38.0	57.1	39.9	60.1	5.8	41.5	52.7	44.1	55.9
1949	4.9	32.8	62.3	34.5	65.5	6.3	37.3	56.4	39.8	60.2
1950	6.0	31.9	62.1	33.9	66.1	7.4	35.5	57.1	38.3	61.7
1951	6.0	32.4	61.6	34.5	65.5	7.1	35.8	57.1	38.5	61.5
1952	5.3	32.5	62.1	34.4	65.6	6.7	36.8	56.6	39.4	60.6
1953	5.7	34.9	59.4	37.0	63.0	7.0	38.8	54.2	41.7	58.3
1954	5.6	35.1	59.3	37.2	62.8	6.9	39.5	53.6	42.4	57.6
1955	5.6	33.9	60.5	35.9	64.1	7.0	38.8	54.2	41.7	58.3
1956	5.9	30.7	63.3	32.7	67.3	7.4	35.5	57.2	38.3	61.7
1957	5.8	32.7	61.5	34.7	65.3	7.1	37.1	55.8	40.0	60.0
1958	5.5	28.5	66.0	30.2	69.8	6.8	32.7	60.5	35.1	64.9
1959	5.6	32.2	62.3	34.1	65.9	6.9	37.0	56.2	39.7	60.3
1960	6.8	30.5	62.7	32.7	67.3	8.4	34.9	56.7	38.1	61.9
1961	6.7	31.0	62.4	33.2	66.8	8.3	36.3	55.4	39.6	60.4
1962	6.7	29.5	63.9	31.6	68.4	8.2	34.3	57.5	37.4	62.6
1963	6.5	29.7	63.9	31.7	68.3	8.0	35.0	57.0	38.0	62.0
1964	6.1	30.2	63.7	32.2	67.8	7.6	35.6	56.9	38.5	61.5
1965	6.3	30.7	63.0	32.8	67.2	7.9	35.8	56.3	38.9	61.1
1966	6.5	30.2	63.4	32.2	67.8	8.0	34.6	57.4	37.6	62.4
1967	7.2	30.8	62.0	33.2	66.8	8.9	35.6	55.6	39.0	61.0
1968	7.0	28.1	64.9	30.2	69.8	8.8	32.6	58.7	35.7	64.3
1969	6.7	27.1	66.2	29.0	71.0	8.4	32.0	59.6	35.0	65.0
1970	7.0	26.6	66.4	28.6	71.4	8.8	31.6	59.6	34.6	65.4
1971	7.0	25.9	67.0	27.9	72.1	8.9	31.3	59.9	34.3	65.7

## APPENDIX B

P99-100					P99.5-100				
Capital	Mixed	Labor	Mixed	Labor	Capital	Mixed	Labor	Mixed	Labor
47.1	39.1	13.8	73.9	26.1	47.8	41.0	11.2	78.5	21.5
34.3	48.6	17.1	74.0	26.0	35.9	49.6	14.4	77.5	22.5
40.6	25.9	33.5	43.5	56.5	44.1	26.6	29.3	47.6	52.4
45.6	21.7	32.7	39.8	60.2	49.6	21.8	28.6	43.3	56.7
42.9	25.6	31.5	44.8	55.2	46.9	26.4	26.7	49.7	50.3
40.9	28.5	30.6	48.2	51.8	44.8	29.9	25.3	54.2	45.8
14.5	45.4	40.1	53.1	46.9	16.3	49.8	33.9	59.5	40.5
14.0	56.6	29.4	65.8	34.2	15.6	60.9	23.5	72.1	27.9
9.5	52.4	38.2	57.8	42.2	11.4	55.5	33.1	62.6	37.4
11.3	47.2	41.5	53.2	46.8	14.0	49.4	36.6	57.5	42.5
13.0	43.0	44.0	49.4	50.6	16.1	44.2	39.7	52.7	47.3
11.9	43.9	44.2	49.8	50.2	14.6	45.4	40.0	53.2	46.8
11.5	45.9	42.5	51.9	48.1	14.0	46.4	39.6	53.9	46.1
12.2	47.1	40.8	53.6	46.4	14.8	47.0	38.3	55.1	44.9
11.8	48.2	40.1	54.6	45.4	14.4	48.2	37.5	56.2	43.8
11.8	46.4	41.9	52.6	47.4	14.5	47.0	38.5	55.0	45.0
12.3	44.0	43.8	50.1	49.9	14.8	45.7	39.5	53.7	46.3
11.4	45.1	43.5	50.9	49.1	13.9	47.3	38.9	54.9	45.1
10.9	41.2	47.9	46.2	53.8	13.2	43.5	43.4	50.1	49.9
10.8	45.3	44.0	50.7	49.3	12.7	47.1	40.3	53.9	46.1
13.4	43.0	43.6	49.6	50.4	16.0	43.9	40.0	52.3	47.7
13.1	44.3	42.7	50.9	49.1	15.5	45.0	39.5	53.3	46.7
12.6	42.8	44.6	49.0	51.0	15.1	44.7	40.2	52.6	47.4
12.3	44.3	43.4	50.6	49.4	14.7	46.4	38.9	54.4	45.6
11.8	46.6	41.7	52.8	47.2	13.9	48.6	37.6	56.4	43.6
12.5	46.1	41.5	52.7	47.3	14.8	48.1	37.2	56.4	43.6
12.9	44.9	42.3	51.5	48.5	15.6	46.6	37.9	55.2	44.8
14.2	45.1	40.7	52.6	47.4	17.2	46.7	36.1	56.4	43.6
14.3	42.0	43.8	49.0	51.0	17.4	44.0	38.7	53.2	46.8
13.7	41.4	44.9	48.0	52.0	16.6	43.7	39.8	52.3	47.7
14.2	41.9	43.9	48.8	51.2	17.1	43.9	39.0	53.0	47.0
14.3	42.5	43.2	49.6	50.4	17.2	44.9	37.9	54.2	45.8

(continued)

## APPENDIX B

TABLE B-18  
(continued)

	P90-100					P95-100				
	Capital	Mixed	Labor	Mixed	Labor	Capital	Mixed	Labor	Mixed	Labor
1972	6.8	24.5	68.7	26.3	73.7	8.6	30.1	61.3	32.9	67.1
1973	6.6	25.5	67.9	27.3	72.7	8.3	31.1	60.6	34.0	66.0
1974	6.3	24.7	69.0	26.4	73.6	8.0	30.8	61.2	33.4	66.6
1975	6.2	24.1	69.7	25.7	74.3	7.8	29.7	62.5	32.2	67.8
1976	6.0	24.0	69.9	25.6	74.4	7.6	30.2	62.1	32.7	67.3
1977	6.0	23.0	71.0	24.5	75.5	7.7	28.6	63.6	31.0	69.0
1978	6.2	23.8	70.0	25.4	74.6	8.0	29.8	62.2	32.4	67.6
1979	6.5	23.9	69.6	25.6	74.4	8.3	29.7	62.0	32.4	67.6
1980	6.7	23.2	70.1	24.9	75.1	8.6	29.5	61.8	32.3	67.7
1981	7.1	22.0	70.9	23.7	76.3	8.9	26.6	64.6	29.2	70.8
1982	6.7	21.1	72.1	22.7	77.3	8.4	26.4	65.2	28.8	71.2
1983	6.5	20.5	73.0	21.9	78.1	8.1	26.0	65.9	28.3	71.7
1984	6.6	19.6	73.7	21.0	79.0	8.3	24.9	66.9	27.1	72.9
1985	6.9	19.4	73.7	20.9	79.1	8.5	24.8	66.7	27.1	72.9
1986	7.0	19.9	73.0	21.5	78.5	8.5	25.1	66.4	27.4	72.6
1987	7.6	20.0	72.4	21.7	78.3	9.2	25.0	65.8	27.5	72.5
1988	8.0	20.0	72.0	21.8	78.2	9.8	25.1	65.2	27.8	72.2
1989	8.8	20.1	71.1	22.0	78.0	10.8	26.1	63.1	29.2	70.8
1990	8.4	19.9	71.7	21.7	78.3	10.3	25.7	64.1	28.6	71.4
1991	8.7	18.7	72.6	20.5	79.5	10.5	24.3	65.3	27.1	72.9
1992	8.9	17.9	73.2	19.7	80.3	10.4	23.2	66.6	25.9	74.1
1993	8.2	16.7	75.0	18.2	81.8	10.1	21.5	68.4	23.9	76.1
1994	9.4	16.7	73.9	18.5	81.5	12.1	20.6	67.2	23.5	76.5
1995	9.0	16.1	74.9	17.7	82.3	11.4	20.8	67.8	23.5	76.5
1996	9.3	15.0	75.7	16.5	83.5	11.8	19.3	68.9	21.9	78.1
1997	9.5	14.5	76.0	16.0	84.0	12.1	18.7	69.2	21.3	78.7
1998	9.5	14.4	76.1	15.9	84.1	12.1	18.6	69.3	21.2	78.8
	P99.9-100					P99.99-100				
	Capital	Mixed	Labor	Mixed	Labor	Capital	Mixed	Labor	Mixed	Labor
1917	46.1	45.2	8.7	83.9	16.1	46.7	47.3	5.9	88.8	11.2
1920	38.4	51.5	10.1	83.6	16.4	42.5	52.1	5.4	90.6	9.4

## APPENDIX B

P99-100					P99.5-100				
Capital	Mixed	Labor	Mixed	Labor	Capital	Mixed	Labor	Mixed	Labor
13.9	42.1	44.0	48.9	51.1	16.4	44.3	39.3	53.0	47.0
13.3	42.7	44.0	49.3	50.7	15.5	43.2	41.3	51.1	48.9
12.9	43.7	43.5	50.1	49.9	15.0	43.2	41.8	50.9	49.1
12.5	42.1	45.5	48.1	51.9	15.0	43.9	41.1	51.6	48.4
12.3	41.7	46.1	47.5	52.5	14.7	43.9	41.4	51.5	48.5
13.1	39.4	47.5	45.3	54.7	16.3	42.5	41.2	50.8	49.2
13.2	41.9	44.9	48.2	51.8	15.9	43.6	40.4	51.9	48.1
13.7	42.7	43.6	49.5	50.5	16.1	42.2	41.7	50.3	49.7
14.2	42.5	43.4	49.5	50.5	16.6	41.0	42.5	49.1	50.9
14.9	39.7	45.4	46.6	53.4	17.7	38.8	43.5	47.1	52.9
13.8	38.1	48.0	44.2	55.8	16.7	38.4	44.8	46.1	53.9
13.1	37.1	49.8	42.7	57.3	15.8	38.5	45.7	45.7	54.3
13.4	37.0	49.6	42.7	57.3	15.6	36.0	48.4	42.7	57.3
13.4	36.8	49.8	42.5	57.5	15.7	36.7	47.6	43.6	56.4
13.2	37.4	49.4	43.1	56.9	15.5	38.0	46.5	44.9	55.1
14.3	36.4	49.3	42.5	57.5	17.1	37.2	45.8	44.8	55.2
15.1	36.2	48.8	42.6	57.4	18.2	37.4	44.4	45.7	54.3
16.6	37.9	45.5	45.4	54.6	19.8	39.2	41.0	48.8	51.2
16.3	37.1	46.6	44.3	55.7	19.8	40.3	39.9	50.2	49.8
16.7	36.4	47.0	43.6	56.4	20.5	37.4	42.1	47.0	53.0
16.9	33.3	49.8	40.1	59.9	21.3	34.5	44.2	43.9	56.1
17.8	33.1	49.1	40.3	59.7	22.4	37.3	40.3	48.1	51.9
19.4	32.2	48.4	40.0	60.0	23.2	33.0	43.8	43.0	57.0
19.6	31.4	49.0	39.0	61.0	24.1	33.7	42.2	44.4	55.6
20.1	29.0	50.8	36.3	63.7	24.7	31.0	44.3	41.2	58.8
20.9	28.1	50.9	35.6	64.4	26.0	30.3	43.7	41.0	59.0
20.9	28.0	51.0	35.5	64.5	26.0	30.2	43.8	40.9	59.1
P90-95					P95-99				
Capital	Mixed	Labor	Mixed	Labor	Capital	Mixed	Labor	Mixed	Labor
12.6	9.7	77.7	11.1	88.9	19.3	31.9	48.9	39.5	60.5

(continued)

## APPENDIX B

TABLE B-18  
(continued)

	P99.9-100					P99.99-100				
	Capital	Mixed	Labor	Mixed	Labor	Capital	Mixed	Labor	Mixed	Labor
1932	52.6	27.5	19.9	58.0	42.0	58.9	27.4	13.7	66.7	33.3
1934	57.9	21.3	20.8	50.6	49.4	62.0	22.8	15.2	60.0	40.0
1936	54.3	26.1	19.5	57.2	42.8	59.7	26.7	13.5	66.4	33.6
1937	50.9	30.0	19.0	61.2	38.8	56.7	30.5	12.8	70.5	29.5
1945	18.7	59.4	21.9	73.1	26.9	16.3	72.4	11.2	86.6	13.4
1946	17.6	67.3	15.0	81.7	18.3	17.9	74.6	7.5	90.8	9.2
1948	15.5	59.3	25.2	70.2	29.8	20.6	62.7	16.7	78.9	21.1
1949	20.6	48.1	31.3	60.5	39.5	31.0	43.9	25.1	63.6	36.4
1950	22.9	42.9	34.2	55.6	44.4	33.9	36.5	29.6	55.2	44.8
1951	21.9	43.5	34.5	55.8	44.2	32.1	40.1	27.9	59.0	41.0
1952	21.1	44.9	34.1	56.8	43.2	33.0	38.3	28.7	57.2	42.8
1953	22.4	44.3	33.4	57.0	43.0	32.8	37.7	29.6	56.0	44.0
1954	22.0	45.3	32.8	58.0	42.0	32.8	39.0	28.3	57.9	42.1
1955	22.0	44.5	33.6	57.0	43.0	32.6	38.3	29.2	56.8	43.2
1956	22.1	43.3	34.7	55.5	44.5	33.9	37.6	28.7	56.7	43.3
1957	20.7	45.0	34.3	56.7	43.3	32.5	41.2	26.5	60.9	39.1
1958	19.4	43.3	37.4	53.6	46.4	30.4	40.6	29.1	58.2	41.8
1959	18.4	47.7	34.0	58.4	41.6	28.3	45.8	26.1	63.7	36.3
1960	23.3	42.7	34.1	55.6	44.4	36.9	36.3	26.8	57.5	42.5
1961	22.7	43.8	33.6	56.6	43.4	35.5	37.9	26.7	58.7	41.3
1962	21.9	45.0	33.1	57.6	42.4	34.9	38.6	26.7	59.1	40.9
1963	21.0	46.4	32.6	58.7	41.3	33.2	40.2	26.7	60.1	39.9
1964	19.7	48.7	31.7	60.6	39.4	32.0	42.2	26.0	61.9	38.1
1965	21.0	47.0	32.0	59.5	40.5	33.6	41.2	25.3	62.0	38.0
1966	22.7	45.1	32.3	58.3	41.7	38.1	36.8	25.2	59.4	40.6
1967	25.3	44.3	30.5	59.3	40.7	42.5	34.8	22.8	60.4	39.6
1968	25.6	42.4	32.1	56.9	43.1	41.8	35.2	23.1	60.3	39.7
1969	24.4	42.4	33.4	56.0	44.0	40.1	37.4	22.7	62.2	37.8
1970	25.4	41.8	32.8	56.0	44.0	43.5	32.5	24.0	57.6	42.4
1971	25.4	43.0	31.6	57.6	42.4	43.1	33.8	23.1	59.4	40.6
1972	24.4	42.9	32.7	56.8	43.2	41.6	34.4	24.0	58.9	41.1
1973	23.4	42.3	34.4	55.1	44.9	40.2	34.4	25.4	57.6	42.4

## APPENDIX B

P90-95					P95-99				
Capital	Mixed	Labor	Mixed	Labor	Capital	Mixed	Labor	Mixed	Labor
13.1	9.1	77.8	10.4	89.6	17.0	15.2	67.8	18.3	81.7
15.1	9.8	75.1	11.5	88.5	19.6	14.4	66.0	18.0	82.0
15.1	10.0	74.9	11.8	88.2	19.5	15.2	65.3	18.9	81.1
12.4	9.0	78.7	10.2	89.8	17.7	14.3	67.9	17.4	82.6
6.4	16.5	77.0	17.6	82.4	8.5	28.2	63.3	30.8	69.2
4.1	20.8	75.1	21.7	78.3	6.2	31.9	61.9	34.0	66.0
2.2	23.5	74.2	24.1	75.9	3.5	34.6	61.9	35.9	64.1
1.4	21.3	77.2	21.6	78.4	3.0	30.9	66.0	31.9	68.1
2.0	22.6	75.3	23.1	76.9	3.9	30.9	65.2	32.1	67.9
2.3	20.1	77.5	20.6	79.4	4.3	30.9	64.9	32.2	67.8
2.0	20.4	77.7	20.8	79.2	3.5	30.8	65.6	31.9	68.1
2.2	22.9	75.2	23.3	76.7	3.7	33.4	63.2	34.6	65.4
2.1	22.8	75.3	23.3	76.7	3.7	33.9	62.8	35.0	65.0
2.1	21.4	76.8	21.8	78.2	3.8	33.8	62.6	35.1	64.9
2.6	20.2	77.4	20.7	79.3	4.0	29.6	66.7	30.7	69.3
2.7	21.9	75.6	22.4	77.6	4.1	31.8	64.3	33.1	66.9
2.7	19.0	78.5	19.5	80.5	4.1	27.2	69.0	28.2	71.8
2.8	21.9	75.6	22.4	77.6	4.2	31.5	64.5	32.8	67.2
3.4	21.0	75.7	21.7	78.3	5.0	29.4	65.8	30.9	69.1
3.0	19.1	78.1	19.7	80.3	5.1	30.9	64.2	32.5	67.5
3.5	19.4	77.3	20.0	80.0	5.3	28.7	66.2	30.3	69.7
3.3	18.4	78.4	19.0	81.0	5.1	29.0	66.1	30.5	69.5
3.0	18.8	78.5	19.3	80.7	4.8	28.4	67.2	29.7	70.3
3.0	19.6	77.6	20.1	79.9	4.8	29.0	66.5	30.3	69.7
3.6	21.0	75.6	21.8	78.2	4.7	27.9	67.6	29.2	70.8
3.5	20.5	76.1	21.2	78.8	5.4	29.4	65.4	31.0	69.0
3.4	18.7	78.2	19.3	80.7	5.3	26.7	68.2	28.2	71.8
3.4	17.3	79.6	17.8	82.2	5.1	26.1	69.1	27.4	72.6
3.6	16.6	80.0	17.2	82.8	5.3	25.1	69.9	26.4	73.6
3.1	14.5	82.4	14.9	85.1	5.1	23.5	71.3	24.8	75.2
3.0	12.8	84.2	13.2	86.8	4.9	21.6	73.5	22.7	77.3
3.1	13.8	83.1	14.3	85.7	4.7	22.8	72.4	24.0	76.0

(continued)

## APPENDIX B

TABLE B-18  
(continued)

	P99.9-100					P99.99-100				
	Capital	Mixed	Labor	Mixed	Labor	Capital	Mixed	Labor	Mixed	Labor
1974	22.8	42.6	34.6	55.2	44.8	39.1	35.3	25.6	58.0	42.0
1975	22.7	43.5	33.8	56.2	43.8	38.8	36.2	25.0	59.1	40.9
1976	22.5	43.7	33.8	56.4	43.6	38.4	36.7	24.9	59.6	40.4
1977	24.9	42.1	33.0	56.0	44.0	41.5	34.7	23.7	59.4	40.6
1978	24.3	43.4	32.3	57.3	42.7	40.5	36.1	23.4	60.7	39.3
1979	24.7	42.2	33.1	56.0	44.0	41.0	35.2	23.8	59.7	40.3
1980	25.6	41.1	33.4	55.2	44.8	42.0	34.3	23.7	59.2	40.8
1981	27.2	38.9	33.9	53.4	46.6	44.0	32.3	23.7	57.6	42.4
1982	25.9	39.1	35.0	52.8	47.2	42.0	33.2	24.8	57.2	42.8
1983	24.4	39.7	35.9	52.5	47.5	39.6	34.4	26.0	56.9	43.1
1984	24.5	37.6	37.9	49.8	50.2	40.0	32.7	27.4	54.4	45.6
1985	24.7	38.4	36.9	51.0	49.0	40.0	33.4	26.6	55.7	44.3
1986	24.3	39.8	35.9	52.6	47.4	39.5	34.7	25.8	57.3	42.7
1987	26.9	38.6	34.5	52.8	47.2	42.9	32.9	24.2	57.6	42.4
1988	28.4	38.6	33.0	53.9	46.1	44.7	32.5	22.8	58.8	41.2
1989	30.2	38.4	31.4	55.0	45.0	44.0	34.4	21.5	61.6	38.4
1990	29.2	35.0	35.9	49.4	50.6	44.5	34.4	21.1	62.0	38.0
1991	34.1	37.0	28.9	56.2	43.8	53.0	27.7	19.3	58.8	41.2
1992	30.6	29.4	39.9	42.4	57.6	50.0	27.1	22.9	54.1	45.9
1993	35.3	32.8	31.9	50.7	49.3	52.2	24.7	23.1	51.6	48.4
1994	37.3	31.8	30.9	50.7	49.3	56.0	23.3	20.7	52.9	47.1
1995	37.1	29.0	33.9	46.1	53.9	58.6	19.3	22.0	46.7	53.3
1996	37.9	26.6	35.5	42.9	57.1	59.7	17.4	22.9	43.2	56.8
1997	39.8	25.7	34.5	42.7	57.3	61.8	16.4	21.8	42.9	57.1
1998	39.8	25.6	34.6	42.5	57.5	61.8	16.3	21.9	42.6	57.4
	P99-99.5					P99.5-99.9				
	Capital	Mixed	Labor	Mixed	Labor	Capital	Mixed	Labor	Mixed	Labor
1917	44.4	31.8	23.8	57.1	42.9	49.7	35.9	14.4	71.4	28.6
1920	27.3	44.1	28.6	60.6	39.4	33.2	47.3	19.5	70.8	29.2
1932	29.9	23.3	46.7	33.3	66.7	37.6	26.1	36.3	41.8	58.2



## APPENDIX B

P90-95					P95-99				
Capital	Mixed	Labor	Mixed	Labor	Capital	Mixed	Labor	Mixed	Labor
2.9	12.3	84.9	12.6	87.4	4.7	21.9	73.5	22.9	77.1
3.1	12.9	84.0	13.3	86.7	4.6	21.3	74.1	22.3	77.7
2.8	11.7	85.4	12.1	87.9	4.4	22.1	73.5	23.1	76.9
2.5	11.7	85.8	12.0	88.0	4.3	21.6	74.1	22.6	77.4
2.7	12.1	85.2	12.4	87.6	4.5	21.8	73.7	22.8	77.2
3.1	12.6	84.3	13.0	87.0	4.5	20.9	74.6	21.9	78.1
2.9	10.9	86.2	11.2	88.8	5.0	21.1	73.9	22.2	77.8
3.6	12.8	83.5	13.3	86.7	5.0	18.3	76.7	19.2	80.8
3.5	11.2	85.3	11.6	88.4	5.1	19.3	75.6	20.3	79.7
3.5	10.2	86.3	10.6	89.4	5.2	19.4	75.4	20.5	79.5
3.5	9.8	86.7	10.1	89.9	5.2	17.7	77.2	18.6	81.4
3.8	9.2	87.1	9.5	90.5	5.6	17.6	76.7	18.7	81.3
4.3	10.3	85.4	10.8	89.2	5.6	17.5	76.9	18.5	81.5
4.5	10.6	84.9	11.1	88.9	6.0	17.9	76.1	19.1	80.9
4.6	10.4	85.0	10.9	89.1	6.5	18.3	75.2	19.6	80.4
5.0	8.6	86.5	9.1	90.9	7.2	18.9	73.9	20.3	79.7
4.9	8.9	86.2	9.3	90.7	6.5	18.5	75.0	19.8	80.2
5.4	8.3	86.4	8.7	91.3	6.7	16.8	76.5	18.0	82.0
6.0	8.0	86.0	8.5	91.5	6.5	17.1	76.4	18.3	81.7
4.9	8.0	87.1	8.4	91.6	5.8	14.9	79.3	15.8	84.2
4.4	9.6	86.0	10.1	89.9	7.8	13.8	78.4	15.0	85.0
4.6	6.8	87.8	7.1	92.9	6.6	13.3	78.9	14.4	85.6
4.6	6.6	88.8	6.9	93.1	7.0	13.8	79.2	14.8	85.2
4.5	6.3	89.1	6.6	93.4	7.0	13.3	79.6	14.3	85.7
4.5	6.2	89.2	6.5	93.5	7.0	13.2	79.7	14.2	85.8

P99.9-99.99					P99.99-100				
Capital	Mixed	Labor	Mixed	Labor	Capital	Mixed	Labor	Mixed	Labor
45.8	43.8	10.4	80.8	19.2	46.7	47.3	5.9	88.8	11.2
36.0	51.2	12.8	80.1	19.9	42.5	52.1	5.4	90.6	9.4
49.9	27.5	22.6	54.9	45.1	58.9	27.4	13.7	66.7	33.3

(continued)

## APPENDIX B

TABLE B-18  
(continued)

	P99-99.5					P99.5-99.9				
	Capital	Mixed	Labor	Mixed	Labor	Capital	Mixed	Labor	Mixed	Labor
1934	33.5	21.1	45.5	31.6	68.4	42.9	22.4	34.8	39.2	60.8
1936	32.1	23.7	44.1	35.0	65.0	40.6	27.1	32.3	45.6	54.4
1937	30.4	24.8	44.8	35.6	64.4	38.5	29.7	31.8	48.3	51.7
1945	11.1	36.8	52.2	41.3	58.7	14.8	44.0	41.2	51.6	48.4
1946	10.5	47.7	41.9	53.2	46.8	14.2	56.1	29.7	65.4	34.6
1948	5.5	45.6	49.0	48.2	51.8	8.4	52.8	38.9	57.6	42.4
1949	5.6	42.5	51.9	45.1	54.9	9.0	50.4	40.6	55.4	44.6
1950	6.2	40.2	53.6	42.8	57.2	11.0	45.3	43.7	50.9	49.1
1951	6.2	40.6	53.3	43.2	56.8	9.2	46.8	44.0	51.6	48.4
1952	6.3	44.9	48.8	47.9	52.1	8.9	47.5	43.6	52.1	47.9
1953	6.3	47.5	46.7	50.4	49.6	9.5	49.1	41.9	54.0	46.0
1954	5.8	48.4	46.4	51.1	48.9	9.3	50.3	40.9	55.2	44.8
1955	5.6	45.3	49.6	47.7	52.3	9.6	48.9	42.0	53.8	46.2
1956	7.1	40.7	52.6	43.6	56.4	10.1	47.5	42.8	52.6	47.4
1957	6.4	40.9	53.1	43.5	56.5	9.4	48.9	42.0	53.8	46.2
1958	6.5	36.7	57.2	39.1	60.9	9.2	43.9	47.4	48.1	51.9
1959	6.9	41.8	51.6	44.7	55.3	9.1	46.8	44.5	51.3	48.7
1960	7.6	40.8	51.7	44.1	55.9	11.4	44.8	43.9	50.5	49.5
1961	7.5	42.8	50.1	46.1	53.9	11.0	46.0	43.4	51.5	48.5
1962	7.3	38.8	54.3	41.7	58.3	10.8	44.7	44.9	49.9	50.1
1963	7.4	40.0	52.9	43.1	56.9	10.7	46.6	43.0	52.0	48.0
1964	7.3	42.6	50.8	45.6	54.4	10.4	48.7	41.4	54.1	45.9
1965	7.7	42.3	50.5	45.6	54.4	11.0	48.9	40.6	54.6	45.4
1966	7.5	41.4	51.6	44.5	55.5	11.2	47.6	41.4	53.5	46.5
1967	8.0	41.9	50.4	45.4	54.6	12.2	48.4	39.7	54.9	45.1
1968	8.2	38.1	54.2	41.3	58.7	12.4	45.1	42.9	51.3	48.7
1969	8.0	37.2	55.4	40.2	59.8	12.0	44.6	43.9	50.4	49.6
1970	8.4	38.0	54.1	41.2	58.8	12.0	45.4	43.1	51.3	48.7
1971	8.1	37.3	54.6	40.6	59.4	11.8	46.2	42.1	52.3	47.7
1972	8.6	37.4	53.9	41.0	59.0	11.0	45.2	43.8	50.8	49.2
1973	8.3	41.6	50.1	45.4	54.6	10.4	43.9	45.7	48.9	51.1
1974	8.1	44.6	47.3	48.6	51.4	10.0	43.6	46.4	48.5	51.5

## APPENDIX B

P99.9-99.99					P99.99-100				
Capital	Mixed	Labor	Mixed	Labor	Capital	Mixed	Labor	Mixed	Labor
56.1	20.4	23.5	46.4	53.6	62.0	22.8	15.2	60.0	40.0
51.1	26.0	22.9	53.1	46.9	59.7	26.7	13.5	66.4	33.6
48.0	29.7	22.3	57.2	42.8	56.7	30.5	12.8	70.5	29.5
19.5	55.1	25.4	68.4	31.6	16.3	72.4	11.2	86.6	13.4
17.6	64.5	18.0	78.2	21.8	17.9	74.6	7.5	90.8	9.2
13.7	58.0	28.3	67.3	32.7	20.6	62.7	16.7	78.9	21.1
16.6	49.7	33.7	59.5	40.5	31.0	43.9	25.1	63.6	36.4
18.7	45.3	36.0	55.7	44.3	33.9	36.5	29.6	55.2	44.8
18.2	44.8	37.0	54.8	45.2	32.1	40.1	27.9	59.0	41.0
16.8	47.2	36.0	56.7	43.3	33.0	38.3	28.7	57.2	42.8
18.8	47.0	35.0	57.3	42.7	32.8	37.7	29.6	56.0	44.0
18.2	47.9	34.6	58.1	41.9	32.8	39.0	28.3	57.9	42.1
18.2	47.0	35.4	57.0	43.0	32.6	38.3	29.2	56.8	43.2
18.0	45.5	37.0	55.1	44.9	33.9	37.6	28.7	56.7	43.3
16.5	46.6	37.3	55.5	44.5	32.5	41.2	26.5	60.9	39.1
15.6	44.4	40.5	52.3	47.7	30.4	40.6	29.1	58.2	41.8
15.0	48.6	36.9	56.8	43.2	28.3	45.8	26.1	63.7	36.3
18.5	45.0	36.7	55.1	44.9	36.9	36.3	26.8	57.5	42.5
18.2	46.0	36.2	56.0	44.0	35.5	37.9	26.7	58.7	41.3
17.5	47.4	35.5	57.2	42.8	34.9	38.6	26.7	59.1	40.9
16.9	48.6	34.8	58.3	41.7	33.2	40.2	26.7	60.1	39.9
15.7	51.1	33.8	60.2	39.8	32.0	42.2	26.0	61.9	38.1
16.9	49.2	34.4	58.8	41.2	33.6	41.2	25.3	62.0	38.0
17.4	48.1	34.8	58.0	42.0	38.1	36.8	25.2	59.4	40.6
19.2	47.8	33.3	59.0	41.0	42.5	34.8	22.8	60.4	39.6
19.7	45.2	35.4	56.0	44.0	41.8	35.2	23.1	60.3	39.7
19.0	44.5	37.3	54.4	45.6	40.1	37.4	22.7	62.2	37.8
19.5	45.3	36.0	55.7	44.3	43.5	32.5	24.0	57.6	42.4
19.1	46.2	34.7	57.1	42.9	43.1	33.8	23.1	59.4	40.6
18.1	46.0	35.9	56.2	43.8	41.6	34.4	24.0	58.9	41.1
16.5	45.5	38.1	54.4	45.6	40.2	34.4	25.4	57.6	42.4
16.8	45.3	37.9	54.4	45.6	39.1	35.3	25.6	58.0	42.0

(continued)

## APPENDIX B

TABLE B-18  
(continued)

	P99-99.5					P99.5-99.9				
	Capital	Mixed	Labor	Mixed	Labor	Capital	Mixed	Labor	Mixed	Labor
1975	6.8	37.9	55.2	40.7	59.3	10.0	44.2	45.8	49.1	50.9
1976	7.3	37.0	55.7	40.0	60.0	9.6	44.1	46.3	48.7	51.3
1977	6.4	33.0	60.6	35.3	64.7	10.8	42.8	46.5	47.9	52.1
1978	7.6	38.3	54.1	41.4	58.6	10.5	43.8	45.8	48.9	51.1
1979	8.7	43.8	47.4	48.0	52.0	10.3	42.2	47.5	47.0	53.0
1980	9.2	45.6	45.2	50.2	49.8	10.5	40.9	48.5	45.8	54.2
1981	9.5	41.4	49.1	45.7	54.3	11.2	38.7	50.0	43.6	56.4
1982	8.0	37.5	54.5	40.8	59.2	10.8	38.0	51.2	42.6	57.4
1983	7.9	34.4	57.7	37.4	62.6	10.5	37.7	51.8	42.1	57.9
1984	9.4	38.8	51.9	42.8	57.2	10.1	35.0	54.9	39.0	61.0
1985	8.8	37.0	54.2	40.5	59.5	10.1	35.7	54.2	39.7	60.3
1986	8.5	36.2	55.3	39.5	60.5	9.8	36.8	53.4	40.8	59.2
1987	8.4	34.8	56.8	38.0	62.0	10.4	36.2	53.4	40.4	59.6
1988	9.2	33.8	57.0	37.2	62.8	11.7	36.7	51.6	41.5	58.5
1989	10.2	35.5	54.3	39.5	60.5	13.0	39.7	47.4	45.6	54.4
1990	9.3	30.8	60.0	33.9	66.1	13.7	43.7	42.6	50.7	49.3
1991	9.2	34.3	56.5	37.8	62.2	11.9	37.7	50.6	42.7	57.3
1992	7.9	30.9	61.2	33.6	66.4	15.4	37.8	46.9	44.6	55.4
1993	9.0	25.3	65.7	27.8	72.2	14.0	40.3	45.8	46.8	53.2
1994	11.9	30.6	57.4	34.8	65.2	13.5	33.9	52.7	39.1	60.9
1995	11.0	26.5	62.1	29.9	70.1	15.8	36.5	47.5	43.5	56.5
1996	10.7	24.9	64.4	27.9	72.1	15.9	34.0	50.2	40.4	59.6
1997	10.4	23.5	66.1	26.3	73.7	16.6	33.5	49.9	40.2	59.8
1998	10.4	23.4	66.2	26.1	73.9	16.6	33.4	50.0	40.0	60.0

*Explanation:* In 1998, the capital income share of fractile P99.99-100's total income was 61.8 percent, the mixed income share was 16.3 percent, and the labor income share was 21.9 percent (capital incomes include RF and RCM; mixed incomes include BA, BIC, and BNC; and labor incomes include TSP); excluding capital income, the mixed income share was 42.6 percent and the labor share was 57.4 percent.

## APPENDIX B

P99.9-99.99					P99.99-100				
Capital	Mixed	Labor	Mixed	Labor	Capital	Mixed	Labor	Mixed	Labor
16.7	46.2	37.1	55.5	44.5	38.8	36.2	25.0	59.1	40.9
16.5	46.4	37.1	55.5	44.5	38.4	36.7	24.9	59.6	40.4
18.5	44.9	36.6	55.1	44.9	41.5	34.7	23.7	59.4	40.6
18.2	46.1	35.7	56.4	43.6	40.5	36.1	23.4	60.7	39.3
18.4	44.8	36.7	55.0	45.0	41.0	35.2	23.8	59.7	40.3
19.2	43.7	37.1	54.1	45.9	42.0	34.3	23.7	59.2	40.8
20.7	41.5	37.8	52.3	47.7	44.0	32.3	23.7	57.6	42.4
19.9	41.3	38.8	51.6	48.4	42.0	33.2	24.8	57.2	42.8
19.0	41.6	39.4	51.4	48.6	39.6	34.4	26.0	56.9	43.1
19.0	39.3	41.7	48.5	51.5	40.0	32.7	27.4	54.4	45.6
19.1	40.2	40.7	49.7	50.3	40.0	33.4	26.6	55.7	44.3
18.7	41.7	39.6	51.3	48.7	39.5	34.7	25.8	57.3	42.7
20.4	40.9	38.7	51.4	48.6	42.9	32.9	24.2	57.6	42.4
22.3	40.9	36.8	52.6	47.4	44.7	32.5	22.8	58.8	41.2
24.8	40.0	35.3	53.1	46.9	44.0	34.4	21.5	61.6	38.4
22.9	35.2	41.9	45.7	54.3	44.5	34.4	21.1	62.0	38.0
26.8	40.7	32.6	55.6	44.4	53.0	27.7	19.3	58.8	41.2
23.9	30.3	45.9	39.7	60.3	50.0	27.1	22.9	54.1	45.9
29.1	35.8	35.2	50.5	49.5	52.2	24.7	23.1	51.6	48.4
30.6	34.9	34.5	50.3	49.7	56.0	23.3	20.7	52.9	47.1
28.8	32.7	38.5	45.9	54.1	58.6	19.3	22.0	46.7	53.3
28.8	30.5	40.7	42.8	57.2	59.7	17.4	22.9	43.2	56.8
30.3	29.7	40.0	42.6	57.4	61.8	16.4	21.8	42.9	57.1
30.3	29.6	40.1	42.5	57.5	61.8	16.3	21.9	42.6	57.4

year 1995 the indicators of change provided by the taxable-income composition estimates for fractiles P90–100, P95–100, P99–100, and P99.5–100 for the 1996–1998 tax years obtained by linear extrapolation on the basis of the raw data.<sup>41</sup>

Tables B-17 and B-18 merely reproduce the results from Table B-16 in another form, so as to bring out more clearly the changes in the composition of income over time for each of the fractiles.

### 3. *Estimating the Average Tax Rates of the Various Top-Income Fractiles (1915–1998 Tax Years)*

#### 3.1. The Estimates

Estimates of the income levels declared by the various top-income fractiles (see section 1) and a knowledge of income tax legislation, in particular the rate schedules (see Chapter 4 and Appendix C), allow us to estimate the average effective tax rates for the various top-income fractiles under the progressive income tax. The complete results of these estimates are given in Tables B-19, B-20, and B-21. These detailed estimates pertain solely to the average tax rates on the progressive income tax strictly speaking, that is, the IGR for the 1915–1947 tax years, the “progressive surtax” on the IRPP for the 1948–1958 tax years, and simply the IRPP for the 1959–1998 tax years. As for the average tax rates on the schedular taxes (1917–1947 tax years), the proportional tax (1948–1958 tax years) and the complementary tax (1959–1969 tax years), we have limited ourselves to approximate estimates (see section 1.4.2), and we have not included these estimates in the results shown in Tables B-19, B-20, and B-21.

The average tax rates reproduced in Table B-19 are average tax rates expressed as a percentage of the taxable income that serves as the basis for calculating the income tax, that is, as a percentage of the average taxable incomes by fractile reproduced in Tables B-2 and B-3. To estimate these average tax rates, we have taken into account all parameters of the tax legislation in effect for each year of the 1915–1998 period: the rate schedule, but also the flat-rate deductions for family dependents, the family quotient, tax reductions, surtaxes and rebates, and so on. In particular, the average effective tax rates reproduced in Table B-19 take into account all so-called exceptional surtaxes.<sup>42</sup> This explains, for example, why the average tax rate for fractile P99.99–100 reached

56.8 percent in 1924 (see Table B-19), a year when a 20 percent additional surtax applied on top of the *double décime* that was in effect during the 1923–1925 tax years.

However, the average tax rates reproduced in Table B-19 notably overestimate “real” tax rates, in the sense that taxable income is significantly less than fiscal income. This is notably the case for top incomes in the interwar era, whose recipients could deduct from their taxable income in year  $n$  the amount of taxes paid on income from year  $n-1$ . That is why in Table B-20 we reproduce the estimates of average effective tax rates as a percentage of fiscal income (before any exemptions or deductions), that is, as a percentage of the average fiscal incomes by fractile reproduced in Tables B-8 and B-9. The estimates given in Table B-20 were obtained by taking the average rates in Table B-19 and applying the ratios between taxable income and fiscal income for each fractile from Tables B-2 and B-3 (for average taxable income by fractile) and B-8 and B-9 (for average fiscal income by fractile).<sup>43</sup> The average tax rates reproduced in Table B-20 are thus always lower than those from Table B-19, and the differences can be very large, particularly for top incomes in the interwar era. We have also reproduced in Table B-20 estimates of the average tax rate for fractile P0–100 (that is, the entire population) and fractile P0–90 (that is, the poorest 90 percent of tax units), expressed as a percentage of fiscal income. The average tax rate of fractile P0–100 is identical to the estimate given in Table A-2 (column [7]), which was obtained by dividing the total amount of tax given in the tax statistics by our estimate of total fiscal income (see Appendix A, section 1.3). The average tax rate of fractile P0–90 was obtained by inference, based on the average tax rate of fractile P0–100, the average tax rate of fractile P90–100, and the P90–100 share of total fiscal income (Table B-14).<sup>44</sup> This estimation method means that our estimate of the average tax rate of fractile P0–90 is less precise than the estimates of average tax rates for top-income fractiles: since it was obtained by the difference from total tax, this estimate takes on any estimation errors from the other average rates (see section 3.2).

Finally, Table B-21 gives estimates of each fractile’s share of total tax, and Tables B-22 and B-23 give estimates of each fractile’s share of total income after tax. These estimates were obtained by applying the average tax rates from Table B-22 to the various fractiles’ shares of total income before tax from Tables B-14 and B-15.<sup>45</sup>

TABLE B-19

*Average tax rates of the various fractiles as a percentage of taxable income (1915-1998 tax years)*

	P90- 100	P95- 100	P99- 100	P99.5- 100	P99.9- 100	P99.99- 100	P90-95	P95-99	P99- 99.5	P99.5- 99.9	P99.9- 99.99	P99.99- 100
1915			1.1	1.3	1.7	1.9			0.3	0.8	1.6	1.9
1916			4.4	5.2	6.9	8.7			1.3	2.9	5.6	8.7
1917			8.2	9.7	14.4	17.9			2.1	4.0	12.3	17.9
1918			7.8	9.4	14.1	17.7			2.3	4.3	12.0	17.7
1919	5.3	6.7	11.7	14.6	23.8	39.7	0.0	0.4	1.6	4.4	15.9	39.7
1920	5.7	7.3	12.8	16.0	25.8	41.9	0.1	0.7	2.3	5.9	17.4	41.9
1921	4.7	6.2	11.1	14.1	23.2	38.7	0.1	0.7	2.2	5.3	15.9	38.7
1922	5.2	6.7	12.0	15.0	24.4	39.9	0.1	0.9	2.4	6.0	17.2	39.9
1923	6.8	8.7	15.5	19.4	30.8	49.1	0.2	1.1	3.4	8.5	22.5	49.1
1924	7.6	10.1	18.2	22.7	36.0	56.8	0.4	1.4	4.6	11.4	27.3	56.8
1925	6.5	8.6	15.8	19.8	31.1	49.0	0.5	1.4	4.3	10.0	23.4	49.0
1926	4.1	5.3	9.4	11.7	17.7	26.2	0.3	0.9	2.7	6.2	13.7	26.2
1927	4.0	5.3	9.5	11.8	17.8	26.4	0.3	0.9	2.6	6.0	13.7	26.4
1928	4.5	6.0	10.9	13.5	20.2	29.5	0.2	0.9	3.1	7.0	15.7	29.5
1929	4.1	5.5	10.3	12.9	19.6	29.2	0.2	0.9	2.8	6.7	15.0	29.2
1930	3.8	5.1	9.8	12.2	18.7	28.2	0.2	0.9	2.8	6.4	14.5	28.2
1931	3.2	4.5	8.8	11.2	17.6	27.7	0.2	0.8	2.5	5.6	13.2	27.7
1932	3.2	4.4	8.8	11.3	18.1	29.3	0.2	0.8	2.6	5.6	13.5	29.3
1933	3.1	4.3	8.6	11.1	18.0	29.1	0.2	0.8	2.5	5.4	13.1	29.1



1934	2.3	3.2	6.6	8.6	14.4	23.0	0.1	0.5	1.7	3.8	10.8	23.0
1935	2.6	3.6	7.5	9.9	17.2	28.1	0.1	0.5	1.7	3.9	12.2	28.1
1936	3.8	5.4	11.2	14.8	25.9	40.2	0.2	0.7	2.3	5.4	19.3	40.2
1937	4.8	6.7	13.8	18.0	30.4	46.4	0.3	0.9	3.0	7.6	22.7	46.4
1938	4.9	6.9	14.1	18.5	31.3	47.3	0.5	1.2	3.4	8.6	24.1	47.3
1939	5.1	7.2	14.7	19.2	32.4	49.8	0.4	1.0	2.9	7.6	24.3	49.8
1940	4.0	5.6	11.7	15.5	27.8	45.5	0.3	0.8	2.5	6.0	20.9	45.5
1941	6.0	8.4	16.8	22.0	36.2	55.1	0.6	1.5	4.4	11.5	28.9	55.1
1942	6.7	9.3	18.8	24.5	39.3	56.6	0.9	2.2	6.6	14.8	33.5	56.6
1943	6.2	8.7	18.4	24.0	39.1	56.7	0.6	2.1	7.1	14.8	33.2	56.7
1944	6.1	8.6	18.1	23.3	37.0	54.5	1.1	2.9	8.3	15.7	31.9	54.5
1945	5.6	8.0	15.4	19.2	28.8	44.0	1.2	3.5	8.1	13.2	23.5	44.0
1946	9.3	11.8	18.7	22.6	33.0	48.4	4.0	7.0	10.2	15.1	27.0	48.4
1947	6.6	9.3	18.4	22.8	33.3	48.8	0.6	3.6	9.4	15.7	27.9	48.8
1948	6.9	9.5	16.6	19.9	28.2	42.1	2.0	4.6	9.5	14.1	23.3	42.1
1949	8.3	10.9	18.3	22.0	32.0	46.8	2.9	5.8	9.9	14.8	26.5	46.8
1950	8.0	10.6	18.0	21.7	31.6	44.5	2.6	5.5	9.6	14.5	26.7	44.5
1951	8.0	10.7	18.1	21.8	31.5	44.3	2.8	5.7	10.0	14.9	26.8	44.3
1952	9.4	12.2	19.9	23.8	33.5	45.8	3.8	7.0	11.7	17.2	29.2	45.8
1953	8.4	11.4	19.5	23.4	33.3	46.0	2.3	5.7	10.9	16.7	28.8	46.0
1954	8.6	11.6	19.8	23.8	33.7	46.3	2.3	5.9	11.3	17.1	29.1	46.3
1955	10.6	14.0	23.3	27.8	38.6	52.4	3.4	7.5	13.8	20.5	33.5	52.4
1956	11.6	15.1	24.7	29.3	40.0	53.7	4.2	8.3	15.3	22.1	34.9	53.7
1957	12.9	16.5	26.4	30.9	41.5	54.9	5.3	9.6	16.8	23.9	36.6	54.9
1958	13.9	17.6	27.6	32.2	42.7	55.5	6.4	10.8	18.1	25.3	38.1	55.5

(continued)

TABLE B-19  
(continued)

	P90- 100	P95- 100	P99- 100	P99.5- 100	P99.9- 100	P99.99- 100	P90-95	P95-99	P99- 99.5	P99.5- 99.9	P99.9- 99.99	P99.99- 100
1959	16.6	20.5	31.2	36.0	46.3	59.0	8.2	13.2	21.5	29.2	41.8	59.0
1960	16.4	20.2	30.6	35.2	45.2	57.1	8.1	12.9	21.0	28.7	40.8	57.1
1961	16.2	19.9	30.0	34.3	43.7	54.8	8.0	12.8	21.0	28.2	39.7	54.8
1962	16.9	20.9	31.3	35.5	44.9	55.5	8.3	13.8	22.5	29.5	41.1	55.5
1963	17.8	21.8	32.8	37.0	46.2	56.4	9.3	14.4	24.2	31.2	42.6	56.4
1964	18.1	22.1	33.1	37.3	46.3	56.3	9.5	14.7	24.5	31.6	42.8	56.3
1965	18.4	22.4	33.3	37.5	46.4	56.2	9.9	15.1	24.9	31.9	43.0	56.2
1966	17.7	21.6	32.0	35.9	44.3	53.3	9.5	14.6	24.0	30.6	41.1	53.3
1967	20.8	26.1	41.4	46.8	57.0	67.6	9.3	15.8	30.5	40.2	53.1	67.6
1968	21.7	26.7	39.3	43.8	53.3	63.0	11.2	18.4	30.0	37.6	49.7	63.0
1969	21.1	25.7	36.9	41.2	50.1	59.1	11.4	18.3	28.2	35.4	46.6	59.1
1970	20.4	24.7	34.9	38.8	47.1	55.4	11.5	17.9	26.8	33.5	44.0	55.4
1971	21.1	25.4	35.6	39.6	47.8	55.4	12.1	18.4	27.5	34.3	45.0	55.4
1972	20.6	24.7	34.4	38.2	46.0	52.9	12.0	17.9	26.5	33.0	43.4	52.9
1973	21.7	26.1	36.2	40.0	47.8	54.3	12.2	18.9	28.0	34.7	45.2	54.3
1974	21.6	25.9	35.9	39.7	47.7	54.0	12.6	19.1	28.0	34.5	45.4	54.0
1975	22.3	26.7	36.6	40.3	48.2	54.3	13.3	19.9	28.8	35.2	46.0	54.3
1976	23.4	27.8	37.8	41.6	49.3	54.8	14.2	21.0	30.0	36.6	47.3	54.8
1977	23.9	28.4	38.2	42.0	49.7	55.0	15.1	21.9	30.3	36.9	47.6	55.0

1978	23.9	28.3	38.2	42.1	49.7	55.0	14.9	21.6	30.3	37.0	47.7	55.0
1979	24.6	29.1	39.3	43.3	50.6	55.4	15.3	22.1	31.1	38.3	48.8	55.4
1980	25.7	30.7	43.3	49.1	60.7	68.3	15.6	22.3	31.2	41.3	57.9	68.3
1981	26.3	31.7	44.0	48.9	56.3	60.9	15.7	23.5	34.1	43.8	54.5	60.9
1982	25.6	30.7	43.4	48.8	58.0	64.0	15.7	22.8	32.5	42.8	55.8	64.0
1983	25.3	30.1	41.5	46.5	55.1	60.8	16.1	23.2	31.9	41.2	53.1	60.8
1984	23.9	28.5	39.3	44.0	52.3	57.8	15.1	21.8	30.2	38.8	50.3	57.8
1985	23.2	27.7	38.3	42.9	50.7	55.9	14.6	21.2	29.2	37.9	48.9	55.9
1986	22.5	26.8	36.4	40.3	46.4	50.1	14.0	20.7	28.5	36.4	45.1	50.1
1987	21.8	26.1	35.7	39.6	45.6	49.1	13.2	19.7	27.4	35.5	44.2	49.1
1988	21.8	26.1	35.7	39.6	45.3	48.6	13.3	19.7	27.4	35.5	44.0	48.6
1989	22.3	26.7	36.4	40.2	45.8	48.9	13.4	20.0	28.0	36.1	44.5	48.9
1990	22.7	27.1	36.9	40.7	46.3	49.4	13.7	20.4	28.5	36.6	44.9	49.4
1991	22.2	26.5	36.1	39.9	45.6	48.8	13.6	20.2	27.9	35.9	44.2	48.8
1992	21.5	25.6	34.9	38.7	44.5	47.9	13.3	19.6	26.9	34.8	43.2	47.9
1993	19.8	23.7	33.2	37.0	43.0	46.8	12.3	17.6	25.1	32.9	41.5	46.8
1994	19.3	23.1	32.0	35.5	42.0	46.2	12.1	17.3	24.6	31.1	40.2	46.2
1995	19.3	23.1	32.5	36.2	42.2	45.9	11.9	17.2	24.5	32.2	40.7	45.9
1996	17.6	21.3	30.1	33.8	39.5	43.1	10.6	15.7	22.5	29.8	38.0	43.1
1997	18.1	21.7	30.6	34.2	39.7	43.2	11.0	16.1	22.9	30.3	38.3	43.2
1998	18.5	22.3	31.5	34.9	40.1	43.4	11.3	16.4	24.3	31.3	38.8	43.4

*Explanation:* In 1998, the average tax rate of fractile P<sub>90-100</sub> (expressed as a percentage of taxable income) was 18.5 percent, the average tax rate of fractile P<sub>95-100</sub> (expressed as a percentage of taxable income) was 22.3 percent, etc.

TABLE B-20

*The average tax rates of the various fractiles as a percentage of fiscal income (1915-1998 tax years)*

	P0-100	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100	P0-90	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1915	0.2			1.0	1.1	1.5	1.7				0.2	0.7	1.4	1.7
1916	0.8			3.8	4.5	6.0	7.8				1.1	2.5	4.8	7.8
1917	1.4			6.7	7.9	11.6	14.2				1.8	3.3	10.0	14.2
1918	1.2			6.2	7.3	10.5	12.8				1.9	3.5	9.1	12.8
1919	1.9	4.4	5.5	9.2	11.4	18.1	29.4	0.0	0.0	0.4	1.3	3.5	12.2	29.4
1920	1.8	4.6	5.8	9.6	11.7	17.7	26.4	0.0	0.1	0.6	1.9	4.7	12.5	26.4
1921	1.5	3.7	4.7	8.0	9.8	14.8	21.4	0.0	0.1	0.6	1.7	4.0	10.9	21.4
1922	1.7	4.1	5.2	8.9	11.0	16.7	24.9	0.0	0.1	0.7	2.0	4.6	12.4	24.9
1923	2.4	5.4	6.8	11.6	14.2	21.2	30.9	0.0	0.2	0.9	2.7	6.6	16.1	30.9
1924	2.5	6.0	7.7	13.0	15.7	22.6	31.0	0.0	0.3	1.1	3.7	8.5	18.3	31.0
1925	2.3	5.1	6.5	11.1	13.4	19.4	27.4	0.0	0.4	1.2	3.4	7.3	15.3	27.4
1926	1.4	3.2	4.1	6.9	8.3	11.8	16.3	0.0	0.2	0.7	2.1	4.6	9.5	16.3
1927	1.4	3.2	4.2	7.1	8.6	12.6	17.7	0.0	0.3	0.7	2.1	4.5	9.9	17.7
1928	1.6	3.6	4.7	8.2	9.9	14.2	19.8	0.0	0.2	0.8	2.5	5.3	11.4	19.8
1929	1.4	3.2	4.3	7.6	9.2	13.3	18.6	0.0	0.2	0.7	2.2	5.0	10.5	18.6
1930	1.3	3.0	4.0	7.2	8.8	12.8	17.7	0.0	0.2	0.7	2.3	4.8	10.3	17.7
1931	1.1	2.6	3.5	6.4	7.9	11.7	17.1	0.0	0.2	0.7	2.0	4.2	9.1	17.1
1932	1.1	2.5	3.5	6.5	8.1	12.3	18.3	0.0	0.2	0.7	2.1	4.2	9.5	18.3
1933	1.1	2.5	3.4	6.4	8.1	12.4	18.8	0.0	0.2	0.7	2.0	4.1	9.3	18.8
1934	0.9	1.8	2.5	4.9	6.2	9.9	14.5	0.0	0.1	0.4	1.3	2.9	7.7	14.5

1935	1.0	2.1	2.9	5.8	7.4	12.3	19.3	0.0	0.1	0.4	1.3	3.0	8.9	19.3
1936	1.4	3.1	4.3	8.6	11.1	18.4	26.8	0.0	0.1	0.5	1.9	4.2	14.2	26.8
1937	1.7	3.8	5.3	10.3	13.2	20.7	29.4	0.0	0.3	0.7	2.4	5.9	16.1	29.4
1938	1.7	3.9	5.4	10.2	12.9	19.8	26.7	0.1	0.4	1.0	2.8	6.5	16.2	26.7
1939	1.6	4.0	5.6	10.5	13.2	20.8	29.5	0.0	0.3	0.8	2.3	5.6	16.2	29.5
1940	1.2	3.1	4.3	8.2	10.3	16.3	22.3	0.0	0.2	0.7	2.0	4.4	13.2	22.3
1941	1.9	4.9	6.7	12.8	16.3	24.9	34.6	0.1	0.5	1.3	3.6	9.0	20.7	34.6
1942	1.9	5.3	7.2	13.5	16.8	24.1	29.8	0.1	0.7	1.8	5.3	11.0	21.7	29.8
1943	1.6	4.9	6.7	12.9	16.0	23.3	30.7	0.0	0.5	1.7	5.5	10.6	20.5	30.7
1944	1.4	4.8	6.6	12.5	15.3	21.5	27.1	0.1	0.9	2.4	6.4	11.1	19.5	27.1
1945	1.5	4.7	6.6	12.3	15.1	22.4	34.1	0.2	1.0	3.0	6.6	10.5	18.3	34.1
1946	3.2	7.8	10.0	15.7	18.9	28.1	41.9	0.9	3.4	5.9	8.5	12.5	22.9	41.9
1947	2.0	5.4	7.6	14.6	17.8	25.6	36.4	0.3	0.5	3.0	7.6	12.4	21.8	36.4
1948	2.1	5.8	8.0	13.8	16.5	23.7	35.9	0.4	1.7	3.9	7.9	11.7	19.4	35.9
1949	2.6	7.0	9.1	15.1	18.1	26.5	39.2	0.6	2.5	4.9	8.2	12.1	21.9	39.2
1950	2.5	6.7	8.8	14.7	17.7	25.9	36.9	0.5	2.2	4.6	7.9	11.8	21.8	36.9
1951	2.4	6.7	8.9	14.8	17.8	25.9	36.8	0.4	2.3	4.8	8.3	12.2	22.0	36.8
1952	3.0	7.8	10.1	16.3	19.4	27.4	37.8	0.6	3.2	5.8	9.6	13.9	23.8	37.8
1953	2.5	6.7	9.1	15.7	18.9	27.0	37.7	0.4	1.8	4.5	8.7	13.4	23.2	37.7
1954	2.4	6.5	8.8	15.4	18.6	26.9	38.0	0.4	1.7	4.4	8.7	13.1	23.0	38.0
1955	3.1	8.0	10.6	18.1	21.8	31.0	43.2	0.5	2.5	5.6	10.6	15.8	26.6	43.2
1956	3.5	8.8	11.5	19.2	22.9	32.1	44.3	0.7	3.1	6.2	11.7	17.0	27.7	44.3
1957	4.0	9.7	12.5	20.5	24.3	33.4	45.3	0.9	3.9	7.2	12.9	18.5	29.1	45.3
1958	4.4	10.5	13.4	21.4	25.2	34.2	45.6	1.2	4.8	8.1	13.8	19.5	30.3	45.6
1959	5.2	11.9	14.9	23.4	27.4	36.7	48.6	1.4	5.8	9.4	15.6	21.7	32.7	48.6

(continued)

TABLE B-20  
(continued)

	P0-100	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100	P0-90	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1960	5.2	11.6	14.5	22.9	26.8	35.9	47.6	1.6	5.6	9.0	15.1	21.2	32.0	47.6
1961	5.5	11.5	14.4	22.5	26.2	35.0	45.9	1.9	5.6	9.0	15.2	20.9	31.2	45.9
1962	5.7	12.1	15.1	23.5	27.2	36.0	46.5	2.1	5.8	9.7	16.3	22.0	32.5	46.5
1963	6.3	12.7	15.8	24.8	28.5	37.4	47.8	2.6	6.4	10.2	17.6	23.4	33.9	47.8
1964	6.6	13.0	16.1	25.1	28.9	37.7	48.1	2.9	6.6	10.4	17.9	23.8	34.3	48.1
1965	6.8	13.3	16.4	25.4	29.2	38.0	48.4	3.0	6.9	10.8	18.3	24.1	34.7	48.4
1966	6.7	12.8	15.8	24.5	28.1	36.5	46.2	3.2	6.7	10.4	17.7	23.2	33.3	46.2
1967	7.5	15.0	19.2	32.0	36.9	47.4	59.1	3.2	6.5	11.2	22.5	30.7	43.4	59.1
1968	7.6	15.7	19.7	30.4	34.7	44.6	55.4	3.3	7.8	13.1	22.2	28.8	40.9	55.4
1969	7.4	15.3	19.1	28.8	32.9	42.3	52.4	3.3	8.0	13.1	21.0	27.3	38.6	52.4
1970	7.0	14.9	18.3	27.3	31.2	40.1	49.5	3.2	8.0	12.8	20.0	26.0	36.7	49.5
1971	7.4	15.4	18.9	28.1	32.0	40.9	49.9	3.3	8.5	13.2	20.6	26.8	37.8	49.9
1972	7.3	15.1	18.4	27.1	30.9	39.4	47.6	3.5	8.4	12.9	19.9	25.8	36.4	47.6
1973	7.8	15.8	19.5	28.6	32.4	41.0	48.8	3.6	8.6	13.6	21.0	27.1	38.0	48.8
1974	7.9	15.8	19.3	28.3	32.1	40.8	48.6	4.0	8.8	13.7	21.0	26.9	38.1	48.6
1975	8.4	16.3	19.9	28.8	32.6	41.3	48.9	4.4	9.3	14.4	21.6	27.5	38.6	48.9
1976	8.9	17.1	20.8	29.8	33.7	42.2	49.3	4.8	9.9	15.1	22.5	28.5	39.7	49.3
1977	8.6	17.5	21.2	30.1	34.0	42.5	49.5	4.5	10.5	15.8	22.8	28.8	40.0	49.5
1978	8.8	17.4	21.1	30.1	34.0	42.5	49.5	4.9	10.5	15.6	22.7	28.9	40.1	49.5

1979	9.0	17.9	21.7	31.0	35.0	43.3	49.9	4.9	10.7	15.9	23.3	29.9	41.0	49.9
1980	9.1	18.8	22.9	34.1	39.7	52.0	61.4	4.8	10.9	16.1	23.4	32.2	48.6	61.4
1981	9.3	19.2	23.6	34.7	39.5	48.2	54.8	4.9	11.0	16.9	25.6	34.2	45.8	54.8
1982	9.0	18.7	22.9	34.2	39.5	49.6	57.6	4.9	11.0	16.4	24.3	33.4	46.9	57.6
1983	9.1	18.4	22.4	32.7	37.5	47.1	54.7	5.0	11.2	16.7	23.9	32.1	44.6	54.7
1984	8.6	17.4	21.2	30.9	35.5	44.7	52.0	4.7	10.6	15.7	22.7	30.2	42.3	52.0
1985	8.4	16.9	20.6	30.1	34.6	43.4	50.3	4.5	10.2	15.3	21.9	29.6	41.0	50.3
1986	8.1	16.4	20.0	28.7	32.6	39.7	45.1	4.3	9.8	14.9	21.4	28.4	37.9	45.1
1987	7.7	15.9	19.4	28.2	32.1	39.0	44.2	3.9	9.3	14.2	20.5	27.7	37.1	44.2
1988	7.8	15.9	19.5	28.2	32.0	38.8	43.8	3.9	9.3	14.2	20.5	27.7	36.9	43.8
1989	8.1	16.3	19.9	28.8	32.6	39.2	44.0	4.1	9.3	14.4	21.0	28.2	37.3	44.0
1990	8.3	16.6	20.3	29.1	33.0	39.7	44.5	4.2	9.6	14.7	21.3	28.6	37.8	44.5
1991	8.1	16.2	19.8	28.5	32.3	39.0	43.9	4.3	9.5	14.5	20.9	28.0	37.1	43.9
1992	7.9	15.7	19.1	27.6	31.4	38.1	43.1	4.2	9.3	14.1	20.2	27.1	36.3	43.1
1993	7.3	14.4	17.7	26.2	30.0	36.9	42.1	3.9	8.6	12.7	18.9	25.7	34.9	42.1
1994	7.2	14.1	17.2	25.3	28.8	35.9	41.6	3.9	8.5	12.5	18.4	24.2	33.8	41.6
1995	7.2	14.1	17.2	25.6	29.3	36.1	41.3	3.9	8.4	12.4	18.4	25.1	34.1	41.3
1996	6.4	12.9	15.8	23.8	27.3	33.8	38.8	3.3	7.4	11.3	16.9	23.3	31.9	38.8
1997	6.5	13.2	16.2	24.1	27.7	34.1	38.9	3.3	7.7	11.6	17.2	23.6	32.2	38.9
1998	6.8	13.5	16.6	24.9	28.3	34.4	39.0	3.3	7.9	11.8	18.2	24.4	32.6	39.0

*Explanation:* In 1998, the average tax rate of fractile P90–100 (expressed as a percentage of fiscal income) was 13.5 percent, the average tax rate of fractile P95–100 (expressed as a percentage of fiscal income) was 16.6 percent, etc.

TABLE B-21

*Shares of total tax by fractile (1915-1998 tax years)*

	P90- 100	P95- 100	P99- 100	P99.5- 100	P99.9- 100	P99.99- 100	P0-90	P90-95	P95-99	P99- 99.5	P99.5- 99.9	P99.9- 99.99	P99.99- 100
1915			99.6	94.3	68.6	29.4				5.3	25.7	39.3	29.4
1916			95.4	89.8	68.4	35.7				5.6	21.4	32.7	35.7
1917			92.6	87.6	71.3	33.8				5.0	16.3	37.5	33.8
1918			91.0	85.2	66.1	30.2				5.8	19.1	35.9	30.2
1919	100.0	100.0	97.0	94.1	80.5	44.6	0.0	0.0	3.0	3.0	13.5	35.9	44.6
1920	100.0	99.7	95.1	91.2	74.5	41.6	0.0	0.3	4.6	3.9	16.7	32.9	41.6
1921	99.8	99.4	93.7	89.2	72.4	38.5	0.2	0.4	5.7	4.5	16.8	33.9	38.5
1922	99.9	99.5	93.4	88.7	71.0	36.6	0.1	0.4	6.1	4.7	17.8	34.4	36.6
1923	99.7	98.9	92.9	88.1	68.2	34.1	0.3	0.8	6.0	4.9	19.8	34.1	34.1
1924	99.6	98.4	92.0	86.1	63.0	29.3	0.4	1.2	6.3	5.9	23.2	33.7	29.3
1925	99.2	97.4	89.3	83.1	60.6	28.8	0.8	1.8	8.1	6.2	22.5	31.8	28.8
1926	99.0	97.2	89.7	83.3	60.4	28.7	1.0	1.7	7.5	6.4	22.9	31.8	28.7
1927	98.7	96.5	88.6	82.7	61.5	29.7	1.3	2.1	7.9	6.0	21.2	31.8	29.7
1928	99.1	97.8	90.3	83.9	61.7	29.4	0.9	1.4	7.5	6.4	22.1	32.3	29.4
1929	98.9	97.6	89.9	83.8	61.0	29.5	1.1	1.4	7.7	6.1	22.8	31.5	29.5
1930	98.5	96.7	87.9	81.2	59.0	27.3	1.5	1.8	8.8	6.7	22.2	31.6	27.3
1931	98.7	96.6	87.3	80.5	58.7	28.2	1.3	2.0	9.3	6.8	21.8	30.5	28.2
1932	98.8	96.7	86.7	79.4	57.9	27.5	1.2	2.1	10.1	7.2	21.6	30.4	27.5
1933	98.8	96.6	86.1	78.8	57.7	28.4	1.2	2.1	10.6	7.3	21.0	29.4	28.4
1934	99.0	97.1	88.2	81.7	61.9	29.1	1.0	1.9	8.9	6.5	19.8	32.8	29.1



1935	99.2	97.6	89.9	84.2	66.3	34.0	0.8	1.6	7.7	5.7	17.9	32.3	34.0
1936	99.2	98.0	91.3	85.9	68.7	33.7	0.8	1.2	6.7	5.4	17.2	35.1	33.7
1937	98.7	96.8	89.7	84.1	65.0	32.2	1.3	1.9	7.1	5.6	19.1	32.8	32.2
1938	97.7	94.9	86.1	80.0	59.0	27.6	2.3	2.8	8.8	6.1	20.9	31.5	27.6
1939	98.7	96.6	89.2	84.4	66.4	32.6	1.3	2.1	7.3	4.9	18.0	33.8	32.6
1940	98.6	96.5	88.4	82.8	64.8	29.9	1.4	2.1	8.1	5.6	18.0	34.9	29.9
1941	98.0	95.1	85.6	79.0	55.3	23.3	2.0	2.9	9.5	6.6	23.7	32.0	23.3
1942	97.0	93.2	80.8	71.8	45.5	16.4	3.0	3.8	12.4	8.9	26.4	29.0	16.4
1943	98.3	95.1	81.8	71.4	44.1	16.1	1.7	3.2	13.4	10.3	27.3	28.0	16.1
1944	97.5	91.8	72.4	60.8	34.5	11.5	2.5	5.8	19.3	11.7	26.3	23.0	11.5
1945	91.4	84.8	61.2	50.3	29.0	11.5	8.6	6.6	23.6	10.9	21.3	17.5	11.5
1946	80.8	69.7	45.3	37.6	23.0	9.4	19.2	11.2	24.3	7.7	14.6	13.6	9.4
1947	90.4	87.8	67.3	56.2	33.1	12.4	9.6	2.7	20.5	11.1	23.0	20.7	12.4
1948	88.6	80.2	56.9	46.6	27.1	10.6	11.4	8.4	23.3	10.3	19.5	16.5	10.6
1949	84.8	74.9	51.4	42.8	26.2	10.4	15.2	9.9	23.5	8.6	16.6	15.9	10.4
1950	86.3	77.0	53.5	44.6	27.3	10.5	13.7	9.3	23.6	8.9	17.3	16.8	10.5
1951	90.3	80.0	54.6	45.0	27.0	10.1	9.7	10.3	25.4	9.5	18.0	16.8	10.1
1952	86.0	74.6	49.2	40.1	22.9	8.1	14.0	11.3	25.4	9.2	17.2	14.8	8.1
1953	89.2	81.3	57.1	47.0	27.2	9.9	10.8	7.8	24.2	10.1	19.9	17.3	9.9
1954	89.5	81.7	57.6	47.2	27.0	9.9	10.5	7.8	24.1	10.4	20.1	17.1	9.9
1955	88.6	79.5	54.5	44.2	24.8	9.0	11.4	9.1	24.9	10.3	19.5	15.7	9.0
1956	86.8	76.6	51.9	41.5	22.7	8.2	13.2	10.1	24.7	10.4	18.8	14.5	8.2
1957	85.0	73.8	48.4	38.4	20.5	7.3	15.0	11.2	25.5	10.0	17.9	13.2	7.3
1958	82.1	69.7	44.2	34.8	18.4	6.2	17.9	12.4	25.5	9.5	16.4	12.1	6.2
1959	82.3	69.3	42.7	33.1	16.8	5.6	17.7	13.0	26.6	9.6	16.3	11.2	5.6

(continued)

TABLE B-21  
(continued)

	P90- 100	P95- 100	P99- 100	P99.5- 100	P99.9- 100	P99.99- 100	P0-90	P90-95	P95-99	P99- 99.5	P99.5- 99.9	P99.9- 99.99	P99.99- 100
1960	80.1	67.7	42.4	33.1	16.8	5.6	19.9	12.5	25.3	9.3	16.3	11.2	5.6
1961	77.8	65.6	40.7	31.5	15.9	5.4	22.2	12.2	24.9	9.2	15.6	10.5	5.4
1962	76.6	64.6	39.4	30.1	14.9	4.8	23.4	11.9	25.2	9.2	15.2	10.1	4.8
1963	74.0	61.7	37.3	28.2	13.6	4.3	26.0	12.3	24.5	9.1	14.5	9.3	4.3
1964	72.6	60.4	36.4	27.5	13.2	4.1	27.4	12.2	24.0	8.9	14.3	9.1	4.1
1965	72.0	59.8	35.6	26.8	12.8	4.0	28.0	12.3	24.1	8.8	14.0	8.8	4.0
1966	69.8	57.8	34.4	25.9	12.4	3.9	30.2	12.0	23.4	8.5	13.5	8.5	3.9
1967	72.9	62.5	40.0	30.4	14.5	4.6	27.1	10.4	22.4	9.7	15.8	9.9	4.6
1968	71.8	59.7	35.0	26.2	12.6	4.1	28.2	12.0	24.7	8.8	13.6	8.6	4.1
1969	70.5	58.1	33.4	25.0	12.0	3.9	29.5	12.4	24.7	8.4	13.0	8.1	3.9
1970	69.9	57.2	32.3	24.2	11.5	3.7	30.1	12.8	24.8	8.2	12.7	7.7	3.7
1971	69.7	56.8	32.3	24.2	11.5	3.6	30.3	13.0	24.5	8.1	12.7	7.9	3.6
1972	68.3	55.5	31.7	23.8	11.4	3.6	31.7	12.8	23.8	7.9	12.4	7.8	3.6
1973	69.3	56.8	32.7	24.6	11.9	3.9	30.7	12.5	24.1	8.1	12.7	8.0	3.9
1974	66.5	54.0	30.4	22.7	10.8	3.3	33.5	12.5	23.6	7.7	11.9	7.5	3.3
1975	64.9	52.3	29.1	21.6	10.2	3.1	35.1	12.6	23.2	7.5	11.4	7.1	3.1
1976	63.9	51.3	28.4	21.0	9.9	3.0	36.1	12.6	22.9	7.4	11.1	6.9	3.0
1977	64.3	50.9	27.3	20.2	9.6	2.9	35.7	13.4	23.6	7.1	10.6	6.6	2.9
1978	61.9	49.1	26.6	19.7	9.3	2.8	38.1	12.8	22.5	6.9	10.4	6.5	2.8

1979	62.2	49.5	27.1	20.2	9.5	2.9	37.8	12.7	22.4	7.0	10.6	6.6	2.9
1980	63.4	50.7	28.7	21.9	10.9	3.4	36.6	12.7	22.1	6.8	11.0	7.5	3.4
1981	63.6	50.9	28.2	21.0	9.8	2.9	36.4	12.6	22.7	7.2	11.2	6.8	2.9
1982	62.2	49.3	26.9	20.2	9.5	2.8	37.8	12.9	22.4	6.7	10.7	6.7	2.8
1983	61.5	48.0	25.1	18.6	8.4	2.4	38.5	13.5	23.0	6.5	10.1	6.0	2.4
1984	62.0	48.4	25.4	18.7	8.6	2.5	38.0	13.5	23.0	6.7	10.1	6.1	2.5
1985	62.7	49.2	25.9	19.2	8.8	2.6	37.3	13.6	23.3	6.6	10.4	6.3	2.6
1986	63.8	50.3	26.5	19.6	8.9	2.6	36.2	13.5	23.8	6.9	10.7	6.3	2.6
1987	65.3	52.0	28.3	21.3	10.0	3.0	34.7	13.3	23.8	7.0	11.3	6.9	3.0
1988	65.8	52.4	28.7	21.7	10.3	3.2	34.2	13.4	23.7	7.0	11.4	7.1	3.2
1989	65.6	52.7	29.3	22.3	10.7	3.4	34.4	12.9	23.4	7.0	11.6	7.3	3.4
1990	65.5	52.5	29.0	22.0	10.5	3.4	34.5	13.0	23.5	7.0	11.5	7.2	3.4
1991	64.7	51.5	27.9	21.0	9.9	3.1	35.3	13.2	23.6	6.9	11.1	6.8	3.1
1992	64.1	50.7	27.1	20.4	9.5	2.9	35.9	13.4	23.6	6.7	10.8	6.6	2.9
1993	64.0	50.6	27.6	20.8	9.8	3.1	36.0	13.5	23.0	6.8	11.0	6.8	3.1
1994	63.3	49.8	27.0	20.4	9.9	3.1	36.7	13.5	22.8	6.6	10.5	6.7	3.1
1995	63.4	50.1	27.4	20.7	9.8	3.1	36.6	13.3	22.7	6.7	10.9	6.7	3.1
1996	64.9	51.6	28.3	21.4	10.2	3.2	35.1	13.4	23.3	6.8	11.2	7.0	3.2
1997	65.8	52.2	28.6	21.7	10.4	3.3	34.2	13.6	23.5	6.9	11.3	7.1	3.3
1998	66.5	52.7	29.0	21.8	10.2	3.2	33.5	13.8	23.7	7.2	11.6	7.0	3.2

*Explanation:* In 1998, the P90–100 share of total tax was 66.5 percent, the P95–100 share was 52.7 percent, etc.

### 3.2. Reliability of the Estimates

To be fully rigorous, estimating average effective tax rate would require us to separately estimate the income distribution for each type of family situation (single individuals, married couples without children, with one child, two children, etc.) for each year of the 1915–1998 period: only such an estimate would give a fine-grained picture of the evolution of the “average” family composition of the various top-income fractiles and the weightings that would have to be applied in order to move from the average tax rates for each fractile and each family situation to average tax rates by fractile (all family situations combined). Aside from the fact that the available data for such an estimate are only really satisfactory starting from the 1945 tax year and the establishment of the family quotient, such an estimate would naturally take us into a study of the connection between income and fertility, the influence of taxation on family structures and fertility, and so forth, questions that make for fascinating topics of study, but which, as already noted, would far exceed the scope of this book. That is why we have adopted a relatively “pragmatic” technique to estimate the average tax rates for fractiles P90–95, P95–99, P99–99.5, P99.5–99.9, P99.9–99.99, and P99.99–100 that are reproduced on the right-hand side of Table B-19,<sup>46</sup> a technique that nevertheless gives us relatively precise estimates, as shown by comparison with the data from the distribution tables compiled by the tax administration.

(i) For the 1915–1944 tax years, when accounting for family situation was done through a system of flat-rate deductions from taxable income, we have distinguished between single taxpayers (who are not entitled to a flat-rate deduction on top of the standard exemption), married couples without children, married couples with one dependent child, married couples with two dependent children, married couples with three children, and married couples with four children. For each year of the 1915–1944 period, for each of these family situations, and for each fractile P90–95, P95–99, P99–99.5, P99.5–99.9, P99.9–99.99, and P99.99–100, we applied the rules of the tax legislation in effect to calculate the average tax rate for a taxpayer with a taxable income equal to the average taxable income declared by each of the fractiles in question, and these average taxable incomes are given in Table B-3.<sup>47</sup> In practice, these average rates change relatively little with family situation (particularly for very high incomes),

## APPENDIX B

TABLE B-22

*Estimate of the distribution of fiscal income (as a percentage of total fiscal income after tax) (levels P90-100 to P99.99-100) (1915-1998 tax years)*

	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1900-	45.00	34.00	19.00	15.00	8.00	3.00
1910						
1915			18.17	14.35	7.79	2.98
1916			20.03	15.91	8.90	3.52
1917			19.02	15.00	7.97	2.99
1918			17.05	13.40	6.95	2.53
1919	41.16	32.59	18.04	13.87	6.89	2.02
1920	38.48	30.15	16.52	12.69	6.39	2.14
1921	38.80	30.02	16.18	12.36	6.26	2.11
1922	40.52	31.34	16.56	12.53	6.15	1.92
1923	42.18	32.59	17.12	12.91	6.14	1.85
1924	40.65	30.56	16.04	12.04	5.60	1.69
1925	42.80	32.15	16.51	12.40	5.83	1.76
1926	41.27	31.44	16.83	12.77	6.24	2.04
1927	42.16	31.56	16.44	12.45	6.09	1.96
1928	41.86	31.15	16.11	12.12	5.90	1.90
1929	40.79	29.98	15.14	11.40	5.50	1.79
1930	40.35	29.30	14.39	10.71	5.12	1.61
1931	40.49	28.94	13.84	10.19	4.80	1.48
1932	42.81	30.32	13.99	10.12	4.62	1.38
1933	44.26	31.22	14.14	10.16	4.61	1.39
1934	45.55	32.12	14.66	10.56	4.83	1.47
1935	46.08	32.46	14.65	10.48	4.70	1.42
1936	43.32	30.65	13.66	9.71	4.27	1.29
1937	41.95	29.08	13.19	9.43	4.22	1.31
1938	41.57	28.67	13.03	9.29	4.12	1.31
1939	37.28	26.11	12.09	8.80	4.01	1.24
1940	38.37	27.00	12.41	8.98	4.15	1.30
1941	37.53	26.04	11.46	7.96	3.27	0.87
1942	33.82	23.56	10.17	7.01	2.82	0.76
1943	31.19	21.50	8.97	6.09	2.35	0.59
1944	28.42	19.13	7.43	4.94	1.85	0.45
1945	28.75	18.58	6.71	4.34	1.54	0.34

(continued)

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TABLE B-22  
(continued)

	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1946	31.29	20.78	8.03	5.32	1.94	0.43
1947	32.03	21.72	8.03	5.29	1.96	0.44
1948	31.12	20.19	7.71	5.12	1.90	0.41
1949	30.77	20.26	7.86	5.26	1.97	0.43
1950	30.60	20.22	7.86	5.26	1.98	0.46
1951	31.49	20.60	7.86	5.21	1.94	0.44
1952	31.54	20.72	7.91	5.21	1.89	0.41
1953	31.47	20.60	7.78	5.10	1.86	0.41
1954	32.13	21.07	7.93	5.17	1.84	0.40
1955	32.69	21.35	7.88	5.09	1.77	0.38
1956	32.48	21.19	7.84	5.02	1.73	0.37
1957	32.66	21.29	7.76	4.96	1.70	0.37
1958	31.86	20.62	7.40	4.71	1.61	0.34
1959	33.34	21.67	7.64	4.81	1.58	0.33
1960	33.67	22.01	7.90	5.01	1.66	0.34
1961	34.45	22.57	8.09	5.13	1.71	0.36
1962	33.44	21.74	7.67	4.82	1.59	0.33
1963	33.89	21.93	7.56	4.72	1.53	0.31
1964	34.31	22.23	7.66	4.78	1.54	0.31
1965	34.58	22.38	7.66	4.76	1.53	0.31
1966	34.07	22.02	7.57	4.73	1.54	0.33
1967	33.25	21.19	6.88	4.20	1.30	0.26
1968	31.76	20.06	6.60	4.07	1.29	0.27
1969	31.05	19.64	6.57	4.07	1.31	0.28
1970	30.35	19.28	6.51	4.04	1.30	0.29
1971	30.46	19.35	6.58	4.09	1.32	0.29
1972	30.26	19.33	6.69	4.20	1.38	0.31
1973	30.92	19.73	6.87	4.32	1.44	0.35
1974	30.47	19.35	6.62	4.13	1.34	0.30
1975	30.52	19.29	6.59	4.09	1.33	0.30
1976	30.20	19.05	6.50	4.03	1.32	0.30
1977	28.61	17.86	5.96	3.69	1.22	0.28
1978	28.42	17.80	5.97	3.70	1.21	0.28
1979	27.97	17.55	5.93	3.68	1.23	0.29
1980	27.42	17.04	5.53	3.32	1.01	0.21

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	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1981	27.37	16.87	5.44	3.30	1.08	0.25
1982	26.74	16.41	5.11	3.07	0.95	0.20
1983	27.32	16.67	5.18	3.10	0.95	0.20
1984	27.57	16.87	5.31	3.18	1.00	0.22
1985	28.15	17.29	5.49	3.32	1.05	0.23
1986	28.55	17.67	5.77	3.55	1.18	0.28
1987	28.92	18.03	6.03	3.78	1.31	0.32
1988	29.25	18.24	6.17	3.89	1.37	0.35
1989	29.51	18.56	6.36	4.04	1.45	0.38
1990	29.68	18.64	6.36	4.03	1.45	0.38
1991	29.58	18.49	6.21	3.91	1.38	0.35
1992	29.50	18.35	6.09	3.81	1.32	0.33
1993	29.72	18.48	6.09	3.81	1.32	0.33
1994	29.96	18.65	6.21	3.92	1.37	0.34
1995	30.00	18.67	6.17	3.87	1.35	0.34
1996	30.02	18.69	6.18	3.89	1.36	0.34
1997	30.10	18.76	6.25	3.95	1.40	0.36
1998	30.10	18.74	6.21	3.92	1.38	0.36

*Explanation:* In 1998, the P90-100 share of total fiscal income after tax was 30.10 percent, the P95-100 share was 18.74 percent, etc.

so the choice of weights to apply to the different family situations can only have relatively minor consequences. We have thus chosen to apply the same weights for all fractiles and for the entire 1915-1944 period, and we determined these weights by drawing on the family situation table compiled by the tax administration for the 1937 tax year (see section 1.3).<sup>48</sup> Comparison with the average tax rates by income bracket taken from the distribution tables shows that estimation errors are relatively small. For example, the distribution table compiled by the tax administration for the 1930 tax year shows that the total amount of net tax issued for taxpayers with a taxable income between 100,000 and 200,000 francs was 381.656 million francs, which is 6.9 percent of the 5,499.916 million francs of taxable income declared in this bracket, and we estimated that the average effective tax rate for fractile P99.5-99.9, which in 1930

## APPENDIX B

TABLE B-23

*Estimate of the distribution of fiscal income (as a percentage of total fiscal income after tax) (levels P90-95 to P99.99-100) (1915-1998 tax years)*

	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1900-	11.00	15.00	4.00	7.00	5.00	3.00
1910						
1915			3.82	6.56	4.81	2.98
1916			4.12	7.01	5.38	3.52
1917			4.02	7.03	4.98	2.99
1918			3.65	6.45	4.42	2.53
1919	8.57	14.55	4.17	6.98	4.87	2.02
1920	8.33	13.62	3.83	6.30	4.25	2.14
1921	8.78	13.84	3.82	6.10	4.14	2.11
1922	9.18	14.78	4.02	6.38	4.23	1.92
1923	9.59	15.47	4.21	6.77	4.29	1.85
1924	10.09	14.52	4.01	6.43	3.91	1.69
1925	10.64	15.64	4.11	6.57	4.07	1.76
1926	9.83	14.62	4.06	6.53	4.20	2.04
1927	10.60	15.12	4.00	6.36	4.13	1.96
1928	10.71	15.04	3.99	6.22	4.00	1.90
1929	10.81	14.85	3.73	5.90	3.71	1.79
1930	11.06	14.91	3.68	5.59	3.50	1.61
1931	11.55	15.10	3.65	5.40	3.31	1.48
1932	12.49	16.33	3.87	5.50	3.24	1.38
1933	13.05	17.07	3.98	5.55	3.22	1.39
1934	13.43	17.47	4.10	5.74	3.35	1.47
1935	13.62	17.81	4.17	5.78	3.28	1.42
1936	12.67	16.99	3.95	5.44	2.98	1.29
1937	12.87	15.90	3.76	5.20	2.91	1.31
1938	12.90	15.63	3.74	5.17	2.82	1.31
1939	11.17	14.01	3.30	4.79	2.77	1.24
1940	11.37	14.59	3.43	4.83	2.85	1.30
1941	11.49	14.59	3.49	4.69	2.40	0.87
1942	10.26	13.39	3.16	4.19	2.06	0.76
1943	9.68	12.54	2.88	3.74	1.76	0.59
1944	9.29	11.70	2.49	3.09	1.40	0.45
1945	10.18	11.87	2.37	2.80	1.20	0.34
1946	10.50	12.75	2.72	3.38	1.51	0.43



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	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1947	10.31	13.69	2.74	3.32	1.52	0.44
1948	10.93	12.48	2.59	3.22	1.49	0.41
1949	10.52	12.40	2.60	3.29	1.54	0.43
1950	10.38	12.36	2.60	3.28	1.52	0.46
1951	10.89	12.74	2.65	3.27	1.50	0.44
1952	10.82	12.81	2.70	3.32	1.48	0.41
1953	10.87	12.82	2.68	3.24	1.44	0.41
1954	11.07	13.14	2.76	3.34	1.43	0.40
1955	11.33	13.47	2.79	3.32	1.39	0.38
1956	11.29	13.35	2.82	3.29	1.36	0.37
1957	11.37	13.53	2.80	3.26	1.33	0.37
1958	11.24	13.22	2.69	3.10	1.27	0.34
1959	11.67	14.03	2.84	3.22	1.26	0.33
1960	11.66	14.10	2.89	3.35	1.31	0.34
1961	11.88	14.48	2.97	3.42	1.34	0.36
1962	11.70	14.07	2.85	3.24	1.26	0.33
1963	11.96	14.37	2.84	3.19	1.22	0.31
1964	12.08	14.57	2.89	3.24	1.23	0.31
1965	12.21	14.71	2.90	3.23	1.22	0.31
1966	12.05	14.46	2.84	3.19	1.21	0.33
1967	12.06	14.31	2.68	2.90	1.04	0.26
1968	11.70	13.45	2.54	2.78	1.02	0.27
1969	11.40	13.08	2.50	2.76	1.02	0.28
1970	11.07	12.78	2.47	2.74	1.01	0.29
1971	11.11	12.77	2.49	2.77	1.04	0.29
1972	10.93	12.64	2.50	2.81	1.07	0.31
1973	11.19	12.86	2.55	2.88	1.10	0.35
1974	11.12	12.73	2.49	2.79	1.04	0.30
1975	11.23	12.70	2.50	2.76	1.03	0.30
1976	11.15	12.55	2.47	2.71	1.02	0.30
1977	10.74	11.91	2.27	2.47	0.94	0.28
1978	10.62	11.82	2.28	2.48	0.94	0.28
1979	10.41	11.63	2.25	2.45	0.94	0.29
1980	10.38	11.51	2.21	2.32	0.80	0.21

(continued)

## APPENDIX B

TABLE B-23  
(continued)

	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1981	10.49	11.44	2.14	2.22	0.83	0.25
1982	10.33	11.30	2.04	2.12	0.75	0.20
1983	10.65	11.49	2.08	2.15	0.75	0.20
1984	10.71	11.56	2.13	2.19	0.78	0.22
1985	10.86	11.80	2.16	2.27	0.82	0.23
1986	10.89	11.90	2.21	2.37	0.91	0.28
1987	10.88	12.00	2.26	2.47	0.98	0.32
1988	11.00	12.08	2.28	2.52	1.02	0.35
1989	10.95	12.20	2.32	2.59	1.07	0.38
1990	11.03	12.29	2.32	2.59	1.07	0.38
1991	11.09	12.28	2.30	2.53	1.03	0.35
1992	11.16	12.25	2.28	2.49	0.99	0.33
1993	11.24	12.39	2.28	2.49	0.99	0.33
1994	11.31	12.44	2.29	2.55	1.02	0.34
1995	11.33	12.50	2.30	2.52	1.01	0.34
1996	11.32	12.51	2.29	2.53	1.01	0.34
1997	11.34	12.52	2.30	2.55	1.04	0.36
1998	11.36	12.53	2.29	2.53	1.03	0.36

*Explanation:* In 1998, the P90-95 share of total fiscal income after tax was 11.36 percent, the P95-99 share was 12.53 percent, etc.

included tax units with taxable incomes between 82,506 and 207,477 francs according to our estimates (see Table B-4), was 6.4 percent in 1930.<sup>49</sup> Generally speaking, our estimates of average tax rates by fractile are always perfectly consistent with the average tax rates by bracket that can be calculated from the distribution tables, and the differences observed suggest that any estimation errors never exceed 0.5-1.0 percentage point of tax rate. Since the average rates by bracket in the distribution tables compiled by the tax administration are by definition totally reliable (they are derived from a full tabulation of income tax returns and tax issuance for each taxpayer, so they take into account all deductions, reductions, and surtaxes actually levied according to the situation of taxpayers in each bracket), it can be concluded that the average rates shown in

Table B-19 never diverge by more than 0.5–1.0 percentage point from the real rates, a margin of error that is practically negligible. Since they were obtained by inference, the estimates for fractile P<sub>0</sub>–90 are in principle less precise (see above), but the information taken from the distribution tables here again suggests that the margins of error are extremely small. For example, for 1930, the distribution table shows that the amount of net tax issued for taxpayers with a taxable income below 20,000 francs represented less than 2.1 percent of total tax (47.678 million francs of tax for the 10,000–20,000 bracket, versus 2280.945 million francs of total tax), and we have estimated that the 1930 share of total taxable going to P<sub>0</sub>–90, which in 1930 included tax units with incomes below 17,126 francs according to our estimates (see Table B-4), was 1.5 percent (see Table B-21). The fact that the estimates for fractile P<sub>0</sub>–90 obtained by inference diverge so little from the estimates taken from the distribution tables suggests very small errors in the estimates of average rates for the top-income fractiles.

(ii) For the 1945–1998 tax years, when accounting for family situation was done through the family quotient (FQ) system, we distinguished between taxpayers with 1 share, 1.5 shares, 2 shares, 2.5 shares, 3 shares, 3.5 shares, and 4 shares of FQ. For each year of the 1945–1998 period, for each of these numbers of FQ shares, and for each of the fractiles P<sub>90</sub>–95, P<sub>95</sub>–99, P<sub>99</sub>–99.5, P<sub>99.5</sub>–99.9, P<sub>99.9</sub>–99.99, and P<sub>99.99</sub>–100, we applied the rules of tax legislation in effect to calculate the average tax rate on a taxpayer with a taxable income equal to the average taxable income declared by each of the fractiles in question; these average taxable incomes are given in Table B-3. The distribution tables show that “average” family composition changes relatively little with income (at least within the top decile),<sup>50</sup> and above all that this “average” family composition changed relatively slowly from 1945 to 1998. In particular, the average number of FQ shares for tax units in the top decile stood at around 2.5–2.6 shares throughout the 1945–1998 period (that is, the number of shares for a married couple with 1 dependent child). However, this stability in the average number of family-quotient shares masks important changes in the dispersion around the average, and these changes are important to take into account, because with the family quotient system average tax rates changed in a much sharper way according to family situation compared to the 1915–1944 period. The most important changes we have taken account of in determining the weights to

apply to the various numbers of FQ shares over the 1945–1998 period arise from changes in the rules for granting FQ shares: starting with the 1950 tax year, married couples without dependent children after two years of marriage stopped being penalized (they were now entitled to 2 shares of FQ, rather than 1.5), which resulted in a sharp drop in the number of taxpayers with 1.5 family-quotient shares; starting from the 1980 tax year, the third dependent child entitled a taxpayer to one full share of FQ (this second shift was less important than the first).<sup>51</sup> For the 1945–1958 tax years, we have taken into account the highest top marginal rates for taxpayers with only 1 share of FQ.<sup>52</sup> For the 1981–1998 tax years, we have applied the rules in effect concerning the mechanism for capping the effect of the family quotient.<sup>53</sup> A more serious difficulty comes from the fact that we do not have the information necessary to calculate how certain parameters of tax legislation affected the different fractiles, notably with respect to the tax-reduction mechanisms: unlike the distribution tables from the preceding periods, which gave the details of how simple liability became net tax for each bracket of taxable income, the distribution tables from the 1945–1998 period show only the amount of simple liability, and the amounts of the various items that make up the difference between simple liability and net tax (surtaxes, rebates, tax reductions, etc.) are known only at the aggregate level (see Appendix A, section 1).<sup>54</sup> This does not pose any particular problem when it comes to the exceptional surtaxes: the latter are always defined directly as a function of the income level (and the number of FQ shares), so for each fractile we can always calculate the weight of the exceptional surtaxes affecting it.<sup>55</sup> When it comes to the other items that go into the calculation of net tax, the difficulties only really start in 1959: for the 1945–1958 period, it is sufficient to add any late penalties to simple liability to get net tax, so the gap between simple liability and net tax never exceeds 1–1.5 percent (see Table A-3, column [14]). Moreover, as is the case for the entire 1945–1998 period, in the 1945–1958 period the average rates of simple liability by fractile that we estimated by weighting the average simple liability rates by fractile and by number of FQ shares (obtained by simply applying the rate schedule) are always perfectly consistent with the simple liability rates by bracket taken from the distribution tables, as well as with the rates for the P0–90 fractiles obtained by subtraction (in both cases, the maximum margins of error never exceed 0.5–1 percentage point of tax rate). For the 1945–1958 period, we therefore merely applied the

(net tax) / (simple liability) ratios reproduced in column (14) of Table A-3<sup>56</sup> to the average rates of simple liability by fractile, which amounts to assuming that late penalties hit all fractiles in the same proportions. However, such an assumption is not acceptable when it comes to the tax reduction equal to 5 percent of the amount of wages and retirement pensions that was in effect during the 1959–1969 tax years (or the tax reduction equal to 3 percent of the amount of wages and retirement pensions that was in effect during the 1970–1971 tax years), the total amount of which exceeded 20 percent of the total amount of simple liability (see Table A-3, column [10]). Relying on our estimates of income composition by fractile (see section 2 *supra*), we have assumed that throughout the 1959–1971 period, wages and retirement pensions as a share of taxable income for the various fractiles was 80 percent for fractile P90–95, 70 percent for fractile P95–99, 55 percent for fractile P99–99.5, 45 percent for fractile P99.5–99.9, 35 percent for fractile P99.9–99.99, and 25 percent for fractile P99.99–100, and we have subtracted the corresponding tax reductions from the average rates of simple liability by fractile.<sup>57</sup> When it comes to the other items that go into the calculation of net tax (tax assets and tax credits for the 1960–1998 tax years, tax reductions for the 1974–1978 and 1983–1998 tax years, rebate for the 1959–1972 and 1983–1998 tax years),<sup>58</sup> we unfortunately have no key to the distribution that would enable us to assign the corresponding amounts to the different fractiles. In fact it was only starting with the 1994 tax year that the tax administration began to show the amount of net tax for each taxable income bracket in the distribution tables, as opposed to only the amount of simple liability.<sup>59</sup> However, these tables do show that the overall tax reduction brought about by these different items (taken as a whole) changes relatively little (as a proportion of simple liability) with the income level. For example, the latest available definitive table, which is for the 1998 tax year (situation on 12 / 31 / 1999), shows that the (net tax) / (simple liability) ratio represents an average tax reduction of 10.8 percent for all taxable tax units, 10.8 percent for taxable tax units with incomes between 125,000 and 150,000 francs, 10.8 percent for the 150,000–200,000 bracket, 10.0 percent for the 200,000–250,000 bracket, 9.1 percent for the 250,000–500,000 bracket, and 13.8 percent for taxable incomes greater than 500,000 francs.<sup>60</sup> In other words, very high incomes seemed to benefit more than others from the tax reduction mechanisms of the 1990s, yet the differences between income brackets are of

very limited size, and they do not change monotonically with the income level. We have thus chosen to make the assumption that these different items could to a first approximation be distributed proportionally among the different fractiles (in proportion to each fractile's simple liability), so we have applied to the average rates of simple liability by fractile obtained for the 1959–1998 period (after adjusting for the tax reduction proportional to the amount of wages and retirement pensions in the years 1959–1971) the  $(\text{net tax}) / (\text{simple liability})$  ratios reproduced in column (14) of Table A-3.<sup>61</sup> These adjustments to the tax rates obtained by applying the rate schedules (and by weighting by numbers of FQ shares) do not take on genuine importance until the 1983 tax year: up to 1982, the  $(\text{net tax}) / (\text{simple liability})$  ratio was generally above 95 percent. In contrast, the very rapid growth of tax reduction mechanisms in the 1980s–1990s resulted in a significant decline in this ratio, which fell below 85 percent in the late 1990s (83.4 percent in 1997–1998); see Table A-3, column (14). In other words, the adjustments made to the tax rates derived from applying the rate schedules are around 10–15 percent in the 1990s (and even more than 16 percent at the end of the period), which represents a significant decline, and explains why the rates shown in Table B-19 are significantly below the rates from the schedule. For example, according to our estimates the average tax rate for fractile P99.99–100, expressed as a percentage of taxable income, is 43.4 percent in 1998, even though the top marginal rate is 54 percent: without this adjustment, the average tax rate for fractile P99.99, expressed as a percentage of taxable income, would be 51.8 percent ( $51.8 \times 0.834 = 43.2$ ). Our methodology of assigning the same overall rate of tax reduction to all fractiles is obviously not intended to provide a fine-grained description of the evolution over time of these discrepancies between the schedule rates and the effective rates: for example, if the tax reduction mechanisms of the 1980s–1990s had evolved in the short term so as to favor (or penalize) certain fractiles more than others, our estimates would be, by construction, incapable of registering such fluctuations. But the figures cited above for the  $(\text{net tax}) / (\text{simple liability})$  ratios by income bracket in the 1990s suggest that such fluctuations are generally of very limited scope, so that the assumption of a uniform rate of tax reduction for all fractiles seems to be an acceptable hypothesis to a first approximation. The small size of the discrepancies observed between our estimates and the estimates of average tax rates by fractile that could be calculated on the basis of the DGI samples of income tax returns from 1988–1995 (which we used in Piketty

[1998]) confirms that our estimation technique gives acceptable approximations: excepting the very particular case of fractile P99.99–100, whose average tax rate we overestimate by about 4–5 percentage points in the late 1990s,<sup>62</sup> these discrepancies never exceed 1 percentage point of tax rate (even for fractile P0–90, whose rate we estimate by subtraction). Let us also point out that our technique of basing our calculations on (net tax)/(simple liability) ratios introduces (very) slight discontinuities in our series in 1960 and in 1983.<sup>63</sup>

## Complementary Data on Income Tax Legislation

This appendix brings together a certain amount of complementary information on income tax legislation that we did not formally include in the chapter dedicated to that question (Chapter 4) in order to avoid needlessly weighing down the text. The sources for the information provided in this appendix are the same as those used in Chapter 4, and they are described in the Introduction (section 2.2.1). This appendix contains tables (section 1), as well as a chronology of the principal laws that have marked the history of the income tax (section 2).

### *1. Complementary Tables on Legislation*

The tables provided here concern the progressive income tax properly speaking (Tables C-1 to C-5), on the one hand, and on the other hand the schedular taxes (and the taxes that succeeded them: the proportional tax and the complementary tax) (Tables C-6 to C-9). For the schedular taxes, we have not attempted to provide an exhaustive description of the evolution of the rate schedules and deductions; instead, we provide complete information for the two most important schedular taxes, namely, the schedular tax on wages and the schedular tax on industrial and commercial profits, and we refer readers interested in legislation concerning the other schedular taxes (the schedular tax on agricultural profits, the schedular tax on noncommercial profits, and the tax on securities income) to the sources cited in the Introduction (section 2.2.1). The note entitled “Méthode de calcul des principaux impôts directs” published in 1947 in the *Bulletin de Statistique du ministère des Finances*, which provides an overview of the evolution of the rules for calculating the various schedular taxes from 1918 to 1945, represents a particularly useful source from this point of view.<sup>1</sup> We also note that the rates of the schedular tax on wages and the



## APPENDIX C

TABLE C-1

*Deductions from taxable income for family dependents in effect during the 1915-1944 tax years (general income tax)*

	Standard deduction	Married couples deduction	Deductions for dependent children				
			First child	Second child	Third child	Fourth child	Fifth child
1915	5,000	2,000	1,000	1,000	1,000	1,000	1,000
1916-1918	3,000	2,000	1,000	1,000	1,000	1,000	1,000
1919-1921	6,000	3,000	2,000	2,000	2,000	2,000	2,000
1922	7,000	3,000	2,000	2,000	2,000	2,000	2,000
1923-1927	7,000	3,000	3,000	3,000	3,000	3,000	3,000
1928	10,000	3,000	3,000	3,000	4,000	4,000	4,000
1929-1933	10,000	5,000	4,000	5,000	6,000	7,000	8,000
1934-1935	10,000	5,000	5,000	5,000	8,000	9,000	10,000
1936-1942	10,000	5,000	5,000	5,000	10,000	15,000	15,000
1943-1944	20,000	7,000	7,000	10,000	15,000	20,000	20,000

*Explanation:* For the 1915 tax year, all taxpayers were entitled to a standard deduction of 5,000 francs, married taxpayers were entitled to an additional deduction of 2,000 francs, and each dependent child entitled taxpayers to an additional deduction of 1,000 francs.

*Notes:* (i) The deduction per dependent child beyond the fifth dependent child was always the same as for the fifth dependent child, except during the 1915-1918 tax years (when the deduction was 1,500 francs per dependent child starting from the sixth) and during the 1929-1933 tax years (when the deduction per dependent child increased by 1,000 francs per dependent child beyond the fifth).

(ii) For the 1915-1918 tax years, other types of dependents (infirm elders, etc.) entitled a taxpayer to the same 1,000-franc deduction as dependent children (1,500 francs starting from the sixth dependent); for the 1919-1923 tax years, the deduction for other dependents was 1,500 francs (2,000 francs starting from the sixth dependent); for the 1924-1928 tax years, this deduction was 2,000 francs (3,000 francs starting from the sixth); for the 1929-1933 tax years, this deduction was 3,000 francs; the deduction for "dependents other than children" was then eliminated starting from the 1934 tax year.

(iii) In the 1915-1935 and 1940-1944 tax years, deductions for family dependents were on a completely flat-rate basis, in the sense that the amount of the deductions was strictly the same for all taxpayers, whatever their income level; in the 1936-1939 tax years, deductions applied fully only for taxpayers with incomes below 75,000 francs, and deductions were reduced by 20 percent for incomes between 75,000 and 150,000 francs, by 40 percent for incomes between 150,000 and 300,000 francs, by 60 percent for incomes between 300,000 and 600,000 francs, and by 80 percent for incomes above 600,000 francs (this "reduction of deductions" applied only to the "married couples" deduction starting from the 1937 tax year).

TABLE C-2

*Tax reductions for family dependents in effect for the 1915–1947 tax years (general income tax and schedular taxes)*

	Domain of application	1 per. (%)	2 per. (%)	3 per. (%)	4 per. (%)	5 per. (%)	6 per. (%)	Cap, IGR	Cap, schedular
1915–1916	All taxpayers	5	10	20	30	40	50	50%	
1917–1918	< 10,000	7.5	15	30	45	60	75	75%	75%
	> 10,000	5	10	20	30	40	50	50%	50%
1919–1928	< 10,000	7.5	15	30	45	60	75		(no cap)
	> 10,000	5	10	15	25	35	45	2,000	300
1929–1933	< 30,000	10	20	40	60	80	100		(no cap)
	> 30,000	5	10	15	25	35	45	3,000	500
1934–1936	BIC / BA / BNC	10	20	50	80	100	100		800
	Wages < 20,000	20	40	100	100	100	100		800
	Wages < 40,000	15	30	75	100	100	100		800
	Wages > 40,000	10	20	50	80	100	100		800
1937	Same, except for the cap								933
1938–1941	Same, except for the cap								1,000
1942–1945	Same, except for wages < 15, 000 francs								2,000
	Wages < 15, 000	50	100	100	100	100	100		
1946	Same, except for the cap								3,000
1947–1948	All taxpayers	15	30	75	100	100	100		4,000
1949–1958	Same, except for the cap								5,000

*Explanation:* In the 1915 tax year, the rate of tax reduction for family dependents was 5 percent for each of the first two dependents and 10 percent per dependent starting from the third, and the maximum rate of tax reduction thus obtained was capped at 50 percent. Starting from the 1919 tax year, the cap was expressed in terms of maximum tax reduction per dependent.

*Notes:* (i) For the IGR and the real estate tax, tax reductions for family dependents were in effect for the last time in the 1933 tax year; for the IRVM and IRCDC, taxpayers never received tax reductions for family dependents; for the taxes on wages and on BIC / BA / BNC, tax reductions for family dependents continued through their last year in effect (the 1947 tax year, and even through 9 / 1 / 1948 for the wage tax, which was levied at the source), and the proportional tax then used a similar system of tax reductions for family dependents (see Table C-9).

(ii) “Dependent individuals” taken into account for this system of tax reductions include minor children and other individuals considered to be dependents (infirm elders, etc.), but never the spouse.

TABLE C-3

*The caps on the 10 percent flat-rate deduction for work expenses and on the additional 20 percent exemption (1934–1998 tax years)*

	10% deduction		20% exemption		
	Maximum deduction	Corresponding wage	Maximum exemption	Corresponding wage	
1934–1942	20,000	200,000			
1943–1945	20,000	200,000	1953–1972	no cap	
1946–1950	50,000	500,000	1973	56,000	280,000
1951	200,000	2,000,000	1974	62,000	310,000
1952–1978		no cap	1975–1976	68,000	340,000
1979	40,000	400,000	1977–1979	72,000	360,000
1980	44,800	448,000	1980	82,000	410,000
1981–1983	50,900	509,000	1981–1983	92,000	460,000
1984	54,770	547,700	1984	99,000	495,000
1985	57,840	578,400	1985	104,600	523,000
1986	59,230	592,300	1986	107,200	536,000
1987	61,190	611,900	1987	110,800	554,000
1988	62,790	627,900	1988	113,800	569,000
1989	64,870	648,700	1989	117,600	588,000
1990	66,950	669,500	1990	121,400	607,000
1991	68,960	689,600	1991	125,200	626,000
1992	70,900	709,000	1992	128,800	644,000
1993	72,250	722,500	1993	131,400	657,000
1994	73,270	732,700	1994	133,400	667,000
1995	74,590	745,900	1995	136,000	680,000
1996	76,010	760,100	1996	138,600	693,000
1997	76,850	768,500	1997	140,200	701,000
1998	77,460	774,600	1998	141,400	707,000

*Explanation:* For the 1998 tax year, the 10 percent flat-rate deduction for work expenses applied solely to the portion of annual wages below 774,600 francs (a maximum deduction of 77,460 francs), and the 20 percent exemption applied only to the portion of wages (net of work expenses) below 707,000 (a maximum exemption of 141,400 francs).

*Notes:* (i) In the 1943–1952 tax years, wage earners were also entitled to a flat-rate deduction for professional expenses of 5 percent above the cap.

(ii) In the 1973–1974 tax years, wage earners were also entitled to a 10 percent exemption beyond the cap.

(iii) The “20 percent exemption” rate has been only 20 percent since the 1960 tax year: it was 10 percent for the 1953 tax year, 15 percent for the 1954–1958 tax years, and 19 percent for the 1959 tax year (there was no exemption of this kind before 1953, and there was no flat-rate deduction for work expenses before 1934).

(iv) Since the 1974–1976 tax years (1974 for BA and BIC, 1976 for BNC), the self-employed can also receive the 20 percent exemption, provided they belong to an authorized management center; since the 1996 profit-tax year, the cap has been the same as for wage earners (before, the cap was lower and the exemption was 10 percent on the portion of profits between that cap and the wage earners’ cap).

TABLE C-4

*The parameters of the rebate (1951–1952, 1957–1972, and 1981–1998 tax years) and the rate of tax reduction (1966–1972 and 1984–1992 tax years)*

	Rebate	Rate of tax reduction
1951–1952	4,000–8,000	
1957	5,000–10,000	
1958	8,000–12,000	
1959–1960	7,000–14,000 (70–140)	
1961–1963	70–210	
1964	80–240 (QF = 1: 120–240)	
1965	80–240 (QF = 1–1.5: 160–480)	
1966	80–240 (QF = 1–1.5: 190–570)	from 5% if income < 45,000 to 2% if income > 50,000 but < 55,000
1967	80–240	from 10% if income < 45,000 to 5% if income > 50,000 but < 55,000
1968	80–240	from 15% if income < 1,000 to 2% if income > 3,500 but < 5,000
1969	100–300 (QF = 1–1.5–2: 230–690)	from 15% if income < 1,000 to 2% if income > 3,500 but < 5,000
1970	100–300 (QF = 1–1.5–2: 230–690)	from 15% if income < 1,000 to 2% if income > 3,500 but < 5,000
1971	100–300 (QF = 1–1.5–2: 230–690)	from 15% if income < 1,000 to 2% if income > 3,500 but < 5,000
1972	100–300 (QF = 1–1.5–2: 230–690)	from 15% if income < 1,000 to 2% if income > 3,500 but < 5,000
1981	2,600 (QF = 1) / 800 (QF = 1.5)	
1982	3,200 (QF = 1) / 1100 (QF = 1.5)	
1983	3,700 (QF = 1) / 1400 (QF = 1.5)	
1984	4,000 (QF = 1) / 1600 (QF = 1.5)	from 5% if income < 21,520
1985	4,300 (QF = 1) / 1700 (QF = 1.5)	from 8% if income < 22,730 to 3% if income > 28,410 but < 34,090

1986	4,400	from 11% if income < 23,280 to 3% if income > 41,060 but < 295,000
1987	4,520	from 11% if income < 23,280 to 3% if income > 41,060 but < 304,740
1988	4,520	from 11% if income < 23,890 to 3% if income > 42,120 but < 312,660
1989	4,670	from 11% if income < 24,680 to 3% if income > 43,510 but < 312,660
1990	4,820	from 11% if income < 25,480 to 3% if income > 44,910 but < 322,670
1991	4,970	from 11% if income < 26,250 to 3% if income > 46,260 but < 332,360
1992	5,110	from 11% if income < 26,990 to 3% if income > 47,560 but < 341,670
1993	4,180	
1994	4,240	
1995	4,320	
1996	3,260	
1997	3,300	
1998	3,330	

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*Explanation:* In the 1951–1952 and 1957–1972 tax years, the rebate was described by two parameters  $x$ - $y$ , which means that taxpayers whose tax per family-quotient share was below  $x$  were exempt, and taxpayers whose tax per family-quotient share was between  $x$  and  $y$  enjoyed a tax reduction per family-quotient share equal to the difference between  $y$  and their tax per family-quotient share. In the 1964–1966 and 1969–1972 tax years, the  $x$ - $y$  parameters were higher for taxpayers with a low number of shares. In the 1981–1998 tax years, the rebate was described by a single parameter  $x$ , meaning that taxpayers whose tax was less than  $x$  enjoyed a tax reduction equal to the difference between  $x$  and their tax (taxpayers whose tax liability was below  $x/2$  were thus exempt) (the rebate applied only to taxpayers with 1 or 1.5 family-quotient shares in the 1981–1985 tax years, before being generalized to all taxpayers starting with the 1986 tax year).

## APPENDIX C

TABLE C-5

*The levels of the family-quotient cap in effect during the 1981-1998 tax years*

	Maximum tax reduction		Corresponding taxable income threshold				
	1/2 part	1 part (2B)	1/2 part (1, 5)	QF = 1, 5	QF = 2B	QF = 2, 5	QF = 3
1981	7,500			119,440	138,590	228,550	238,870
1982	8,450			134,390	155,990	257,190	268,780
1983	9,250			146,930	170,600	281,220	293,860
1984	9,960			158,170	183,650	302,720	316,320
1985	10,520			167,040	193,960	319,710	334,070
1986	10,770	13,770		171,020	116,210	327,310	342,030
1987	11,130	14,230		180,050	124,670	345,400	360,110
1988	11,420	14,600		184,740	127,900	354,370	369,460
1989	11,800	15,090		190,850	132,170	366,110	381,700
1990	12,180	15,580		196,980	136,430	377,860	393,950
1991	12,550	16,050		202,930	140,540	389,280	405,850
1992	12,910	16,500		208,690	144,480	400,310	417,370
1993	15,400	19,060		204,090	161,430	340,590	408,160
1994	15,620	19,330		206,980	163,700	345,390	413,960
1995	15,900	19,680		210,700	166,660	351,600	421,390
1996	16,200	20,050		239,340	173,150	472,960	478,680
1997	16,380	20,270	6,100	104,140	175,060	478,210	484,020
1998	11,000	20,370	6,100	104,420	175,600	313,620	334,600

In the 1981 tax year, the maximum tax reduction obtained per half-share of family quotient above 1 (for single individuals) or 2 (for married couples), whatever its basis, was capped at 7,500 francs. This cap was reached by taxpayers with 1.5 shares and a taxable income above 119,440 francs, etc. Starting with the 1986 tax year, the cap for the half-share granted to taxpayers without dependent children but with children now adults or deceased was below the general cap.

schedular tax on industrial and commercial profits shown in Tables C-6 and C-8 already give a relatively precise idea of the rates on the other schedular taxes. The law of July 31, 1917, in effect determined that labor incomes would be treated more favorably than mixed incomes, and that the latter in turn would be treated more favorably than capital incomes. This general principle continued to hold subsequently: the rates for the schedular tax on agricultural profits and the schedular tax on noncommercial profits have always stood in

TABLE C-6

*The schedular wage tax schedules in effect for the taxation of 1917-1948 wages*

1917-1918		1919-1921		1922		1923		1924-1925	
Wages	Marginal rate (%)	Wages	Marginal rate (%)	Wages	Marginal rate (%)	Wages	Marginal rate (%)	Wages	Marginal rate (%)
0-3,000	0	0-6,000	0	0-7,000	0	0-7,000	0	0-7,000	0
3,000-5,000	1.88	6,000-8,000	3	7,000-8,000	3	7,000-8,000	3.6	7,000-9,000	3.6
5,000-	3.75	8,000-	6	8,000-	6	8,000-	7.2	9,000-	7.2
1926-1927		1928		1929-1933		1934-1936		1937	
Wages	Marginal rate (%)	Wages	Marginal rate (%)	Wages	Marginal rate (%)	Wages	Marginal rate (%)	Wages	Marginal rate (%)
0-7,000	0	0-10,000	0	0-10,000	0	0-10,000	0	0-10,000	0
7,000-10,000	3	10,000-20,000	6	10,000-20,000	5	10,000-20,000	3	10,000-20,000	3.5
10,000-20,000	6	20,000-40,000	9	20,000-40,000	7.5	20,000-40,000	6	20,000-40,000	7
20,000-40,000	9	40,000-	12	40,000-	10				
40,000-	12								

(continued)

TABLE C-6  
(continued)

1938-1942		1943-1944		1945		1946-1947		1948	
Wages	Marginal rate (%)	Wages	Marginal rate (%)	Wages	Marginal rate (%)	Wages	Marginal rate (%)	Wages	Marginal rate (%)
0-10,000	0	0-10,000	0	0-20,000	0	0-60,000	0	0-96,000	0
10,000-20,000	4	10,000- 20,000	12	20,000-	16	60,000-	16	96,000-	15
20,000-	8	20,000-	16						

*Explanation:* The schedules of the schedular wage tax have always been expressed in marginal-rate terms: for the 1917 wage levy, the marginal rate on the portion of wages below 3,000 francs was 0 percent, the marginal rate on the portion of wages between 3,000 and 5,000 francs was 1.875 percent, and the marginal rate on the portion of wages above 5,000 francs was 3.75 percent. For the wage levies of 1922-1933, wage earners were entitled to deductions for family dependents (see Table C-7), and the schedules shown in this table applied to wages net of any deductions for family dependents. Also, throughout the period during which the schedular wage tax was in effect, taxpayers were entitled to tax reductions for family dependents (see Table C-2).

*Notes:* (i) For the 1917-1921 tax years, the standard exemption on pensions was different from that on wages (1,250 francs for pensions in 1917-1918; in 1919-1921, 2,000 francs for pensions and annuities made up of capital payouts and 3,600 francs for seniority pensions); for 1917-1923, the standard deduction also depended on the wage earner's category of *commune* (i.e., municipality) (in 1917-1918, 3,000 francs for Paris and its suburbs, 2,500 francs for communes of more than 100,000 inhabitants, 2,000 francs for those between 10,000 and 100,000 inhabitants, 1,500 francs for those with less than 10,000 inhabitants; in 1919-1921, 6,000 francs for Paris and its suburbs, 5,000 francs for communes of more than 50,000 inhabitants, 4,000 francs for those with less than 50,000 inhabitants; in 1922-1923, 7,000 francs in the Department of the Seine, 6,500 francs in cities of more than 50,000 inhabitants, 6,000 francs elsewhere).

(ii) Starting from 1/1/1940, the schedular wage tax was calculated and paid directly by employers (levying at the source).

(iii) Starting from 1945, the threshold of taxation was frequently increased in the middle of the year: the threshold rose from 20,000 to 40,000 francs on 12/1/1945, then from 40,000 to 60,000 francs on 7/1/1946, then from 60,000 to 84,000 francs on 7/1/1947, then from 84,000 to 96,000 francs on 1/1/1948; then the schedular wage tax ceased to apply starting from 9/1/1948 and was replaced by a flat-rate payment equal to 5 percent of the wage bill.



TABLE C-7  
*Deductions for family dependents in effect for the 1922–1933 tax years (schedular tax on wages)*

	Standard deduction	Married couples deduction	Deductions for dependent children					Deductions for additional children
			1st child	2nd child	3rd child	4th child	5th child	
1922	7,000	3,000	2,000	2,000	2,000	2,000	2,000	1,500
1923–1927	7,000	3,000	3,000	3,000	3,000	3,000	3,000	2,000
1928–1933	10,000	3,000	3,000	3,000	4,000	4,000	4,000	2,000

*Explanation:* For the 1922 wage levy, taxpayers were entitled to a standard deduction of 7,000 francs; married couples were entitled to an additional deduction of 3,000 francs, and each dependent child entitled a taxpayer to an additional deduction of 2,000 francs.

*Notes:* (i) For the wage levies of 1917–1921 and 1934–1948, there were no deductions for married couples, nor deductions for dependent individuals; however, the deduction of 1,000 francs “for mutilation due to war” introduced in the 1922 wage levy remained in effect until the schedular tax on wages was eliminated.

(ii) The schedular tax on wages was the only schedular tax to feature deductions for family dependents.

TABLE C-8

*The schedules of the schedular tax on industrial and commercial profits in effect for the 1917-1947 profit-tax years*

1917-1918		1919-1922		1923		1924		1925	
Profit	Marginal rate (%)	Profit	Marginal rate (%)	Profit	Marginal rate (%)	Profit	Marginal rate (%)	Profit	Marginal rate (%)
0-1,500	1.13	0-1,500	2	0-1,500	2.4	0-1,500	3.6	0-1,500	2.4
1,500-5,000	2.25	1,500-5,000	4	1,500-5,000	4.8	1,500-5,000	7.2	1,500-5,000	4.8
5,000-	4.50	5,000-	8	5,000-	9.6	5,000-	14.4	5,000-	9.6
1926-1933				<u>1934-1936</u>					
Profit	Tax owed								
0-800	22.50010753			<u>1937</u>	14%				
800-1,500	44.99993784			<u>1938-1941</u>	16%				
1,500-3,000	150.0002242			<u>1942-1947</u>	24%				

3,000–5,000	300						
5,000–7,000	750						
			Special regime				
			-----				
7,000–10,000	1049.999676		1929–1933		1934–1941		1942
10,000–15,000	1500		0–5,000	0	0–5,000	tx / 4	0–3,000 0%
15,000–20,000	2250		5,000–7,000	375	5,000–	tx / 2	3,000– tx / 2
					10,000		6,000
20,000–25,000	3000		7,000–10,000	700			
25,000–30,000	3750.001567						
30,000–35,000	4500						
			1943–1946		1947		
35,000–40,000	5250		0–5,000	0%	0–60,000	0%	
40,000–45,000	6000		5,000–10,000	tx / 2			
45,000–50,000	6749.995721						
50,000–	15%						

*Explanation:* For the 1917–1925 profit-tax years, the schedules of the schedular tax on BIC were expressed in marginal-rate terms. For the 1926–1933 profit-tax years, taxpayers whose profits were below 50,000 francs were simply required to declare the bracket in which their profits were located, and the tax owed was shown on the corresponding line (taxpayers whose profit was above 50,000 francs had to declare their exact profits, and the tax owed was equal to 15 percent of the profit). For the 1934–1947 tax years (outside of the special regime), all taxpayers had to declare their exact profits, and the tax owed was calculated by applying the proportional rate shown in the table. Throughout the period in which the BIC tax was in effect, individuals and partnerships were entitled to tax reductions for family dependents (see Table C-2).

## APPENDIX C

TABLE C-9

*The rules for calculating the proportional tax (1948–1958 tax years) and the complementary tax (1959–1969 tax years)*

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- (i) In principle, the rate of the proportional tax was 18 percent for the 1948–1957 tax years and 22 percent for the 1958 tax year. In practice, this “proportional” system had numerous exceptions:
- (ii) Wages and retirement pensions were always exempt from the “proportional tax” (employers were simply required to make a flat-rate payment equal to 5 percent of the wage bill).
- (iii) The profits of “artisans and similar,” as well as the profits of noncommercial occupations, “other than the fruits of public office,” were subject to a reduced rate of 9 percent on the portion of profits below 200,000 francs in the 1948–1952 tax years and on the portion of profits below 440,000 francs in the 1953 tax year, then to a reduced rate of 5 percent on the portion of profits below 440,000 francs in the 1954–1958 tax years (BIC [other than the profits of “artisans and similar”], BA, and BNC corresponding to “the fruits of public office” also enjoyed the reduced rate of 5 percent in the 1954–1958 tax years, but only on the portion below 300,000 francs).
- (iv) Except for securities income (dividends, interest, etc.), which was subject to the proportional rate starting from the first franc (for income from negotiable bonds, however, the proportional rate was reduced to 10 percent or 15 percent depending on the characteristics of the bonds), all income subject to the proportional tax (BA, BIC, BNC, real estate incomes, incomes from loans, deposits, and collateral) has always benefited from a rebate mechanism intended to exempt the lowest incomes and to reduce the amount of proportional tax owed on slightly higher incomes (these rebate mechanisms are described in detail in *S&EF* no. 122 [February 1959], pp. 190–193), as well as from a tax-reduction mechanism for family dependents (a 10 percent tax reduction for one dependent, 30 percent for two, 75 percent for three, and 100 percent for four—with a maximum of 5,000 francs of tax reduction for each of the first two dependents and 15,000 francs per dependent starting from the third).
- (v) The rate of the complementary tax was 9 percent in the 1959 tax year, 8 percent in the 1960 tax year, then 6 percent in the 1961–1969 tax years; but “artisans and similar” and BNC “other than the fruits of public office” enjoyed an exemption of 4,400 new francs (3,000 new francs for other profits of self-employed occupations), as well as a reduced rate of 3 percent starting from the 1964 tax year; then the standard exemption was changed to 30,000 francs in the 1969 tax year, and the complementary tax was definitively eliminated in 1970 (it was levied for the last time in the 1969 tax year).
- 

between those for the schedular tax on wages and the schedular tax on industrial and commercial profits, and the rates on the securities-income tax have always been (slightly) higher than those of the schedular tax on industrial and commercial profits.<sup>2</sup>

### *2. Chronology of the Principal Legislative and Regulatory Texts*

This chronology gives the date and a summary description of the principle legislative and regulatory texts that have marked the history of the income tax, from the 1915 tax year to the 1998 tax year. Notably, this chronology contains all

of the laws and decrees that led to a modification of the rate schedule of the progressive income tax or to the establishment of an “exceptional surtax”; the complete list of these schedules and “exceptional surtaxes” is described in Tables 4-1 to 4-6 (Chapter 4). All of these texts were published in the *Journal officiel lois et décrets* (in principle on the day following their date of promulgation).

*Law of July 15, 1914*: creation of the general income tax (IGR), to go into effect on January 1, 1915, that is, for the 1914 tax year

*Law of December 26, 1914*: implementation of IGR pushed back to January 1, 1916, that is, to the 1915 tax year

*Law of December 30, 1916*: new IGR schedule, to go into effect starting with the 1916 tax year

*Law of July 31, 1917*: creation of schedular taxes, to go into effect starting with the 1917 tax year

*Law of June 29, 1918*: new IGR schedule, to go into effect starting with the 1917 tax year

*Law of June 25, 1920*: new IGR schedule, creation of IGR surtaxes on childless taxpayers (these measures to go into effect starting with the 1919 tax year)

*Law of June 30, 1923*: standard deduction of the IGR raised from 6,000 francs to 7,000 francs, to go into effect starting with the 1922 tax year

*Law of March 22, 1924*: *double décime* (20 percent surtax) to go into effect starting with the 1923 tax year

*Law of December 4, 1925*: additional 20 percent IGR surtax (on top of the *double décime*), to be implemented retroactively for the 1924 tax year

*Law of August 3, 1926*: elimination of the *double décime*, the general IGR rate lowered from 50 percent to 30 percent (measures to go into effect starting with the 1926 tax year)

*Law of December 30, 1928*: standard deduction of the IGR raised from 7,000 francs to 10,000 francs, general rate of the IGR raised from 30 percent to 33.33 percent (measures to go into effect starting with the 1928 tax year)

*Law of December 29, 1929*: increase in flat-rate deductions and in the cap on tax reductions for family dependents, to go into effect starting with the 1929 tax year

*Law of July 15, 1932*: new IGR schedule defined in “average-rate” terms, never implemented (measure repealed by the law of February 28, 1933)

*Law of February 28, 1933*: 10 percent IGR surtax to go into effect with the 1932 tax year

- Law of July 6, 1934 / decree-law of July 20, 1934*: elimination of the 10 percent surtax, reduction of the general IGR rate from 33.33 percent to 24 percent, automatic linkage between IGR and schedular rates, elimination of IGR reductions for family dependents, and increase of IGR surtaxes on childless taxpayers (measures to go into effect starting with the 1934 tax year)
- Law of June 7, 1935 / decree-laws of July 16, 1935, and July 26, 1935*: exceptional surtax on the IGR, applicable for the 1934–1935 tax year
- Law of December 31, 1936*: new IGR schedule, reduction of the flat-rate deductions for family dependents for recipients of high incomes, reduction of IGR surtaxes on childless taxpayers (measures to go into effect from the 1936 tax year)
- Law of June 30, 1937 / decree-law of July 8, 1937*: 20 percent IGR surtax, to go into effect starting with the 1936 tax year
- Law of April 13, 1938 / decree-law of May 2, 1938*: additional 8 percent IGR surtax (*Contribution nationale exceptionnelle*), to be implemented on top of the 20 percent surtax and starting from the 1937 tax year
- Law of October 4, 1938 / decree-law of November 12, 1938*: elimination of the 20 percent and 8 percent surtaxes and creation of a 30 percent IGR surtax (rate ultimately increased to 33.33 percent by the law of December 31, 1938) (*Contribution nationale extraordinaire*) (measures to go into effect starting with the 1938 tax year)
- Decree of July 29, 1939*: elimination of IGR surtaxes on childless taxpayers and creation of the *Taxe de compensation familiale* (TCF) (measures to go into effect starting with the 1939 tax year)
- Law of January 13, 1941*: reestablishment of flat-rate deductions for family dependents for high incomes, to go into effect starting with the 1940 tax year
- Law of February 23, 1942*: rate of the *Contribution nationale extraordinaire* lifted from 33.33 percent to 50 percent, starting from the 1941 tax year
- Law of October 24, 1942*: elimination of the *Contribution nationale extraordinaire*, and new IGR rate schedule to go into effect starting with the 1942 tax year
- Law of January 30, 1944*: IGR standard deduction raised from 10,000 to 20,000 francs, increase in deductions for family dependents (measures to go into effect starting with the 1943 tax year)
- Law of December 31, 1945*: new IGR schedule, elimination of flat-rate deductions for family dependents and replacement by the family-quotient mecha-

- nism, elimination of the TCF, elimination (by half) of the deduction of the previous year's IGR payment (measures to go into effect starting with the 1945 tax year)
- Law of December 23, 1946*: new IGR schedule, complete elimination of the IGR deduction for the previous year's IGR payment, increase in the cap on the 10 percent flat-rate deduction for work expenses (measures to go into effect starting with the 1946 tax year)
- Law of January 7, 1948*: "exceptional levy for the struggle against inflation," consisting notably of a one-time retroactive IGR surtax owed on 1946 incomes
- Law of May 13, 1948*: new IGR schedule, reestablishment of the previous year's IGR deduction (at only a quarter rate) (measures to go into effect starting with the 1947 tax year)
- Law of August 17, 1948*: law authorizing the government to undertake tax reform by decree (hence the decrees of October 1, 1948 and December 9, 1948)
- Law of September 24, 1948*: exceptional 20 percent IGR surtax (*double décime*) to go into effect starting with 1947 tax year
- Decree of October 1, 1948*: elimination of the schedular wage tax and replacement with a flat-rate 5 percent charge on total wages, to go into effect starting from September 1, 1948.
- Decree of December 9, 1948*: elimination of the schedular taxes and the IGR and their replacement by a "tax on the income of natural persons" (IRPP), which was made up of a "proportional tax" and a "progressive surtax" (SP), and a "tax on the profits of companies and other legal persons" (measures to go into effect starting with the 1948 tax year)
- Law of July 31, 1949*: elimination of the 20 percent bracket of the SP, to go into effect starting with the 1949 tax year
- Law of May 24, 1951*: increase in the levels of the SP brackets, alignment of all childless married couples onto 2 family-quotient shares (measures to go into effect starting with the 1950 tax year)
- Law of April 14, 1952*: increase in the SP brackets, creation of a 10 percent exemption for wage earners (measures to go into effect starting with the 1953 tax year)
- Law of April 2, 1955 / decree of April 30, 1955*: rate of exemption for wage earners raised to 15 percent, starting from the 1954 tax year

- Law of June 30, 1956*: 10 percent SP surtax (*décime*) for all taxpayers with incomes above 600,000 francs, starting from the 1955 tax year
- Law of December 28, 1959*: elimination of the TP and the SP, creation of a “single” IRPP and a “complementary tax” (TC), rate of exemption for wage earners raised to 20 percent (measures to go into effect starting with the 1959 tax year, except for the wage earner exemption, which is raised to 19 percent for the 1959 tax year and only rises to 20 percent starting from the 1960 tax year)
- Law of December 23, 1960*: increase in the brackets of the IRPP schedule, to go into effect starting with the 1960 tax year; a new increase in the middle brackets of the schedule to go into effect starting from the 1961 tax year, a new increase in the bottom bracket to go into effect starting in the 1962 tax year, transformation of the *décime* into a *demi-décime* (a 5 percent surtax) to go into effect starting from the 1961 tax year, and elimination of the *demi-décime* to go into effect starting from the 1962 tax year (these measures confirmed by laws that followed, except the elimination of the *demi-décime*)
- Law of July 2, 1963*: maintenance of the *demi-décime*, with an increase in the threshold (to go into effect starting with the 1962 tax year)
- Law of December 19, 1963*: increase in the top marginal rate of the IRPP schedule to 61.5 percent, maintenance of the *demi-décime*, with an increase in the threshold (to be implemented solely for the 1963 tax year)
- Law of December 23, 1964*: increase in the brackets of the IRPP schedule, maintenance of the *demi-décime* (with an increase in the threshold), exemption of fictive rents (measures to go into effect starting with the 1964 tax year)
- Law of July 12, 1965*: creation of the tax asset (measure to go into effect starting with the 1965 tax year)
- Law of November 29, 1965*: increase in the brackets of the IRPP schedule, maintenance of the *demi-décime* (with an increase in the threshold), creation of the optional levy (measures to go into effect starting with the 1965 tax year)
- Law of December 17, 1966 / decree of December 27, 1966*: elimination of the *demi-décime*, increase in the top marginal rates of the IRPP schedule to 55 percent and 65 percent, a declining schedule of IRPP reductions for taxpayers with incomes less than 55,000 francs (measures to go into effect starting with the 1966 tax year, except the increase in marginal rates, which applied solely to the 1966 tax year)



- Law of July 31, 1968*: one-time IRPP surtax (at rates of up to 25 percent for the highest incomes) for the 1967 tax year
- Law of December 27, 1968*: establishment of a declining schedule of IRPP reductions for taxpayers whose IRPP liability is less than 5,000 francs and a declining schedule of IRPP surtaxes for taxpayers whose IRPP liabilities are above 6,000 francs (to go into effect starting with the 1968 tax year)
- Law of December 24, 1969*: increase in the brackets of the IRPP schedule, to go into effect starting with the 1969 tax year
- Law of December 21, 1970*: IRPP rebaptized “income tax” (IR), increase in the brackets of the IRPP schedule to go into effect starting with the 1970 tax year
- Law of December 29, 1971*: increase in the brackets of the IR schedule, to go into effect starting with the 1971 tax year
- Law of December 20, 1972*: increase in the brackets of the IR schedule, to go into effect starting with the 1972 tax year
- Law of December 27, 1973*: increase in the brackets of the IR schedule, establishment of a cap on the 20 percent exemption for wage earners (measures to go into effect starting with the 1973 tax year)
- Law of July 16, 1974*: one-time and partially refundable IRPP surtax, applicable for the 1973 tax year
- Law of December 27, 1974*: rise in the levels and the number of IR brackets, applicable starting from the 1974 tax year
- Law of December 30, 1975*: increase in the IR brackets, applicable starting with the 1975 tax year
- Law of December 29, 1976*: increase in the IR brackets, applicable starting with the 1976 tax year
- Law of December 30, 1977*: increase in the brackets of the IR schedule, applicable starting with the 1977 tax year
- Law of December 29, 1978*: increase in the IR brackets (applicable starting with the 1978 tax year) and creation of a cap on the 10 percent flat-rate deduction for work expenses (applicable starting with the 1979 wage-tax year)
- Law of January 18, 1980*: increase in the IR brackets, creation of an additional half-share of family quotient for the fifth dependent child (measures applicable starting with the 1979 tax year)
- Law of December 30, 1980*: increase in the brackets of the IR schedule, replacement of the additional half-share at the fifth child with an additional half-share at the third child (measures applicable starting with the 1980 tax year)

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- Law of August 3, 1981:* 25 percent exceptional surtax applicable to taxpayers whose IR liability in the 1980 tax year exceeded 100,000 francs
- Law of December 30, 1981:* increase in the IR brackets, establishment of a rebate for low incomes and a surtax for high incomes, establishment of a cap on the effects of the family quotient (measures applicable starting with the 1981 tax year)
- Law of December 29, 1982:* increase in the IR brackets and creation of a 65 percent bracket (measures applicable starting with the 1982 tax year)
- Law of December 29, 1983:* increase in the brackets of the IR and creation of a progressive surtax on the IR liability for 1984 incomes
- Law of December 30, 1985:* increase in the IR brackets and creation of a schedule of IR tax reductions (measures applicable starting with the 1985 tax year)
- Law of December 30, 1986:* increase in the IR brackets, elimination of the 65 percent bracket, reduction of the rate on the 60 percent bracket, creation of an additional half-share of family quotient for all children starting from the third child, establishment of an additional cap on the effects of the family quotient for unmarried taxpayers (measures applicable starting with the 1986 tax year)
- Law of December 30, 1987:* increase in the brackets and general reduction in the rates of the IR schedule (measures applicable starting with the 1987 tax year)
- Law of December 23, 1988:* increase in the IR brackets, applicable starting from the 1988 tax year
- Law of December 29, 1989:* increase in the IR brackets, applicable starting from the 1989 tax year
- Law of December 29, 1990:* increase in the IR brackets, applicable starting from the 1990 tax year
- Law of December 30, 1991:* increase in the IR brackets, applicable starting from the 1991 tax year
- Law of December 30, 1992:* increase in the IR brackets, applicable starting with the 1992 tax year
- Law of December 30, 1993:* reduction in the number of brackets and reduction in the rates of the IR schedule, elimination of the declining schedule of tax reductions (measures applicable starting with the 1993 tax year)
- Law of December 29, 1994:* increase in the IR brackets, applicable starting from the 1994 tax year

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*Law of December 30, 1995:* increase in the IR brackets, tightening of the conditions for unmarried taxpayers obtaining a full share of family quotient at their first child (measures applicable starting with the 1995 tax year)

*Law of December 30, 1996:* increase in the brackets and general reduction in the rates of the IR schedule (measures applicable starting with the 1996 tax year)

*Law of December 30, 1997:* increase in the IR brackets, creation of an additional cap on the effect of the family quotient for taxpayers with 1.5 shares (measures applicable starting from the 1997 tax year)

*Law of December 30, 1998:* increase in the IR brackets, reduction in the general threshold of the cap on the effects of the family quotient (measures applicable starting with the 1998 tax year)

## Raw Data, Methodology, and Results of Estimates Based on Statistics from Employer Wage Declarations (1919–1938, 1947, and 1950–1998 Wages)

This appendix describes the methodology and results of estimates of the wage distribution that we carried out using the raw statistical tables derived from employer wage declarations. The general methodology used here is very similar to that which we used in analyzing the statistics derived from income tax returns (see Appendixes A and B), and in this appendix, we will merely highlight the principal differences between the two methods.

As we explained earlier in setting out the general characteristics of this source (see Introduction, section 2.2.3, and Chapter 3, section 2.1), since 1947–1950 the statistics derived from employer wage declarations have taken on a different form compared to those of the interwar era. Presenting our methodology and results requires us to distinguish between these two subperiods: on the one hand, the 1919–1938 period, when employer wage declarations were tabulated by the tax administration in order to account for the functioning of the schedular wage tax (section 1); and, on the other hand, the period starting in 1947–1950, when employer wage declarations—often referred to today by their current official title, “Déclarations annuelles de données sociales” (Annual Declarations of Social Data), or DADS—were analyzed by INSEE for purely statistical purposes (section 2).

*1. Estimates Based on Statistics from the Schedular  
Wage Tax (1919–1938 Wages)*

The statistical tables compiled by the tax administration in the interwar era within the framework of the schedular wage tax have exactly the same form as the distribution tables drawn up on the basis of income tax returns: they describe the number of wage earners and the total amount of wages as a function of a given number of annual wage brackets. We have reproduced those raw data in Table D-1 (with no adjustments). The exact references to the Finance Ministry publications where these raw data were published are given in Table D-2. As with income tax returns, only wage earners who were taxable under the schedular wage tax had their wage declarations taken into account in the statistical tables that the tax administration compiled from wage declarations. Table D-3 describes the evolution of the number of taxable wage earners under the schedular wage tax, which highlights that, as with income tax returns, interwar wage declarations permit examination of only the top decile of the distribution: over the 1919–1938 period, the percentage of taxable wage earners under the schedular wage tax was generally between 10 percent and 20 percent (see Table D-3, column [2]).

We have thus proceeded in the following way. Using the method of extrapolation with a Pareto law described in the Appendix B (section 1.1), we have estimated for each year of the 1919–1938 period the average wage of the best-paid 10 percent of wage earners (P90–100), the average wage of the best-paid 5 percent of wage earners (P95–100), the average wage of the best-paid 1 percent of wage earners (P99–100), the average wage of the best-paid 0.5 percent of wage earners (P99.5–100), and the average wage of the best-paid 0.1 percent of wage earners (P99.9–100), as well as the intermediate levels (P90–95, P95–99, P99–99.5, and P99.5–99.9) and the corresponding thresholds (P90, P95, P99, P99.5, and P99.9). As for the years 1931–1938, the fact that the tax administration used very high wage brackets in tabulating the wage declarations also allows us to estimate the average wage of the best paid 0.01 percent of wage earners (P99.99–100), as well as the intermediate level (P99.9–99.99) and the corresponding threshold (P99.99). The Pareto coefficients obtained for each year and each of the wage brackets used by the tax administration are given in Table D-4. The complete results of these estimates, expressed in current francs, are reproduced in Table D-5. These same results, converted into 1998 francs using the

## APPENDIX D

TABLE D-1

*The raw statistical tables compiled by the tax administration from wage declarations submitted by employers under the schedular wage tax (1919-1938 wages)*

1919			1920		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
6,000	362,855	2,365,617	6,000	833,317	5,636,997
8,000	119,222	1,101,846	8,000	335,800	2,995,112
10,000	96,991	1,280,827	10,000	264,153	3,468,202
20,000	26,134	1,088,009	20,000	52,027	2,150,430
Total	605,202	5,836,299	Total	1,485,297	14,250,740
1921			1922		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
6,000	1,031,733	7,152,337	10,000	204,298	2,477,017
8,000	411,206	3,633,240	15,000	65,633	1,126,378
10,000	322,007	4,071,724	20,000	64,961	2,441,783
20,000	56,759	2,184,611	Total	334,892	6,045,177
Total	1,821,705	17,041,912			
1923			1924		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
10,000	239,061	2,906,140	7,000	371,138	3,063,538
15,000	78,991	1,345,225	10,000	292,463	3,506,142
20,000	84,588	3,236,002	15,000	102,385	1,757,403
Total	402,640	7,487,368	20,000	125,697	4,423,641
			Total	891,683	12,750,724

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1925			1926		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
7,000	497,181	4,149,802	7,000	673,477	5,589,437
10,000	484,900	5,973,751	10,000	961,465	12,798,220
15,000	154,703	2,649,817	20,000	130,647	3,146,757
20,000	153,176	5,891,024	30,000	39,954	1,383,595
Total	1,289,960	18,664,393	40,000	18,236	823,081
			50,000	34,312	3,218,603
			Total	1,858,091	26,959,692

1927			1928		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
7,000	716,176	6,027,691	10,000	936,741	13,282,558
10,000	1,213,840	16,469,146	20,000	219,414	5,222,233
20,000	185,521	4,481,348	30,000	63,498	2,172,654
30,000	56,725	1,947,406	40,000	27,261	1,213,489
40,000	23,955	1,069,455	50,000	42,380	4,168,307
50,000	37,942	3,756,033	Total	1,289,294	26,059,242
Total	2234159	33751079			

1929			1930		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
10,000	1,190,820	16,982,637	10,000	1,405,578	20,300,156
20,000	298,349	7,160,366	20,000	364,133	8,552,667
30,000	86,245	2,987,602	30,000	106,003	3,638,971
40,000	35,787	1,610,547	40,000	44,617	1,974,894
50,000	53,007	4,995,633	50,000	60,214	5,553,788
Total	1,664,208	33,736,784	Total	1,980,545	40,320,475

(continued)

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TABLE D-1  
(continued)

1931			1932		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
10,000	157,9147	21,141,159	10,000	1,428,087	19,164,860
20,000	236,167	5,644,136	20,000	222,262	5,315,858
30,000	74,102	2,538,946	30,000	70,193	2,403,087
40,000	31,568	1,457,999	40,000	29,515	1,315,031
50,000	35,438	2,351,495	50,000	32,335	2,123,982
100,000	7,678	956,028	100,000	6,539	862,917
200,000	1,995	574,388	200,000	1,686	484,719
500,000	287	239,123	500,000	198	155,672
Total	1,966,382	34,903,275	Total	1,790,815	31,826,126
1933			1934		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
10,000	1,400,227	18,772,685	10,000	2,039,425	27,306,160
20,000	222,062	5,315,726	20,000	303,232	7,236,027
30,000	69,730	2,387,632	30,000	87,535	2,989,955
40,000	30,135	1,321,874	40,000	33,781	1,498,315
50,000	31,585	2,009,453	50,000	35,206	2,296,637
100,000	6,281	830,334	100,000	6,717	885,668
200,000	1,588	445,235	200,000	1,649	466,240
500,000	196	160,113	500,000	203	161,540
Total	1,769,590	31,425,002	Total	2,507,748	42,840,543
1935			1936		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
10,000	1,899,261	25,304,652	10,000	2,203,688	29,313,878
20,000	283,126	6,779,811	20,000	308,926	7,378,154
30,000	82,869	2,833,515	30,000	89,962	3,079,658
40,000	32,155	1,428,141	40,000	36,881	1,637,851
50,000	35,020	2,272,431	50,000	37,804	2,453,810



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1935			1936		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
100,000	6,596	868,945	100,000	7,186	946,566
200,000	1,615	447,209	200,000	1,757	491,403
500,000	192	148,035	500,000	213	174,777
Total	2,341,870	4,010,796	Total	2,686,417	45,476,098

1937			1938		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
10,000	3,156,551	43,233,425	10,000	3,587,445	50,654,800
20,000	471,644	11,231,405	20,000	585,451	14,239,590
30,000	122,924	4,208,718	30,000	150,087	5,256,028
40,000	48,492	2,152,302	40,000	59,122	2,640,366
50,000	50,746	3,301,927	50,000	60,610	3,993,300
100,000	9,755	1,288,859	100,000	11,098	1,472,606
200,000	2,354	659,647	200,000	2,667	751,239
500,000	334	271,232	500,000	359	289,282
Total	3,862,800	66,347,514	Total	4,456,839	79,297,212

*Sources:* Raw data copied directly from the tables compiled by the tax administration (see Table D-2 for references to the Finance Ministry publications where the original tables were published).

*Explanation:*  $s_i$  represents the thresholds of the wage brackets used by the tax administration,  $N_i$  represents the number of wage earners with wages between the thresholds  $s_i$  and  $s_{i+1}$ , and  $Y_i$  represents the total amount of wages declared within that bracket. The "Total" line gives the total number of wage earners who were taxable under the schedular wage tax and the corresponding amount of wages. The thresholds are expressed in old francs, and the amounts in thousands of old francs. For example, in the 1930 wage year, 1,405,578 wage earners had an annual wage between 10,000 and 20,000 old francs, for a total amount of 20,300 billion old francs.

conversion rates estimated in Appendix F (Table F-1, column [7]), are reproduced in Table D-6. Finally, the same results, converted into the various fractiles' shares of the total wage bill using the average wage series estimated in Appendix E (Table E-3, column [12]), are reproduced in Table D-7.

All of these estimates were carried out assuming a total number of wage earners equal to 12 million for the entire 1919–1938 period: by definition, the P90–100 fractile always comprises the 1.2 million best-paid wage earners, the P95–100 fractile always comprises the best-paid 0.6 million wage earners, and

## APPENDIX D

TABLE D-2

*References to the publications where the “wages” tables were published  
(1919–1938 wages)*

Date of wages	Situation on . . .	References
1919 wages	12 / 31 / $n + 5$	<i>BSLC</i> novembre 1925, tome 98, p. 730
1920 wages	12 / 31 / $n + 4$	<i>BSLC</i> novembre 1925, tome 98, p. 734
1921 wages	12 / 31 / $n + 3$	<i>BSLC</i> novembre 1925, tome 98, p. 738
1922 wages	12 / 31 / $n + 2$	<i>BSLC</i> novembre 1925, tome 98, p. 742
1923 wages	12 / 31 / $n + 2$	<i>RSRID</i> 1926, p. 107
1924 wages	12 / 31 / $n + 2$	<i>RSRID</i> 1927, p. 248
1925 wages	12 / 31 / $n + 2$	<i>RSRID</i> 1928, p. 264
1926 wages	12 / 31 / $n + 2$	<i>RSRID</i> 1929, p. 228
1927 wages	3 / 31 / $n + 3$	<i>RSRID</i> 1930, p. 254
1928 wages	3 / 31 / $n + 3$	<i>RSRID</i> 1931, p. 268
1929 wages	3 / 31 / $n + 3$	<i>RSRID</i> 1931–1932, p. 46
1930 wages	3 / 31 / $n + 2$	<i>BSLC</i> octobre 1932, tome 112, p. 718
1931 wages	12 / 31 / $n + 1$	<i>BSLC</i> septembre 1933, tome 114, p. 586
1932 wages	12 / 31 / $n + 1$	<i>BSLC</i> septembre 1934, tome 116, pp. 614–615
1933 wages	12 / 31 / $n + 1$	<i>BSLC</i> juillet 1935, tome 118, pp. 22–23
1934 wages	12 / 31 / $n + 1$	<i>BSLC</i> juin 1936, tome 119, pp. 1042–1043
1935 wages	12 / 31 / $n + 1$	<i>BSLC</i> août 1937, tome 122, pp. 284–285
1936 wages	12 / 31 / $n + 1$	<i>BSLC</i> juillet–août 1938, tome 124, pp. 32–33
1937 wages	12 / 31 / $n + 1$	<i>BSLC</i> juillet–août 1939, tome 126, pp. 62–63
1938 wages	12 / 31 / $n + 1$	<i>BSMF</i> n°3 (3ème trimestre 1947), p. 673

*Acronyms:* *BSLC* = *Bulletin de Statistique et de Législation Comparée* (monthly Finance Ministry publication, 1877–1940);

*BSMF* = *Bulletin de Statistique du ministère des Finances* (quarterly Finance Ministry publication, 1947–1948);

*RSRID* = *Renseignements Statistiques Relatifs aux Impôts Directs* (annual Finance Ministry volumes, 1889–1975)

*Explanation:* For the 1919 wage-year, the final table compiled by the tax administration was compiled on the basis of the tax-list issuance situation as of 12 / 31 /  $n + 5$ , and it was published in the *BSLC* of November 1925; for the 1920 wage-year, the final table compiled by the tax administration was compiled on the basis of the tax-list issuance situation as of 12 / 31 /  $n + 4$ , and it was published in the *BSLC* of November 1925; etc.

*Note:* In contrast to what we did for incomes (see Appendix A, Tables A-4 and A-5), here we have merely given references to the tables that we used (in other words, by definition, the final tables compiled by the tax administration). For 1919–1939 wages subject to the ICTSP (schedular tax), other tables were compiled on prior dates (as was the case with 1919–1929 incomes), and all were published in the same issues of the *BSLC* as the corresponding tables for incomes.

## APPENDIX D

TABLE D-3

*Wage earners subject to the schedular tax on wages (1919–1938 wages)*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>N</i>	% <i>N</i>	<i>Y</i>	Tax	% <i>I</i> / <i>Y</i>	Simple liability	Tax reduction	% of Simple liability
1919	1,059	8.8	8,105	126	1.6	136	10	7.3
1920	2,355	19.6	18,681	292	1.6	313	21	6.7
1921	2,691	22.4	21,502	324	1.5	349	25	7.1
1922	731	6.1	9,157	166	1.8	173	7	3.8
1923	855	7.1	11,063	254	2.3	263	9	3.4
1924	892	7.4	12,751	295	2.3	307	12	3.8
1925	1,290	10.7	18,664	429	2.3	445	17	3.7
1926	1,858	15.5	26,960	651	2.4	672	21	3.1
1927	2,234	18.6	33,751	825	2.4	851	26	3.1
1928	1,289	10.7	26,059	778	3.0	803	25	3.1
1929	1,664	13.9	33,737	814	2.4	857	43	5.1
1930	1,981	16.5	40,320	955	2.4	1,006	51	5.1
1931	1,972	16.4	40,076	932	2.3	983	52	5.2
1932	1,797	15.0	36,733	846	2.3	895	49	5.5
1933	1,770	14.7	36,082	829	2.3	876	47	5.3
1934	2,508	20.9	42,964	629	1.5	718	90	12.5
1935	2,342	19.5	40,206	595	1.5	679	84	12.4
1936	2,689	22.4	45,825	672	1.5	766	94	12.2
1937	3,863	32.2	66,526	1,125	1.7	1,286	161	12.5
1938	4,457	37.1	79,502	1,610	2.0	1,839	229	12.5

*Explanation:* For the 1938 wage-year, 4.457 million wage earners were subject to the schedular wage tax, which comes to 37.1 percent of the total number of wage earners (assumed to equal 12 million over the entire 1919–1938 period); the total corresponding amount of wages was 79,502 billion francs, and the corresponding tax was 1.610 billion, or 2.0 percent of the wages in question; this total tax of 1.610 billion broke down into 1.839 billion in simple liability and 229 million in tax reductions (which comes to 12.5 percent of simple liability).

so forth. This simplifying assumption is justified by the fact that the total number of wage earners estimated in the interwar censuses (the censuses of 1921, 1926, 1931, and 1936) was always around 12 million, and there is no truly satisfactory annual series for the total number of wage earners in interwar France (especially given the difficulties connected with measuring unemploy-

ment).<sup>1</sup> We may add that any estimation errors introduced by this simplifying assumption could only be extremely small.<sup>2</sup>

As for the wages of 1919–1921 and 1934–1938, we made no adjustments to the raw estimates derived from our extrapolation procedure using a Pareto law: wages that were taxable under the schedular wage tax were not entitled to deductions for family dependents, so the wage distributions appearing in the raw tables compiled by the tax administration are not truncated distributions (all wage earners with annual wages above the threshold of taxation appeared in the tables, whatever their family situation).<sup>3</sup> On the other hand, for wages in the years 1922–1933, given the existence of deductions for family dependents (see Appendix C, Table C-7), adjustments for truncated distributions are necessary. As with the adjustments for incomes (see Appendix B, section 1.3), these adjustments are of limited magnitude, and they affect only the very high wages of the top 1 percent (and higher fractiles).<sup>4</sup> We may add that we have carried out the same type of reliability test as we did with the income estimates, and the technique of extrapolation with a Pareto law seems just as reliable for wages as for incomes.<sup>5</sup>

Finally, let us point out that the tables compiled by the tax administration for the schedular wage tax (whose complete official title was actually the *impôt sur les traitements, salaires, pensions et rentes viagères*, or tax on fees, wages, pensions, and annuities) only allow fees and wages to be broken out separately and pensions and annuities to be excluded for the years 1919–1921: starting from 1922, the tables make no distinction between these two categories of income, so we were not able to exclude pensions and annuities. The tables for 1919–1921 do, however, show the very small size of pensions and annuities, particularly in the highest brackets of the tables (so that the bias introduced may be neglected).

## 2. *Estimates Based on Statistics from INSEE's Analysis of Wage Declarations (DADS) (1947 and 1950–1996 Wages)*

The methodology used to analyze the postwar data is overall very similar to that used in analyzing the interwar data. Tables D-8 to D-10 present the raw data from the analyses of wage declarations that INSEE has carried out since the 1947 wage-year. Tables D-11 to D-16 present the results of estimates we carried out based on these raw data using extrapolation with a Pareto law (Tables

## APPENDIX D

TABLE D-4

*Pareto coefficients of the wage distributions (1919-1938 wages)*

1919			1920		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
6,000	5.04	1.61	6,000	12.38	1.60
8,000	2.02	1.79	8,000	5.43	1.65
10,000	1.03	1.92	10,000	2.63	1.78
20,000	0.22	2.08	20,000	0.43	2.07
1921			1922		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
6,000	15.18	1.56	10,000	2.79	1.81
8,000	6.58	1.56	15,000	1.09	1.82
10,000	3.16	1.65	20,000	0.54	1.88
20,000	0.47	1.92			
1923			1924		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
10,000	3.36	1.86	7,000	7.43	2.04
15,000	1.36	1.87	10,000	4.34	1.86
20,000	0.70	1.91	15,000	1.90	1.81
			20,000	1.05	1.76
1925			1926		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
7,000	10.75	2.07	7,000	15.48	2.07
10,000	6.61	1.83	10,000	9.87	1.80
15,000	2.57	1.85	20,000	1.86	1.92
20,000	1.28	1.92	30,000	0.77	1.96
			40,000	0.44	1.92
			50,000	0.29	1.88

(continued)

## APPENDIX D

TABLE D-4  
(continued)

1927			1928		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
7,000	18.62	2.16	10,000	10.74	2.02
10,000	12.65	1.83	20,000	2.94	1.81
20,000	2.53	1.85	30,000	1.11	1.89
30,000	0.99	1.90	40,000	0.58	1.93
40,000	0.52	1.95	50,000	0.35	1.97
50,000	0.32	1.98			
1929			1930		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
10,000	13.87	2.03	10,000	16.50	2.02
20,000	3.94	1.77	20,000	4.79	1.71
30,000	1.46	1.83	30,000	1.76	1.77
40,000	0.74	1.86	40,000	0.87	1.80
50,000	0.44	1.88	50,000	0.50	1.84
1931			1932		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
10,000	16.387	1.77	10,000	14.923	1.78
20,000	3.227	1.78	20,000	3.023	1.75
30,000	1.259	1.79	30,000	1.171	1.74
40,000	0.641	1.81	40,000	0.586	1.76
50,000	0.378	1.82	50,000	0.340	1.78
100,000	0.083	1.78	100,000	0.070	1.78
200,000	0.019	1.78	200,000	0.016	1.70
500,000	0.002	1.67	500,000	0.002	1.57

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1933			1934		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
10,000	14.682	1.77	10,000	20.898	1.71
20,000	3.013	1.72	20,000	3.903	1.66
30,000	1.163	1.71	30,000	1.376	1.68
40,000	0.582	1.71	40,000	0.646	1.71
50,000	0.330	1.74	50,000	0.365	1.74
100,000	0.067	1.78	100,000	0.071	1.77
200,000	0.015	1.70	200,000	0.015	1.69
500,000	0.002	1.63	500,000	0.002	1.59
1935			1936		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
10,000	19.507	1.71	10,000	22.387	1.69
20,000	3.680	1.67	20,000	4.023	1.67
30,000	1.320	1.68	30,000	1.448	1.68
40,000	0.630	1.71	40,000	0.699	1.70
50,000	0.362	1.72	50,000	0.391	1.73
100,000	0.070	1.74	100,000	0.076	1.76
200,000	0.015	1.65	200,000	0.016	1.69
500,000	0.002	1.54	500,000	0.002	1.64
1937			1938		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
10,000	32.190	1.72	10,000	37.140	1.78
20,000	5.885	1.64	20,000	7.245	1.65
30,000	1.955	1.69	30,000	2.366	1.69
40,000	0.931	1.72	40,000	1.115	1.71
50,000	0.527	1.75	50,000	0.623	1.74
100,000	0.104	1.78	100,000	0.118	1.78
200,000	0.022	1.73	200,000	0.025	1.72
500,000	0.003	1.62	500,000	0.003	1.61

*Explanation:* In 1938, 0.003 percent of wage earners had an annual wage above 500,000 francs, and the ratio between the average wage of those workers and the 500,000-franc threshold was 1.61 (all calculations were based on the raw data reproduced in Table D-1, and assumed a total number of wage earners equal to 12 million over the entire 1919–1938 period).

## APPENDIX D

TABLE D-5

*Estimate of the wage distribution (1919-1938 wages) (current francs)*

	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1919	7,446	9,675	19,478	27,172	62,382	
1920	10,393	13,474	26,998	37,577	88,124	
1921	10,866	13,932	26,430	35,825	81,193	
1922	11,198	14,536	28,206	39,012	82,844	
1923	12,250	16,116	32,376	45,069	97,148	
1924	14,062	18,396	35,905	48,429	97,019	
1925	16,002	21,219	43,240	60,307	130,572	
1926	18,301	24,710	51,648	72,171	153,209	
1927	20,394	27,480	56,784	79,151	175,000	
1928	21,632	28,957	59,589	83,039	182,897	
1929	24,092	32,126	64,728	88,918	189,293	
1930	25,488	33,694	67,644	92,385	193,045	
1931	24,807	32,667	64,090	86,246	169,767	478,695
1932	23,957	31,475	60,524	80,491	158,754	415,259
1933	23,752	31,199	59,191	77,924	155,563	405,318
1934	22,830	30,062	57,091	76,110	152,613	404,978
1935	22,382	29,583	56,415	75,149	149,701	386,881
1936	23,204	30,674	58,692	78,077	156,704	414,080
1937	26,631	34,870	66,681	89,341	181,257	486,897
1938	29,027	38,114	71,500	95,592	191,098	506,332

	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-100	P99.99-100
1919	5,217	7,224	11,785	18,369	62,382	
1920	7,311	10,093	16,418	24,941	88,124	
1921	7,799	10,808	17,034	24,484	81,193	
1922	7,861	11,118	17,400	28,054	82,844	
1923	8,385	12,050	19,683	32,049	97,148	
1924	9,729	14,019	23,380	36,282	97,019	
1925	10,784	15,714	26,172	42,741	130,572	
1926	11,891	17,975	31,125	51,912	153,209	
1927	13,307	20,154	34,418	55,188	175,000	
1928	14,307	21,299	36,139	58,074	182,897	
1929	16,058	23,975	40,537	63,825	189,293	



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	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-100	P99.99-100
1930	17,283	25,207	42,903	67,219	193,045	
1931	16,947	24,811	41,935	65,365	169,767	478,695
1932	16,439	24,213	40,558	60,925	158,754	415,259
1933	16,304	24,201	40,459	58,514	155,563	405,318
1934	15,597	23,305	38,071	56,984	152,613	404,978
1935	15,182	22,875	37,681	56,511	149,701	386,881
1936	15,734	23,669	39,307	58,420	156,704	414,080
1937	18,391	26,918	44,021	66,362	181,257	486,897
1938	19,940	29,767	47,409	71,715	191,098	506,332

	P90	P95	P99	P99.5	P99.9	P99.99
1919	4,633	6,020	10,124	14,123	29,969	
1920	6,499	8,426	14,134	19,632	42,641	
1921	6,969	8,936	14,849	20,082	42,190	
1922	7,016	9,041	15,008	20,757	44,080	
1923	7,445	9,703	16,926	23,562	50,788	
1924	8,647	11,239	20,405	27,522	55,135	
1925	9,531	12,541	22,486	31,361	67,901	
1926	10,429	13,949	26,418	37,533	81,665	
1927	11,644	15,637	29,836	40,611	88,389	
1928	12,552	16,760	31,506	42,981	92,978	
1929	14,096	18,541	34,800	47,174	100,426	
1930	15,217	19,898	37,675	50,082	104,650	
1931	14,906	19,515	37,212	49,723	98,178	271,194
1932	14,413	19,132	36,083	47,821	91,588	246,804
1933	14,323	19,167	35,936	47,584	90,017	241,363
1934	13,765	18,126	33,364	43,722	86,408	238,944
1935	13,376	17,679	33,022	43,665	85,914	234,893
1936	13,861	18,323	34,505	45,081	88,965	244,900
1937	16,274	21,309	38,817	51,120	101,606	281,192
1938	17,621	23,138	41,854	54,899	107,399	294,499

*Explanation:* In 1938, the average annual wage of fractile P90-100 was 29,027 francs, the average annual wage of fractile P90-95 was 19,940 francs, and the P90 threshold was 17,621 francs.

## APPENDIX D

TABLE D-6

*Estimate of the wage distribution (1919–1938 wages) (1998 francs)*

	P90–100	P95–100	P99–100	P99.5–100	P99.9–100	P99.99–100
1919	48,978	63,641	128,125	178,730	410,339	
1920	49,754	64,507	129,248	179,897	421,881	
1921	59,381	76,139	144,439	195,787	443,722	
1922	63,682	82,662	160,402	221,854	471,119	
1923	62,761	82,564	165,871	230,901	497,712	
1924	63,253	82,746	161,500	217,836	436,392	
1925	67,079	88,950	181,261	252,807	547,359	
1926	58,967	79,619	166,419	232,546	493,663	
1927	62,942	84,813	175,256	244,286	540,111	
1928	66,897	89,550	184,280	256,799	565,616	
1929	70,155	93,549	188,487	258,929	551,219	
1930	73,633	97,338	195,414	266,888	557,684	
1931	74,571	98,199	192,662	259,264	510,340	1,439,013
1932	79,054	103,862	199,718	265,604	523,856	1,370,270
1933	80,966	106,354	201,777	265,632	530,294	1,381,681
1934	81,236	106,972	203,148	270,825	543,049	1,441,047
1935	86,852	114,793	218,914	291,610	580,902	1,501,255
1936	83,915	110,929	212,255	282,359	566,704	1,497,484
1937	76,556	100,243	191,690	256,831	521,065	1,399,696
1938	73,454	96,449	180,937	241,902	483,587	1,281,309

	P90–95	P95–99	P99–99.5	P99.5–99.9	P99.9–100	P99.99–100
1919	34,315	47,520	77,520	120,828	410,339	
1920	35,001	48,321	78,600	119,400	421,881	
1921	42,624	59,064	93,092	133,803	443,722	
1922	44,702	63,228	98,949	159,538	471,119	
1923	42,958	61,737	100,842	164,198	497,712	
1924	43,760	63,057	105,165	163,197	436,392	
1925	45,208	65,873	109,715	179,169	547,359	
1926	38,315	57,919	100,291	167,267	493,663	
1927	41,070	62,202	106,226	170,330	540,111	
1928	44,245	65,867	111,760	179,595	565,616	
1929	46,761	69,815	118,044	185,857	551,219	
1930	49,927	72,820	123,941	194,189	557,684	

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	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-100	P99.99-100
1931	50,943	74,584	126,060	196,495	510,340	1,439,013
1932	54,246	79,898	133,832	201,041	523,856	1,370,270
1933	55,579	82,498	137,921	199,467	530,294	1,381,681
1934	55,499	82,928	135,470	202,769	543,049	1,441,047
1935	58,912	88,762	146,218	219,287	580,902	1,501,255
1936	56,900	85,598	142,151	211,272	566,704	1,497,484
1937	52,870	77,381	126,549	190,772	521,065	1,399,696
1938	50,458	75,328	119,971	181,481	483,587	1,281,309

	P90	P95	P99	P99.5	P99.9	P99.99
1919	30,473	39,596	66,596	92,899	197,130	
1920	31,114	40,340	67,664	93,985	204,137	
1921	38,086	48,834	81,149	109,747	230,571	
1922	39,901	51,414	85,346	118,044	250,672	
1923	38,144	49,711	86,716	120,713	260,201	
1924	38,895	50,556	91,780	123,795	248,000	
1925	39,952	52,572	94,261	131,468	284,644	
1926	33,605	44,944	85,124	120,938	263,135	
1927	35,938	48,260	92,084	125,339	272,800	
1928	38,816	51,830	97,432	132,920	287,537	
1929	41,047	53,992	101,338	137,371	292,440	
1930	43,960	57,482	108,840	144,680	302,320	
1931	44,811	58,664	111,863	149,473	295,134	815,240
1932	47,561	63,133	119,067	157,801	302,221	814,404
1933	48,826	65,338	122,501	162,210	306,859	822,779
1934	48,981	64,499	118,720	155,579	307,469	850,241
1935	51,903	68,601	128,138	169,439	333,380	911,481
1936	50,127	66,264	124,785	163,032	321,733	885,659
1937	46,783	61,258	111,588	146,956	292,089	808,351
1938	44,591	58,551	105,915	138,927	271,780	745,250

*Explanation:* In 1938, the average annual wage of fractile P90-100 was 73,454 francs, the average annual wage of fractile P90-95 was 50,458 francs, and the P90 threshold was 44,591 francs.

## APPENDIX D

TABLE D-7

*Estimate of the wage distribution (1919-1938 wages)  
(as a percentage of total wages)*

	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1919	21.46	13.95	5.62	3.92	1.80	
1920	22.09	14.32	5.74	3.99	1.87	
1921	21.49	13.78	5.23	3.54	1.61	
1922	23.47	15.23	5.91	4.09	1.74	
1923	24.50	16.12	6.48	4.51	1.94	
1924	24.01	15.71	6.13	4.14	1.66	
1925	25.34	16.80	6.85	4.78	2.07	
1926	24.09	16.27	6.80	4.75	2.02	
1927	26.55	17.89	7.39	5.15	2.28	
1928	26.58	17.79	7.32	5.10	2.25	
1929	26.46	17.64	7.11	4.88	2.08	
1930	26.79	17.71	7.11	4.85	2.03	
1931	27.17	17.89	7.02	4.72	1.86	0.52
1932	28.13	18.48	7.11	4.73	1.86	0.49
1933	27.37	17.98	6.82	4.49	1.79	0.47
1934	26.84	17.67	6.71	4.47	1.79	0.48
1935	26.62	17.59	6.71	4.47	1.78	0.46
1936	24.15	15.96	6.11	4.06	1.63	0.43
1937	23.68	15.51	5.93	3.97	1.61	0.43
1938	24.50	16.09	6.04	4.03	1.61	0.43

	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-100	P99.99-100
1919	7.52	8.33	1.70	2.12	1.80	
1920	7.77	8.58	1.74	2.12	1.87	
1921	7.71	8.55	1.68	1.94	1.61	
1922	8.24	9.32	1.82	2.35	1.74	
1923	8.39	9.64	1.97	2.56	1.94	
1924	8.31	9.58	2.00	2.48	1.66	
1925	8.54	9.95	2.07	2.71	2.07	
1926	7.83	9.47	2.05	2.73	2.02	
1927	8.66	10.49	2.24	2.87	2.28	
1928	8.79	10.47	2.22	2.85	2.25	
1929	8.82	10.53	2.23	2.80	2.08	

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	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-100	P99.99-100
1930	9.08	10.60	2.25	2.83	2.03	
1931	9.28	10.87	2.30	2.86	1.86	0.52
1932	9.65	11.37	2.38	2.86	1.86	0.49
1933	9.39	11.16	2.33	2.70	1.79	0.47
1934	9.17	10.96	2.24	2.68	1.79	0.48
1935	9.03	10.88	2.24	2.69	1.78	0.46
1936	8.19	9.85	2.05	2.43	1.63	0.43
1937	8.18	9.58	1.96	2.36	1.61	0.43
1938	8.42	10.05	2.00	2.42	1.61	0.43

*Explanation:* In 1938, the P90-100 share of total wages was 24.50 percent, and the P90-95 share was 8.42 percent.

D-11 to D-13 present intermediate results, and Tables D-14 to D-16 present our final series). Finally, Table D-17 presents the estimates from the *Emploi* studies that we used to fill out our series.

Compared to the statistical tables that the interwar tax administration compiled within the framework of the schedular wage tax, the statistical tables compiled by INSEE since the Second World War present certain difficulties that have forced us to carry out a number of adjustments in order to arrive at our final series; this means that the series obtained are of lower quality than those for the interwar era.<sup>6</sup> The adjustments that we have made are laid out in detail in Tables D-11 to D-14,<sup>7</sup> and here we will merely point out the main difficulties.

First, the INSEE tables, unfortunately, were not compiled every year. An initial analysis of wage declarations was undertaken jointly by INSEE and the Finance Ministry for the 1947 wage-year, but it was not repeated for the 1948 and 1949 wage-years. Since the 1950 wage-year, wage declarations have been subjected to almost annual statistical analysis and publication by INSEE, though with gaps for the 1953 and 1958 wage-years (only declarations from the provinces were analyzed for the 1953 wage-year, and no table by wage bracket was drawn up for the 1958 wages), as well as for the 1981, 1983, and 1990 wage-years (the corresponding declarations were not analyzed at all, because of the

TABLE D-8

*The raw statistical tables compiled by INSEE from employer wage declarations (1947 and 1950–1952 wages)*

1947					1950		
$s_i$	$N_i$	$Y_i$	$p_i$	$b_i$	$s_i$	$N_i$	$p_i$
0	2,645,762	174,085,604	50.90		Others	280,340	
100,000	2,076,592	275,014,670	39.95	1.70	0	1,037,950	14.89
200,000	295,162	70,120,624	5.68	1.67	125,000	700,680	10.05
300,000	92,036	31,444,294	1.77	1.63	150,000	828,570	11.88
400,000	38,304	16,983,862	0.74	1.61	175,000	811,035	11.63
500,000	19,194	10,446,912	0.37	1.59	200,000	736,920	10.57
600,000	10,570	6,817,636	0.20	1.58	225,000	635,035	9.11
700,000	6,594	4,917,626	0.13	1.57	250,000	862,810	12.37
800,000	3,822	3,217,634	0.07	1.58	300,000	487,120	6.99
900,000	2,884	2,750,594	0.06	1.58	350,000	272,340	3.91
1,000,000	7,378	11,876,928	0.14	1.61	400,000	269,635	3.87
Total	5,198,298	607,676,384	100.0		500,000	119,680	1.72
					600,000	104,690	1.50
					800,000	44,010	0.63
					1,000,000	65,365	0.94
					Total	7,253,380	100.0

1951a					1951b				
$s_i$	$N_i$	$Y_i$	$p_i$	$b_i$	$s_i$	$N_i$	$Y_i$	$p_i$	$b_i$
0	106,800	6,886	1.87		0	191,800	13,175	2.69	
100,000	121,600	14,141	2.13	3.42	100,000	192,100	22,143	2.69	3.27

125,000	212,900	29,373	3.73	2.78	125,000	317,600	43,853	4.45	2.67
150,000	360,400	58,601	6.31	2.37	150,000	511,600	83,236	7.17	2.29
175,000	445,100	83,361	7.80	2.11	175,000	608,300	114,018	8.53	2.05
200,000	494,400	104,735	8.66	1.94	200,000	656,700	139,228	9.20	1.89
225,000	514,300	121,835	9.01	1.82	225,000	653,200	154,792	9.16	1.78
250,000	974,700	267,120	17.07	1.74	250,000	1,184,900	324,539	16.61	1.71
300,000	766,100	247,416	13.42	1.66	300,000	899,500	290,534	12.61	1.64
350,000	513,900	191,473	9.00	1.65	350,000	586,500	218,535	8.22	1.64
400,000	539,400	238,718	9.45	1.67	400,000	608,600	269,455	8.53	1.65
500,000	241,800	131,401	4.24	1.70	500,000	269,200	146,307	3.77	1.69
600,000	211,800	144,416	3.71	1.71	600,000	231,200	157,653	3.24	1.71
800,000	83,000	73,402	1.45	1.73	800,000	89,900	79,601	1.26	1.72
1,000,000	74,300	89,588	1.30	1.72	1,000,000	80,500	97,065	1.13	1.71
1,500,000	24,000	41,483	0.42	1.67	1,500,000	26,100	45,033	0.37	1.66
2,000,000	24,700	80,204	0.43	1.62	2,000,000	26,600	85,889	0.37	1.61
Total	5,709,200	1,924,153	100.0		Total	7,134,300	2,285,056	100.0	

1952a

1952b

$s_i$	$N_i$	$Y_i$	$p_i$	$b_i$	$s_i$	$N_i$	$Y_i$	$p_i$	$b_i$
0	142,200	7,921	2.35		0	222,500	12,586	2.96	
100,000	81,100	9,158	1.34	3.96	100,000	124,700	14,073	1.66	3.79
125,000	126,500	17,464	2.09	3.20	125,000	187,800	25,926	2.50	3.06
150,000	219,700	35,872	3.63	2.70	150,000	317,200	51,806	4.22	2.60
175,000	349,500	65,502	5.78	2.37	175,000	478,700	89,808	6.36	2.29
200,000	414,900	87,970	6.86	2.15	200,000	562,400	119,340	7.47	2.08

(continued)

TABLE D-8  
(continued)

1952a					1952b				
$s_i$	$N_i$	$Y_i$	$p_i$	$b_i$	$s_i$	$N_i$	$Y_i$	$p_i$	$b_i$
225,000	443,300	104,936	7.33	2.00	225,000	583,400	138,227	7.75	1.94
250,000	888,700	244,007	14.70	1.89	250,000	1,137,200	312,116	15.11	1.84
300,000	840,200	272,284	13.89	1.75	300,000	1,020,100	330,494	13.56	1.72
350,000	680,600	254,470	11.26	1.69	350,000	797,700	298,197	10.60	1.66
400,000	811,300	360,329	13.42	1.67	400,000	931,600	413,554	12.38	1.65
500,000	393,300	213,967	6.50	1.69	500,000	443,800	241,458	5.90	1.67
600,000	332,800	227,057	5.50	1.71	600,000	367,900	250,875	4.89	1.69
800,000	131,000	116,454	2.17	1.72	800,000	142,800	126,857	1.90	1.71
1,000,000	114,800	136,849	1.90	1.71	1,000,000	124,100	147,956	1.65	1.70
1,500,000	38,600	66,423	0.64	1.65	1,500,000	41,300	71,200	0.55	1.65
2,000,000	34,700	96,786	0.57	1.62	2,000,000	36,600	101,889	0.49	1.62
5,000,000	3,800	27,912	0.06	1.47	5,000,000	4,000	29,809	0.05	1.49
Total	6,047,000	2,345,361	100.0		Total	7,523,800	2,776,171	100.0	

*Sources:* Raw data copied directly from the tables compiled and published by INSEE; 1947: *S&EF* no. 2 (February 1949), p. 86 (the raw figures were multiplied by 14 in order to take the survey sampling rate into account); 1950: *BMS* supplement October–December 1952, p. 53; 1951: *BMS* supplement October–December 1953, p. 58; 1952: *BMS* supplement October–December 1954, p. 60.

*Explanation:* In 1947, 7,378 wage earners had an annual wage greater than 1 million francs, the total amount of their wages was 11.877 billion francs; these workers represented 0.14 percent of the total number of wage earners, and the ratio between their average wage and the 1 million franc threshold was 1.61. For 1951–1952, the suffix “a” refers to the table compiled for permanent workers only, and the suffix “b” refers to the table compiled for all wage earners (for 1947, the table covers permanent workers only; for 1950, the table covers all wage earners).

*Note:* The tabulation of 1947 wage declarations was also published in *S&EF* “supplément statistiques” no. 5–6 (1950), pp. 5–434, and in *BSGF* “supplément juillet–septembre” 1949, pp. 251–268.



burden of tabulating the 1982 and 1990 censuses). We have filled in these missing years using linear interpolation (except for 1948–1949, which we have left blank). Also, since the latest available tables at the time of this writing are for the 1996 wage-year, we have filled out our series using the wage distributions observed in the 1997 and 1998 *Emploi* studies as an indicator of change.<sup>8</sup>

Second, except for the 1947 and 1951–1952 wage-years, as well as the 1993–1996 wage-years (for which we have special tabulations carried out by INSEE at our request), the INSEE tables show only the numbers of wage earners whose wages fall within this or that wage bracket, and not the total amount of wages corresponding to each of the brackets (see the raw data reproduced in Tables D-8, D-9, and D-10).<sup>9</sup> As a result, we have not been able to apply our usual extrapolation procedure via Pareto law to the 1950 and 1956–1992 wage-years (we described this procedure in Appendix B, section 1.1), and for these years we had to apply an extrapolation procedure via Pareto law similar to that used by Feenberg and Poterba (1993).<sup>10</sup> Another important imperfection in the available data comes from the fact that the highest wage brackets INSEE uses to tabulate wage declarations do not go high enough in the wage distribution: except for the 1993–1996 wage-years (for which the specific purpose of the special tabulations we requested from INSEE was precisely to provide information about very high wages), the highest wage bracket used by INSEE generally comprises just under 1 percent of wage earners (and sometimes more than 1 percent of wage earners) (see Tables D-8, D-9, and D-10). That is why our estimates generally do not go beyond the top 1 percent of the wage distribution (see Tables D-11 and D-14 to D-16): we could have estimated the top fractiles, but the results would have been relatively fragile. For the 1954–1955 wage-years, the level of the top bracket used by INSEE is so low that the INSEE tables only just permit an estimate of the P90 threshold, so we have chosen not to use those tables (that is why the raw data reproduced in Table D-8 begin only in 1956).

These imperfections in the INSEE tables are especially regrettable since it is impossible to go backwards: for the relatively “older” periods (especially the 1950s and 1960s), the only data concerning the employer wage declarations that INSEE preserved are the tabulations carried out at the time, which we have reproduced in Tables B-8 and B-9. Indeed, all retrospective studies of wage inequality in France have been based on these same tabulations. In particular, it was by using all of these tabulations that Baudelot and Lebeauupin (1979a, 1979b) estimated series for the evolution of the P10, P50, and P90 thresholds

TABLE D-9

*The raw statistical tables compiled by INSEE from employer wage declarations (1956–1992 wages)*

	1956	1957	1959		1960	1961	1962		1963a	1963b	1964	1965	1966
$s_i$	$P_i$	$P_i$	$P_i$	$s_i$	$P_i$	$P_i$	$P_i$	$s_i$	$P_i$	$P_i$	$P_i$	$P_i$	$P_i$
0	4.8	4.3	3.2	0	2.8	2.7	2.9	0	4.5	5.9	5.1	4.6	4.5
200,000	16.8	12.3	6.4	2,000	4.3	3.1	2.1	3,000	4.2	5.5	4.1	3.4	2.7
300,000	21.3	18.8	14.9	3,000	11.6	9.4	6.1	4,000	7.9	9.4	7.4	6.5	5.2
400,000	19.1	18.4	16	4,000	14.0	12.3	9.8	5,000	10.2	11.4	9.8	8.9	7.7
500,000	13.3	14.7	15.2	5,000	14.9	14.0	11.8	6,000	21.9	22.5	21.4	20.1	18.6
600,000	12.8	16.2	21	6,000	22.9	24.1	23.6	8,000	18.6	17.4	18.8	18.7	18.8
800,000	5.0	6.5	9.9	8,000	12.3	14.0	17.0	10,000	19.9	17.4	20.9	23.3	25.6
1,000,000	4.1	5.2	8	10,000	10.5	12.5	16.2	15,000	6.0	5.1	6.1	7.1	8.2
1,500,000	1.3	1.7	2.4	15,000	3.0	3.6	4.9	20,000	6.0	4.8	5.6	6.5	7.6
2,000,000	1.1	1.4	2.1	20,000	2.6	3.0	3.9	50,000	0.8	0.6	0.8	0.9	1.1
3,500,000	0.4	0.5	0.9	35,000	1.1	0.8	1.0	Total	100.0	100.0	100.0	100.0	100.0
Total	100.0	100.0	100.0	50,000		0.5	0.7	Headcount	6,627	9,302	9,738	10,308	10,137
Headcount	6,095	6,505	6,498	Total	100.0	100.0	100.0						
				Headcount	6,804	6,953	6,556						

1967	1968		1969		1970		1971	1972	1973	1974	1975		1976
$P_i$	$P_i$	$s_i$	$P_i$	$s_i$	$P_i$	$s_i$	$P_i$	$P_i$	$P_i$	$P_i$	$P_i$	$s_i$	$P_i$
4.2	3.1	0	3.0	0	6.2	0	5.4	5.1	4.4	2.9	3.10	0	1.93
2.3	1.3	4,000	1.2	6,000	8.0	6,000	5.1	3.1	1.7	1.1	0.86	6,000	0.81

4.4	2.5	5,000	2.5	8,000	13.9	8,000	10.6	7.2	3.9	1.8	1.12	8,000	0.88
6.8	5.3	6,000	12.4	10,000	34.2	10,000	32.3	29.0	23.8	15.8	8.17	10,000	3.93
17.4	15.8	8,000	16.4	15,000	18.6	15,000	22.2	24.5	25.4	24.0	19.96	15,000	13.17
18.2	17.6	10,000	34.2	20,000	11.7	20,000	15.0	19.2	25.4	31.7	35.09	20,000	18.74
27.6	30.9	15,000	14.9	30,000	3.6	30,000	4.6	5.8	7.6	11.4	15.83	25,000	17.12
9.2	11.3	20,000	9.3	40,000	1.5	40,000	1.9	2.4	3.2	4.6	6.70	30,000	21.28
8.6	10.6	30,000	4.1	50,000	0.8	50,000	1.0	1.3	1.6	2.3	3.23	40,000	9.26
1.3	1.6	50,000	2.0	60,000	0.8	60,000	0.6	0.7	0.9	1.3	1.81	50,000	4.56
100.0	100.0	Total	100.0	80,000	0.7	70,000	0.4	0.5	0.6	0.8	1.09	60,000	2.55
10,221	10,218	Headcount	10,317	Total	100.0	80,000	0.6	0.8	1	1.4	1.93	70,000	1.56
				Headcount	10,784	120,000	0.1	0.2	0.2	0.4	0.50	80,000	2.63
						150,000	0.2	0.2	0.3	0.4	0.59	120,000	0.70
				Total	100.0	100.0	100.0	99.9	100.0	99.9	100.0	150,000	0.87
				Headcount	11,233	11,614.3	11,901	12,367	12,491	Total	100.0	Headcount	12,424

1977	1978	1979		1980	1982	1984	1985	1986	1987	1988	1989	1991	1992
$P_i$	$P_i$	$P_i$	$s_i$	$P_i$	$P_i$	$P_i$	$P_i$	$P_i$	$P_i$	$P_i$	$P_i$	$P_i$	$P_i$
2.03	1.09	0.83	0	3.07	2.18	1.55	1.67	1.47	1.46	1.36	1.15	0.94	0.76
0.64	0.58	0.84	15,000	1.81	1.24	0.77	0.80	0.70	0.98	0.8	0.94	0.74	0.6
0.61	0.62	0.51	20,000	3.57	1.54	1.02	0.67	0.83	0.65	0.75	0.68	0.67	0.59
2.56	1.94	1.43	25,000	8.5	1.92	1.19	0.99	1.04	0.89	1.04	0.77	0.74	0.73
8.47	4.22	2.54	30,000	11.18	4.14	1.43	1.19	1.11	1.12	1.17	1.11	0.91	1.03
15.62	10.94	7.74	35,000	12.32	7.86	2.48	1.62	1.34	1.22	1.19	1.13	1.01	1.01
16.92	15.04	12.54	40,000	21.54	19.19	13.99	9.97	7.43	6.05	5.09	4.21	2.31	2.12
24.77	27.50	27.42	50,000	13.74	18.07	17.14	15.84	14.45	13.5	12.06	10.78	6.40	5.23

(continued)

TABLE D-9  
(continued)

1977	1978	1979		1980	1982	1984	1985	1986	1987	1988	1989	1991	1992
$P_i$	$P_i$	$P_i$	$s_i$	$P_i$	$P_i$	$P_i$	$P_i$	$P_i$	$P_i$	$P_i$	$P_i$	$P_i$	$P_i$
11.86	15.74	18.68	60,000	7.94	13.22	15.40	15.38	14.95	14.8	14.04	13.31	11.43	10.55
5.91	8.04	10.12	70,000	4.71	8.65	12.01	12.80	13.33	13.5	13.52	13.12	12.37	11.99
3.23	4.49	5.56	80,000	4.97	9.41	14.22	16.44	18.06	18.66	19.81	20.42	21.51	21.53
2.03	2.69	3.31	100,000	4.21	7.92	11.91	14.31	15.88	16.99	18.2	20.13	25.37	27.02
3.36	4.47	5.35	150,000	1.33	2.41	3.48	4.18	4.63	4.99	5.37	6.00	7.78	8.57
0.87	1.16	1.34	200,000	0.79	1.56	2.29	2.73	3.12	3.32	3.58	3.97	4.98	5.28
1.11	1.48	1.78	300,000	0.32	0.69	1.15	1.40	1.67	1.86	2.03	2.29	2.86	3.01
100.0	100.0	100.0	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
12,758	12,575	12,869	Headcount	12,705	12,304	11,708	11,556	11,537	11,668	11,960	12,152	12,396	12,492

Sources: Raw data from the tables compiled and published by INSEE; 1956: Etudes statistiques (supp. *BMS* Oct.–Dec. 1958), p. 64; 1957: Etudes statistiques (supp. *BMS* Jul.–Sept. 1959), p. 294; 1959: Etudes statistiques (supp. *BMS* Oct.–Dec. 1961), p. 431; 1960: Etudes statistiques (supp. *BMS* Apr.–June 1962), p. 181; 1961: Etudes statistiques (supp. *BMS* Apr.–June 1963), p. 156; 1962: Etudes statistiques (supp. *BMS* Apr.–June 1964), p. 113; 1963: *E&C* November 1965 (n 11), pp. 57–58; 1964: *E&C* July 1966 (n 7), p. 36; 1965: *E&C* April 1967 (n 4), p. 32; 1966: *E&C* July 1968 (n 7), p. 33; 1967 and 1968: *Les Collections de l'INSEE* n 36 (series M n 8), January 1971, pp. 97 and 100; 1969: *Les Collections de l'INSEE* n 80 (series M n 20), January 1973, p. 58; 1970: *Les Collections de l'INSEE* n 112 (series M n 29), Dec. 1973, p. 62; 1971: *Les Collections de l'INSEE* n 135 (series M n 36), June 1974, p. 71; 1972: *Les Collections de l'INSEE* n 164 (series M n 45), Sept. 1975, p. 71; 1973: *Les Collections de l'INSEE* n 233 (series M n 60), June 1977, p. 78; 1974: *Les Collections de l'INSEE* n 304 (series M n 76), May 1979, p. 108; 1975: *Les Collections de l'INSEE* n 343 (series M n 82), Feb. 1980, p. 90; 1976, 1977, 1978 and 1979: Archives et documents n 107, July 1984, pp. 67, 121, 173 and 225; 1980: *Les Collections de l'INSEE* n 493 (series M n 113), July 1985, p. 141; 1982: Archives et documents n 212, Sept. 1987, p. 69; 1984: Archives et documents n 249, June 1988, p. 84; 1985 and 1986: Archives et documents n 276, Dec. 1988, pp. 56 and 114; 1987, 1988, 1989 and 1991: *INSEE-Résultats* n 367–368–369 (series Emploi-Revenus n 76–77–78), February 1995, pp. 124, 156, 188 and 220; 1992: *INSEE-Résultats* n 426 (series Emploi-Revenus n 97), nov. 1995, p. 52.

Explanation: In 1956, 0.4 percent of wage earners had an annual wage above 3.5 million francs. For 1963, the suffix “a” refers to the table compiled for permanent workers only, and the suffix “b” refers to the table compiled for all wage earners (for 1956–1962, the tables cover permanent workers only; for 1964–1992, the tables cover all wage earners).

Note: Here we only give references to the INSEE publications where the definitive results of the analyses of wage declarations were published.

TABLE D-10

*The raw statistical tables compiled by INSEE from employer wage declarations (1993–1996 wages)*

1993a					1993b				
$s_i$	$N_i$	$Y_i$	$p_i$	$b_i$	$s_i$	$N_i$	$Y_i$	$p_i$	$b_i$
0	314,489	30,124	3.06		0	509,585	29,841	4.09	
40,000	172,067	45,270	1.68	2.99	40,000	270,581	45,256	2.17	3.00
50,000	443,758	56,132	4.32	2.42	50,000	607,399	56,030	4.88	2.43
60,000	965,098	65,329	9.41	2.06	60,000	1,231,884	65,293	9.90	2.09
70,000	1,163,886	75,034	11.34	1.87	70,000	1,418,764	74,992	11.40	1.90
80,000	1,157,945	84,965	11.28	1.75	80,000	1,386,656	84,895	11.14	1.78
90,000	1,101,500	94,936	10.73	1.67	90,000	1,294,955	94,933	10.40	1.71
100,000	1,745,790	109,231	17.01	1.62	100,000	1,970,636	109,225	15.83	1.67
120,000	1,388,076	133,318	13.53	1.59	120,000	1,592,478	133,412	12.79	1.65
150,000	956,019	170,417	9.32	1.57	150,000	1,107,970	170,536	8.90	1.63
200,000	556,451	239,071	5.42	1.55	200,000	671,090	239,531	5.39	1.61
300,000	233,707	368,731	2.28	1.47	300,000	293,997	369,402	2.36	1.56
500,000	56,323	637,646	0.55	1.43	500,000	80,577	644,201	0.65	1.56
1,000,000	5,304	1,270,315	0.05	1.46	1,000,000	9,667	1,290,236	0.08	1.71
2,000,000	582	2,652,329	0.006	1.51	2,000,000	1,606	2,756,530	0.013	1.96
5,000,000	53	7,068,195	0.001	1.41	5,000,000	251	11,387,239	0.002	2.28
Total	10261048	116,748	100.0		Total	12,448,097	116,213	100.0	

(continued)

TABLE D-10  
(continued)

1994a					1994b				
$s_i$	$N_i$	$Y_i$	$p_i$	$b_i$	$s_i$	$N_i$	$Y_i$	$p_i$	$b_i$
0	186,577	30,170	1.92		0	308,413	29,580	2.58	
40,000	101,167	45,493	1.04	3.05	40,000	171,859	45,539	1.44	3.02
50,000	354,677	56,353	3.65	2.46	50,000	528,891	56,292	4.43	2.44
60,000	869,547	65,378	8.95	2.09	60,000	1,178,062	65,325	9.86	2.09
70,000	1,081,368	75,052	11.13	1.88	70,000	1,379,636	75,019	11.54	1.89
80,000	1,107,478	84,977	11.40	1.75	80,000	1,342,433	84,970	11.23	1.77
90,000	1,053,161	94,925	10.84	1.67	90,000	1,239,894	94,899	10.37	1.70
100,000	1,714,478	109,356	17.65	1.62	100,000	1,974,906	109,303	16.53	1.65
120,000	1,391,423	133,184	14.32	1.59	120,000	1,623,671	133,215	13.59	1.62
150,000	1,002,975	170,312	10.32	1.55	150,000	1,155,821	170,460	9.67	1.59
200,000	564,060	238,978	5.81	1.54	200,000	683,892	239,035	5.72	1.57
300,000	229,547	367,988	2.36	1.47	300,000	282,677	368,672	2.37	1.51
500,000	53,571	637,285	0.55	1.44	500,000	70,904	641,785	0.59	1.51
1,000,000	5,296	1,276,219	0.05	1.46	1,000,000	8,491	1,287,099	0.07	1.56
2,000,000	620	2,692,890	0.006	1.47	2,000,000	1,250	2,733,476	0.010	1.63
5,000,000	40	6,666,186	0.000	1.33	5,000,000	122	8,599,201	0.001	1.72
Total	9,715,985	120,218	100.0		Total	11,950,924	118,541	100.0	

1995a					1995b				
$s_i$	$N_i$	$Y_i$	$p_i$	$b_i$	$s_i$	$N_i$	$Y_i$	$p_i$	$b_i$
0	193,331	30,481	1.97		0	316,428	29,826	2.61	
40,000	104,543	45,321	1.06	3.09	40,000	176,088	45,444	1.45	3.06
50,000	321,276	56,328	3.27	2.49	50,000	483,218	56,304	3.98	2.47
60,000	846,389	65,428	8.60	2.11	60,000	1,175,776	65,371	9.69	2.11
70,000	1,074,866	75,039	10.93	1.90	70,000	1,405,437	74,990	11.58	1.91
80,000	1,085,940	84,958	11.04	1.77	80,000	1,339,273	84,907	11.03	1.79
90,000	1,036,213	94,917	10.53	1.68	90,000	1,236,051	94,911	10.18	1.71
100,000	1,742,552	109,384	17.71	1.63	100,000	1,989,509	109,437	16.39	1.66
120,000	1,476,066	133,016	15.00	1.58	120,000	1,688,319	133,223	13.91	1.62
150,000	1,068,752	170,130	10.86	1.55	150,000	1,231,320	170,582	10.14	1.59
200,000	585,252	238,336	5.95	1.54	200,000	709,559	239,112	5.85	1.58
300,000	240,139	367,594	2.44	1.47	300,000	299,958	368,928	2.47	1.52
500,000	55,577	636,942	0.56	1.45	500,000	76,049	641,940	0.63	1.52
1,000,000	5,556	1,276,110	0.06	1.50	1,000,000	9,397	1,294,474	0.08	1.57
2,000,000	688	2,672,649	0.007	1.55	2,000,000	1,408	2,713,195	0.012	1.62
5,000,000	74	7,108,542	0.001	1.42	5,000,000	151	8,153,640	0.001	1.63
Total	9,837,214	121,657	100.0		Total	12,137,940	120,035	100.0	

(continued)

TABLE D-10  
(continued)

1996a					1996b				
$s_i$	$N_i$	$Y_i$	$p_i$	$b_i$	$s_i$	$N_i$	$Y_i$	$p_i$	$b_i$
0	189,963	30,707	1.91		0	314,769	29,975	2.57	
40,000	112,850	45,078	1.13	3.14	40,000	191,024	45,259	1.56	3.11
50,000	270,074	56,353	2.71	2.53	50,000	414,556	56,228	3.39	2.51
60,000	779,587	65,479	7.83	2.14	60,000	1,087,232	65,383	8.89	2.13
70,000	1,051,305	75,084	10.56	1.92	70,000	1,368,689	75,024	11.20	1.93
80,000	1,090,969	84,985	10.95	1.78	80,000	1,339,071	84,938	10.95	1.80
90,000	1,050,494	94,947	10.55	1.69	90,000	1,239,507	94,918	10.14	1.72
100,000	1,784,699	109,544	17.92	1.63	100,000	2,037,786	109,489	16.67	1.66
120,000	1,570,144	133,153	15.76	1.58	120,000	1,785,946	133,189	14.61	1.61
150,000	1,129,014	170,594	11.34	1.55	150,000	1,300,285	170,723	10.64	1.59
200,000	617,045	238,614	6.20	1.54	200,000	745,007	238,892	6.09	1.57
300,000	249,240	368,184	2.50	1.47	300,000	311,904	369,103	2.55	1.51
500,000	57,615	638,234	0.58	1.45	500,000	78,693	641,562	0.64	1.49
1,000,000	5,874	1,280,268	0.06	1.49	1,000,000	9,285	1,289,424	0.08	1.52
2,000,000	791	2,691,697	0.008	1.47	2,000,000	1,356	2,697,699	0.011	1.50
5,000,000	47	7,296,161	0.000	1.46	5,000,000	91	7,489,096	0.001	1.50
<b>Total</b>	<b>9,959,711</b>	<b>123,650</b>	<b>100.0</b>		<b>Total</b>	<b>12,225,203</b>	<b>121,832</b>	<b>100.0</b>	

*Source:* Analyses of the DADS undertaken at my request by INSEE (Sylvie Lagarde and Fabrice Loones, Division Exploitation des fichiers administratifs, April 1999). For 1996, these figures are strictly identical to the figures published by INSEE (see *INSEE-Résultats* no. 615 [série Emploi-Revenus no. 140], July 1998, p. 33), with the only difference being that the top bracket in the published table was 300,000 francs; for 1993–1995, these figures are very slightly different from the published figures, due to improvements in DADS analyses since the appearance of the publications in question.

*Explanation:* In 1996a, 47 wage earners had an annual wage above 5 million francs, and their average wage was 7.296 million francs; these workers represented less than 0.001 percent of the total number of wage earners, and the ratio between the average wage and the 5-million-franc threshold was 1.46. The suffix “a” refers to the tables compiled for permanent workers only, and the suffix “b” refers to the tables compiled for all wage earners.



TABLE D-II

*Raw results from the procedure of extrapolation using a Pareto law*

	P90-100	P95-100	P99-100	P99.9-100	P99.99-100	P90	P95	P99	P99.9	P99.99
1947(1)	321,640	425,177	784,748	1,838,111		193,072	260,688	494,465	1,141,843	
1947(2)	328,368	443,404	816,650			192,851	257,677	494,092		
(2)/(1)	1.02	1.04	1.04			1.00	0.99	1.00		
1950	592,001	789,238	1,716,326			379,784	491,834	972,366		
1951a(1)	901,777	1,204,550	2,344,867	5,699,211		530,614	697,316	1,407,648	3,510,311	
1951b(1)	850,116	1,132,184	2,203,357	5,328,169		502,871	656,957	1,330,375	3,300,290	
$b(1)/a(1)$	0.94	0.94	0.94	0.93		0.95	0.94	0.95	0.94	
1951a(2)	881,722	1,181,064	2,488,005			529,672	700,569	1,399,183		
1951b(2)	826,626	1,111,174	2,334,968			502,753	661,662	1,313,925		
$b(2)/a(2)$	0.94	0.94	0.94			0.95	0.94	0.94		
$a(2)/a(1)$	0.98	0.98	1.06			1.00	1.00	0.99		
$b(2)/b(1)$	0.97	0.98	1.06			1.00	1.01	0.99		
1952a(1)	1,058,987	1,414,778	2,728,476	6,332,697		620,459	822,335	1,651,039	4,310,735	
1952b(1)	996,545	1,327,196	2,561,715	6,053,414		588,173	775,240	1,551,058	4,061,467	
$b(1)/a(1)$	0.94	0.94	0.94	0.96		0.95	0.94	0.94	0.94	
1952a(2)	1,044,087	1,440,662	2,832,033			620,059	822,879	1,658,830		
1952b(2)	979,914	1,344,465	2,632,182			588,468	774,781	1,553,091		
$b(2)/a(2)$	0.94	0.93	0.93			0.95	0.94	0.94		
$a(2)/a(1)$	0.99	1.02	1.04			1.00	1.00	1.00		
$b(2)/b(1)$	0.98	1.01	1.03			1.00	1.00	1.00		
1956	1,454,607	2,099,811	4,118,143			859,055	1,155,806	2,374,570		

(continued)

TABLE D-11  
(continued)

	P90-100	P95-100	P99-100	P99.9-100	P99.99-100	P90	P95	P99	P99.9	P99.99
1957	1,592,020	236,5310	4,506,549			949,734	1,292,328	2617460		
1959	2,057,286	3,050,683	6,227,156			1,139,475	1,557,578	3,332,726		
1960	22,155	33,531	67,897			12,627	17,285	36,573		
1961	23,686	35,336	74,354			13,562	18,623	39,571		
1962	27,091	39,754	78,533			15,321	21,093	44,111		
1963a	30,783	39,896	85,270			16,782	22,814	46,635		
1963b	27,001	35,426	76,039			15,320	20,652	41,484		
<i>b/a</i>	<i>0.88</i>	<i>0.89</i>	<i>0.89</i>			<i>0.91</i>	<i>0.91</i>	<i>0.89</i>		
1964	28,951	39,864	81,017			16,510	22,298	45,318		
1965	30,723	41,972	84,519			17,583	23,718	47,761		
1966	33,223	45,901	93,652			18,829	25,563	52,157		
1967	35,416	49,616	102,587			19,912	27,222	56,286		
1968	39,852	54,480	112,593			21,877	29,906	61,807		
1969	42,980	60,638	122,266			24,162	32,861	68,686		
1970	46,080	62,516	112,320			26,376	35,532	69,923		
1971	50,826	68,723	120,899			29,221	39,307	76,997		
1972	56,774	78,950	135,623			32,333	43,712	85,568		
1973	62,400	83,592	147,265			36,010	48,269	92,914		
1974	72,587	97,952	183,138			41,959	56,270	109,733		
1975	81,212	111,566	194,543			48,228	64,437	123,819		
1976	95,240	128,743	228,789			55,545	74,315	142,308		
1977	106,801	138,978	254,152			61,501	82,180	156,159		
1978	117,409	156,412	283,966			69,424	92,399	174,477		

1979	125,670	166,816	313,168			74,799	99,089	188,651		
1980	141,540	188,424	307,000			84,949	112,224	206,921		
1982	185,603	246,316	402,067			109,824	145,749	264,144		
1984	217,192	291,411	501,505			129,219	171,468	315,924		
1985	233,859	314,117	544,345			139,167	184,872	340,322		
1986	248,248	341,757	594,026			146,366	196,383	365,445		
1987	263,404	335,724	634,873			151,082	202,820	383,543		
1988	273,146	348,344	661,929			156,130	209,397	397,901		
1989	286,131	366,903	702,059			163,668	218,970	418,992		
1991	310,108	400,804	765,552			180,685	239,649	457,738		
1992	311,665	408,243	777,426			185,364	244,857	466,286		
1993a	289,800	370,267	615,742	1,227,618	2,568,633	187,303	251,453	430,079	842,284	1,700,576
1993b	303,153	393,635	698,686	1,660,263	4,772,879	187,962	252,925	448,957	968,366	2,433,222
<i>b/a</i>	<i>1.05</i>	<i>1.06</i>	<i>1.13</i>	<i>1.35</i>	<i>1.86</i>	<i>1.00</i>	<i>1.01</i>	<i>1.04</i>	<i>1.15</i>	<i>1.43</i>
1994a	293,594	373,223	619,663	1,251,321	2,593,968	191,127	254,244	430,566	857,134	1,768,396
1994b	299,081	383,713	660,777	1,456,791	3,433,014	190,657	253,384	438,170	933,329	2,109,338
<i>b/a</i>	<i>1.02</i>	<i>1.03</i>	<i>1.07</i>	<i>1.16</i>	<i>1.32</i>	<i>1.00</i>	<i>1.00</i>	<i>1.02</i>	<i>1.09</i>	<i>1.19</i>
1995a	296,377	377,202	627,714	1,292,049	2,834,036	192,925	256,733	433,096	863,381	1,826,389
1995b	304,316	391,310	677,464	1,513,880	3,565,893	192,683	257,088	446,303	963,435	2,201,074
<i>b/a</i>	<i>1.03</i>	<i>1.04</i>	<i>1.08</i>	<i>1.17</i>	<i>1.26</i>	<i>1.00</i>	<i>1.00</i>	<i>1.03</i>	<i>1.12</i>	<i>1.21</i>
1996a	299,891	380,839	634,226	1,307,823	2,790,366	195,322	258,612	436,208	878,483	1,891,810
1996b	306,709	393,180	673,608	1,453,686	3,172,256	195,383	260,211	450,890	956,416	2,115,525
<i>b/a</i>	<i>1.02</i>	<i>1.03</i>	<i>1.06</i>	<i>1.11</i>	<i>1.14</i>	<i>1.00</i>	<i>1.01</i>	<i>1.03</i>	<i>1.09</i>	<i>1.12</i>

*Explanation:* For those years for which tables by wage bracket are available both for permanent workers and for all wage earners (1951–1952, 1963, and 1993–1996), the suffix “a” refers to the estimates for permanent wage earners only, and the suffix “b” refers to the estimates for all wage earners. Also, for the years 1947 and 1951–1952, the notation “(1)” refers to the estimates obtained using the usual extrapolation procedure, and the notation “(2)” refers to estimates obtained using the Feenberg-Poterba procedure. The lines in italics indicate the ratios between the different estimates obtained for the same year. For example, for 1996, our estimate of the average wage of fractile P90–100 is 299,891 francs when taking only permanent wage earners into account, and 306,709 francs when taking all wage earners into account, or a gap of 2 percent.

## APPENDIX D

TABLE D-12

*Comparison with the P10, P50, and P90 estimates published by INSEE*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	P10	P50	P90	ratio P90	ratios EE90-98		
1947							
1950	112,000	220,100	398,000	1.05			
1951	150,000	265,000	510,000	1.01			
1952	163,000	310,000	595,000	1.01			
1953							
1954	190,000	340,000	660,000				
1955	222,000	358,000					
1956	240,000	435,000	860,000	1.00			
1957	250,000	480,000	940,000	0.99			
1958							
1959	305,000	560,000	1,125,000	0.99			
1960	3,270	6,173	12,486	0.99			
1961	3,500	6,500	13,200	0.97			
1962	3,900	7,400	15,200	0.99			
1963	3,800	7,550	15,100	0.99			
1964	4,150	8,200	16,400	0.99			
1965	4,361	8,642	17,952	1.02			
1966	4,550	9,100	19,000	1.01			
1967	4,900	9,650	20,000	1.00			
1968	5,650	10,600	21,500	0.98			
1969	6,800	11,800	24,000	0.99			
1970	7,173	12,966	26,279	1.00			
1971	7,900	14,500	29,200	1.00			
1972	8,700	16,000	32,300	1.00			
1973	10,000	18,000	36,000	1.00			
1974	12,100	21,000	42,200	1.01			
1975	13,776	24,015	48,208	1.00			
1976	16,323	27,918	55,093	0.99			
1977	18,129	30,949	60,686	0.99			
1978	20,876	35,132	68,846	0.99			
1979	23,007	38,495	74,752	1.00			
1980	26,092	44,029	84,854	1.00			

APPENDIX D

(8)	(9)	(10)	(11)	(12)	(13)	(14)
P10*	P50*	P90*	P10 / average	P50 / average	P90 / average	P90*/P10*
		181,487				
112,000	187,666	364,593	0.48	0.81	1.57	3.26
150,000	265,000	502,871	0.48	0.84	1.60	3.35
163,000	310,000	588,173	0.44	0.83	1.58	3.61
171,200	315,515	605,674	0.45	0.83	1.59	3.54
179,399	321,030	623,176	0.43	0.77	1.50	3.47
202,040	364,132	713,699	0.44	0.79	1.55	3.53
224,681	407,234	804,221	0.44	0.80	1.58	3.58
233,051	447,458	885,345	0.42	0.80	1.58	3.80
257,492	482,552	969,321	0.41	0.77	1.55	3.76
281,933	517,647	1,053,296	0.42	0.78	1.59	3.74
3,010	5,682	11,623	0.41	0.78	1.59	3.86
3,208	5,958	12,432	0.41	0.75	1.57	3.87
3,560	6,755	13,986	0.41	0.78	1.61	3.93
3,800	7,550	15,100	0.40	0.79	1.59	3.97
4,150	8,200	16,400	0.41	0.81	1.62	3.95
4,361	8,642	17,952	0.41	0.80	1.67	4.12
4,550	9,100	19,000	0.40	0.80	1.66	4.18
4,900	9,650	20,000	0.41	0.80	1.66	4.08
5,650	10,600	21,500	0.43	0.80	1.62	3.81
6,800	11,800	24,000	0.46	0.80	1.64	3.53
7,173	12,966	26,279	0.45	0.81	1.64	3.66
7,900	14,500	29,200	0.44	0.82	1.64	3.70
8,700	16,000	32,300	0.44	0.82	1.65	3.71
10,000	18,000	36,000	0.46	0.82	1.64	3.60
12,100	21,000	42,200	0.47	0.82	1.64	3.49
13,776	24,015	48,208	0.47	0.81	1.64	3.50
16,323	27,918	55,093	0.48	0.82	1.61	3.38
18,129	30,949	60,686	0.48	0.82	1.61	3.35
20,876	35,132	68,846	0.49	0.82	1.61	3.30
23,007	38,495	74,752	0.50	0.83	1.61	3.25
26,092	44,029	84,854	0.49	0.84	1.61	3.25

(continued)

## APPENDIX D

TABLE D-12  
(continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	P <sub>10</sub>	P <sub>50</sub>	P <sub>90</sub>	ratio P <sub>90</sub>	ratios EE90-98		
1981	29,812	49,689	96,109				
1982	34,252	56,361	109,425	1.00			
1983	38,433	62,213	120,468				
1984	41,593	66,575	128,682	1.00			
1985	44,520	71,350	138,810	1.00			
1986	46,180	74,590	145,980	1.00			
1987	47,490	76,745	151,120	1.00			
1988	48,370	79,210	156,000	1.00			
1989	50,030	82,350	163,490	1.00			
1990	52,796	86,737	172,263		1.04	1.10	1.10
1991	54,832	89,924	178,688	0.99	1.02	1.07	1.08
1992	56,585	92,719	182,767	0.99	1.00	1.06	1.08
1993	57,810	95,030	185,680	0.99	0.98	1.04	1.06
1994	61,640	98,290	190,140	1.00	1.03	1.08	1.07
1995	62,990	100,330	193,900	1.01	1.02	1.09	1.08
1996	63,532	101,444	194,191	0.99	1.02	1.08	1.08
1997							
1998							

Sources: (1), (2) and (3): P<sub>10</sub>, P<sub>50</sub>, and P<sub>90</sub> thresholds series published in Bayet and Julhès (1996, 48) (complete series for the years 1993-1996 by Friez and Julhès [1998, 42]; for 1950-1975, the series are identical to the series published by Baudelot and Lebeaupin [1979a, 1979b]).

(4) = the ratio between column (3) of this table and column P<sub>90</sub> of Table D-11; to calculate this ratio, we used the 1951b(1) and 1952b(1) estimates for 1951-1952, the 1963b estimate for 1963, and the 1993b-1996b estimates for 1993-1996.

(5) = the ratio between column (1) of this table and threshold P<sub>10</sub> from the 1990-1996 *Emploi* studies (see Table D-17).

(6) = the ratio between column (2) of this table and the P<sub>50</sub> threshold from the 1990-1996 *Emploi* studies (see Table D-17).

(7) = the ratio between column (3) of this table and the P<sub>90</sub> threshold from the 1990-1996 *Emploi* studies (see Table D-17).

(8) = the P<sub>10</sub> threshold series used in this book. For the years 1950-1952 and 1963-1993, (8) = (1); for the years 1954-1957 and 1959-1962, column (1) was marked down by a percentage moving linearly from 5 percent in 1952 to 10 percent in 1963; the years 1953 and 1958 were filled out by linear interpolation between the years 1952-1954 and 1957-1959; for the years 1994-1998, we filled in the series by marking down the P<sub>10</sub> thresholds from the *Emploi* studies by 1 percent (see Table D-17).

APPENDIX D

(8)	(9)	(10)	(11)	(12)	(13)	(14)
P10*	P50*	P90*	P10 / average	P50 / average	P90 / average	P90* / P10*
29,812	49,689	96,109	0.50	0.83	1.61	3.22
34,252	56,361	109,425	0.50	0.83	1.61	3.19
38,433	62,213	120,468	0.51	0.83	1.61	3.13
41,593	66,575	128,682	0.52	0.83	1.60	3.09
44,520	71,350	138,810	0.52	0.83	1.61	3.12
46,180	74,590	145,980	0.51	0.82	1.61	3.16
47,490	76,745	151,120	0.51	0.82	1.62	3.18
48,370	79,210	156,000	0.50	0.83	1.63	3.23
50,030	82,350	163,490	0.50	0.82	1.63	3.27
52,796	86,737	172,263	0.50	0.82	1.63	3.26
54,832	89,924	178,688	0.50	0.82	1.64	3.26
56,585	92,719	182,767	0.51	0.83	1.63	3.23
57,810	95,030	185,680	0.50	0.83	1.62	3.21
58,212	98,290	190,140	0.49	0.84	1.62	3.27
59,400	100,330	193,900	0.49	0.84	1.62	3.26
59,400	101,444	194,191	0.49	0.84	1.61	3.27
61,455	103,680	196,564	0.50	0.85	1.61	3.20
62,964	103,900	200,204	0.51	0.85	1.63	3.18

(9) = the P50 threshold series used in this book. For 1950, we marked down column (2) so as to preserve the (median wage) / (average wage) ratio implied by the estimates from Bayet-Julhès (1996, 48) (on the particular problems associated with the year 1950, see Appendix E, section 2); for the years 1951–1952 and 1963–1996, (9) = (2); for the years 1954–1957 and 1959–1962, column (2) was marked down by a percentage moving linearly from 5 percent in 1952 to 10 percent in 1963; the years 1953 and 1958 were filled in by linear interpolation between the years 1952–1954 and 1957–1959; for the years 1997–1998, we filled in the series by marking up the P50 thresholds from the *Emploi* studies by 8 percent (see Table D-17).

(10) = the P90 threshold series used in this book. For the years 1963–1996, (10) = (3); for 1947, we used the 1947(1) estimate from Table D-11, marked down by 6 percent; for 1950, the 1950 estimate from Table D-11 marked down by 4 percent; for 1951–1952, the 1951b(1) and 1952b(1) estimates from Table D-11; for the years 1956–1957 and 1959–1962, we marked down the estimates from Table D-11 by a percentage moving linearly from 5 percent in 1952 to 10 percent in 1963; for 1954, we used the estimate from column (3) of this table, marked down by a corresponding percentage; the years 1953, 1955, and 1958 were filled in by linear interpolation between the 1952–1954, 1954–1956, and 1957–1958 estimates; the years 1997–1998 were filled in by marking up the P90 thresholds from the *Emploi* studies by 8 percent (1997) and by 10 percent (1998) (see Table D-17).

(11), (12), and (13) = ratios between columns (8), (9), and (10) and the average wage (column [11] of Table E-3).

(14) = ratio between columns (10) and (8) of this table.

TABLE D-13

*Comparison with the P90, P95, P99, P90-100, P95-100, and P99-100 estimates obtained from the 1976-1996 DADS files*

	(1) P90-100	(2) P95-100	(3) P99-100	(4) P90	(5) P95	(6) P99	(7) ratio P90	(8)	(9)	(10)	(11)	(12)	(13)
								Ratios to the extrapolation results					
1976	91,936	121,000	219,946	55,093	73,662	141,471	1.00	0.97	0.94	0.96	0.99	0.99	0.99
1977	99,141	129,056.8	225,910	60,686	81,002	153,269	1.00	0.93	0.93	0.89	0.99	0.99	0.98
1978	111,313	144,143.2	246,853	68,846	91,819	171,385	1.00	0.95	0.92	0.87	0.99	0.99	0.98
1979	120,215	155,396.4	265,937	74,752	99,394	183,565	1.00	0.96	0.93	0.85	1.00	1.00	0.97
1980	135,854	175,380.2	299,217	84,854	112,340	206,871	1.00	0.96	0.93	0.97	1.00	1.00	1.00
1981													
1982	176,417	228,306	395,741	109,393	145,729	265,727	1.00	0.95	0.93	0.98	1.00	1.00	1.01
1983													
1984	208,787	270,985.6	474,681	128,597	171,567	314,277	1.00	0.96	0.93	0.95	1.00	1.00	1.00
1985	223,054	287,844.2	492,545	138,740	185,321	334,577	1.00	0.95	0.92	0.91	1.00	1.00	0.98
1986	239,042	311,063.2	550,108	145,908	196,297	355,997	1.00	0.96	0.91	0.93	1.00	1.00	0.97
1987	245,735	318,609	550,956	151,061	202,869	370,812	1.00	0.93	0.95	0.87	1.00	1.00	0.97
1988	251,664	324,812.8	549,871	155,917	209,496	378,525	1.00	0.92	0.93	0.83	1.00	1.00	0.95
1989	264,628	342,227.8	584,936	163,474	219,246	400,747	1.00	0.92	0.93	0.83	1.00	1.00	0.96
1990													
1991	289,719	373,347.4	638,451	180,734	240,823	433,889	1.01	0.92	0.92	0.82	0.99	0.99	0.94
1992	294,067	377,620	642,309	185,067	245,431	435,639	1.01	0.93	0.91	0.82	0.99	0.99	0.92
1993	316,621	410,250.2	729,451	195,130	260,362	469,600	1.05	0.99	0.99	0.99	0.99	0.98	1.00
1994	314,341	404,983.6	714,262	196,940	260,021	462,257	1.04	1.01	1.02	1.04	1.00	0.99	1.02
1995	322,857	414,998.8	723,632	203,208	267,742	479,348	1.05	1.01	1.01	1.02	1.01	0.99	1.02
1996	324,587	416,053.2	718,214	205,469	270,557	477,537	1.06	1.00	1.00	1.01	0.99	0.98	1.00

Sources: (1) to (6): The P90, P95, and P99 thresholds and the P90-100, P95-100, and P99-100 levels estimated from the 1976-1996 DADS files; analysis of the DADS was carried out at our request by INSEE; results transmitted in March 1999 by Adrien Friez (INSEE, "Salaires et revenus d'activité" division).

(7): Ratio between column (4) of this table and column (3) of Table D-12 (the series transmitted by Adrien Friez is not net of CSG, so the two series diverge slightly starting from 1991).

(8) to (13): Ratios between columns (1) to (6) of this table (adjusted by the ratio calculated in column [7]) and the corresponding estimates from Table D-11 (to calculate these ratios, we used the 1993b-1996b estimates for 1993-1996).



TABLE D-14

*Definitive estimate of the wage distribution (1947 and 1950-1998 wages), in current francs*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	P90	P95	P99	P90-100	P95-100	P99-100	P90-95	P95-99	P99.9	P99.99	P99.9-100	P99.99-100
1947	181,487	245,047	464,797	302,342	399,666	737,663	205,017	315,167	1,073,332		1,727,824	
1950	364,593	472,161	933,471	568,321	757,668	1,647,673	378,974	535,167				
1951	502,871	656,957	1,330,375	850,116	1,132,184	2,203,357	568,049	864,391	3,300,290		5,328,169	
1952	588,173	775,240	1,551,058	996,545	1,327,196	2,561,715	665,894	1,018,566	4,061,467		6,053,414	
1953	605,674	802,576	1,617,011	1,015,484	1,380,722	2,676,372	650,246	1,056,810				
1954	623,176	829,911	1,682,963	1,034,423	1,434,248	2,791,029	634,597	1,095,053				
1955	713,699	955,971	1,952,983	1,170,856	1,660,699	3,246,050	681,013	1,264,361				
1956	804,221	1,082,031	2,223,002	1,307,289	1,887,150	3,701,071	727,429	1,433,669				
1957	885,345	1,204,712	2,440,005	1,424,723	2,116,752	4,032,979	732,694	1,637,695				
1958	969,321	1,322,245	2,760,338	1,625,174	2,411,956	4,779,463	838,392	1,820,079				
1959	1,053,296	1,439,778	3,080,671	1,825,625	2,707,160	5,525,947	944,090	2,002,464				
1960	11,623	15,911	33,666	19,578	29,630	59,999	9,525	22,038				
1961	12,432	17,071	36,273	20,843	31,095	65,431	10,592	22,511				
1962	13,986	19,255	40,267	23,741	34,839	68,822	12,644	26,343				
1963	15,100	20,356	40,888	26,081	34,219	73,448	17,944	24,411				
1964	16,400	22,150	45,017	27,609	38,015	77,260	17,202	28,204				
1965	17,952	24,215	48,762	30,112	41,138	82,839	19,086	30,713				
1966	19,000	25,795	52,631	32,184	44,465	90,722	19,904	32,900				

(continued)

TABLE D-14  
(continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	P90	P95	P99	P90-100	P95-100	P99-100	P90-95	P95-99	P99.9	P99.99	P99.9-100	P99.99-100
1967	20,000	27,342	56,534	34,150	47,841	98,917	20,458	35,072				
1968	21,500	29,391	60,743	37,599	51,400	106,228	23,799	37,693				
1969	24,000	32,641	68,225	40,984	57,823	116,588	24,146	43,131				
1970	26,279	35,401	69,667	44,075	59,796	107,432	28,354	47,887				
1971	29,200	39,279	76,941	48,757	65,927	115,979	31,588	53,413				
1972	32,300	43,668	85,481	54,448	75,715	130,065	33,181	62,127				
1973	36,000	48,255	92,887	59,887	80,226	141,334	39,548	64,949				
1974	42,200	56,593	110,363	70,083	94,573	176,821	45,593	74,012				
1975	48,208	64,410	123,767	77,931	107,059	186,683	48,804	87,153				
1976	55,093	73,662	141,471	91,936	121,000	219,946	62,872	96,264				
1977	60,686	81,002	153,269	99,141	129,057	225,910	69,226	104,844				
1978	68,846	91,819	171,385	111,313	144,143	246,853	78,482	118,466				
1979	74,752	99,394	183,565	120,215	155,396	265,937	85,034	127,761				
1980	84,854	112,340	206,871	135,854	175,380	299,217	96,327	144,421				
1981	96,109	129,056	236,338	156,161	201,876	347,537	110,446	165,461				
1982	109,425	145,772	265,805	176,469	228,373	395,857	124,565	186,502				
1983	120,468	158,726	290,145	192,697	249,769	435,426	135,625	203,354				
1984	128,682	171,680	314,485	208,925	271,165	474,995	146,686	220,207				

1985	138,810	185,415	334,746	223,167	287,989	492,794	158,344	236,788						
1986	145,980	196,394	356,173	239,160	311,217	550,379	167,102	251,426						
1987	151,120	202,948	370,957	245,831	318,733	551,171	172,928	260,624						
1988	156,000	209,608	378,727	251,798	324,986	550,164	178,610	268,691						
1989	163,490	219,267	400,786	264,654	342,261	584,993	187,046	281,578						
1990	172,263	228,682	414,882	275,546	355,691	608,108	195,401	292,587						
1991	178,688	238,097	428,977	286,439	369,121	631,223	203,757	303,595						
1992	182,767	242,381	430,225	290,413	372,927	634,326	207,899	307,577						
1993	185,680	247,753	446,858	301,287	390,382	694,124	212,192	314,447	968,366	2,433,222	1,660,263	4,772,879		
1994	190,140	251,043	446,296	303,487	391,000	689,600	215,974	316,350	933,329	2,109,338	1,456,791	3,433,014		
1995	193,900	255,478	457,391	308,069	395,990	690,486	220,148	322,366	963,435	2,201,074	1,513,880	3,565,893		
1996	194,191	255,706	451,325	306,771	393,216	678,792	220,326	321,823	956,416	2,115,525	1,453,686	3,172,256		
1997	196,564	258,832	456,841	310,520	398,022	687,088	223,018	325,756						
1998	200,204	263,625	465,301	316,271	405,393	699,812	227,148	331,788						

*Explanation:* In 1998, the average wage of fractile P<sub>90-100</sub> was 316,271 francs, the average wage of fractile P<sub>95-100</sub> was 405,393 francs, etc.

*Sources:* (1) = column (10) of Table D-12.

(2) to (6): For the years 1976-1980, 1982, 1984-1989, and 1991-1996, we used the corresponding columns from Table D-13, adjusted using the ratio calculated in column (7) of Table D-13 (the years 1981, 1983, and 1990 were filled in by linear interpolation between the years 1980-1982, 1982-1984, and 1989-1991); for 1947, we marked down the 1947(1) estimates from Table D-11 by 4 percent; for 1951-1952, we used the 1951b(1) and 1952b(1) estimates from Table D-11; for 1956-1957 and 1959-1962, we marked down the estimates from Table D-11 by a percentage moving linearly from 5 percent in 1952 to 10 percent in 1963, and the P<sub>90-100</sub>, P<sub>95-100</sub>, and P<sub>99-100</sub> levels were marked down by an additional 4 percent (the year 1954 was filled in assuming P<sub>95</sub> / P<sub>90</sub>, P<sub>99</sub> / P<sub>90</sub>, P<sub>90-100</sub> / P<sub>90</sub>, P<sub>95-100</sub> / P<sub>90</sub> and P<sub>99-100</sub> / P<sub>90</sub> ratios in 1954 equal to their average value from 1952 and 1956; the years 1953, 1955, and 1958 were then filled in by linear interpolation between the years 1952-1954, 1954-1956, and 1957-1959); for 1963-1975, we used the estimates from Table D-11, adjusted by the ratio between the P<sub>90</sub> value adopted (Table D-12) and the P<sub>90</sub> value from Table D-11, and by marking down the P<sub>90-100</sub>, P<sub>95-100</sub>, and P<sub>99-100</sub> levels by 4 percent; for 1997-1998, we started with the P<sub>90</sub> threshold adopted (Table D-12) and assumed that the ratios between P<sub>90-100</sub> and P<sub>90</sub>, P<sub>95-100</sub> and P<sub>90</sub>, etc., were the same as in 1996.

(7) and (8) = columns calculated by subtraction, from columns (4) to (6).

(9) and (12) = columns calculated only for years for which the raw data permit such estimates (for 1947 and 1951-1952, we proceeded in the same way as we did for the lower fractiles; for 1993-1996, we adopted the 1993b-1996b estimates from Table D-1, without adjustments).

TABLE D-15

*Definitive estimate of the wage distribution (1947 and 1950-1998 wages), in 1998 francs*

	(1) P90	(2) P95	(3) P99	(4) P90-100	(5) P95-100	(6) P99-100	(7) P90-95	(8) P95-99	(9) P99.9	(10) P99.99	(11) P99.9-100	(12) P99.99-100
1947	50,244	67,840	128,676	83,701	110,645	204,217	56,758	87,252	297,145		478,337	
1950	51,142	66,230	130,938	79,719	106,278	231,120	53,159	75,068				
1951	60,652	79,236	160,458	102,533	136,554	265,749	68,513	104,255	398,051		642,635	
1952	63,396	83,559	167,180	107,412	143,051	276,113	71,773	109,786	437,763		652,464	
1953	66,411	88,001	177,303	111,346	151,394	293,460	71,298	115,878				
1954	68,058	90,636	183,799	112,971	156,637	304,813	69,305	119,593				
1955	77,249	103,472	211,386	126,731	179,750	351,344	73,711	136,851				
1956	83,538	112,396	230,914	135,794	196,027	384,448	75,562	148,922				
1957	89,286	121,494	246,073	143,682	213,473	406,723	73,892	165,160				
1958	84,931	115,854	241,858	142,396	211,333	418,771	73,459	159,473				
1959	86,983	118,899	254,406	150,763	223,561	456,340	77,964	165,366				
1960	92,559	126,707	268,097	155,907	235,962	477,803	75,852	175,501				
1961	95,841	131,603	279,631	160,684	239,717	504,416	81,651	173,542				
1962	102,981	141,774	296,487	174,806	256,518	506,739	93,095	193,963				
1963	106,089	143,015	287,271	183,242	240,412	516,033	126,071	171,507				
1964	111,434	150,505	305,878	187,593	258,306	524,965	116,881	191,641				
1965	119,005	160,523	323,243	199,614	272,705	549,142	126,522	203,596				
1966	122,640	166,502	339,718	207,741	287,010	585,591	128,473	212,364				
1967	125,824	172,016	355,664	214,842	300,978	622,309	128,707	220,645				
1968	129,312	176,775	365,339	226,143	309,147	638,910	143,139	226,706				
1969	135,539	184,337	385,298	231,455	326,549	658,426	136,360	243,580				
1970	141,073	190,044	373,991	236,606	321,001	576,726	152,210	257,070				
1971	148,582	199,866	391,509	248,098	335,462	590,148	160,735	271,791				

1972	154,761	209,229	409,572	260,879	362,776	623,190	158,982	297,673												
1973	160,754	215,478	414,778	267,417	358,239	631,112	176,595	290,021												
1974	165,734	222,260	433,433	275,241	371,422	694,436	179,060	290,669												
1975	169,346	226,262	434,772	273,759	376,079	655,784	171,439	306,153												
1976	176,580	236,097	453,434	294,668	387,821	704,957	201,514	308,537												
1977	177,794	237,315	449,038	290,458	378,103	661,857	202,813	307,164												
1978	184,877	246,568	460,232	298,915	387,078	662,892	210,753	318,124												
1979	181,170	240,893	444,892	291,356	376,622	644,530	206,090	309,645												
1980	181,033	239,674	441,353	289,840	374,168	638,370	205,511	308,118												
1981	180,816	242,801	444,638	293,796	379,803	653,844	207,789	311,293												
1982	184,140	245,304	447,295	296,961	384,305	666,146	209,617	313,844												
1983	184,966	243,707	445,487	295,866	383,494	668,551	208,239	312,230												
1984	183,965	245,435	449,589	298,681	387,659	679,055	209,703	314,810												
1985	187,565	250,538	452,320	301,551	389,141	665,880	213,960	319,957												
1986	192,067	258,397	468,620	314,665	409,471	724,140	219,858	330,804												
1987	192,852	258,992	473,396	313,717	406,752	703,377	220,682	332,595												
1988	193,846	260,458	470,605	312,884	403,827	683,633	221,940	333,876												
1989	195,904	262,740	480,248	317,125	410,119	700,976	224,130	337,405												
1990	199,629	265,011	480,791	319,320	412,197	704,714	226,443	339,068												
1991	200,654	267,366	481,711	321,651	414,496	708,819	228,805	340,916												
1992	200,424	265,797	471,789	318,470	408,955	695,609	227,984	337,292												
1993	199,626	266,361	480,420	323,916	419,703	746,258	228,130	338,064	1,041,098	2,615,977	1,784,961	5,131,360								
1994	201,004	265,387	471,796	320,827	413,341	729,001	228,314	334,426	986,657	2,229,858	1,540,027	3,629,165								
1995	201,552	265,561	475,443	320,227	411,618	717,736	228,836	335,088	1,001,458	2,287,940	1,573,626	3,706,624								
1996	197,897	260,586	459,939	312,625	400,721	691,746	224,530	327,964	974,669	2,155,898	1,481,428	3,232,795								
1997	197,940	260,643	460,039	312,694	400,808	691,897	224,579	328,036												
1998	200,204	263,625	465,301	316,271	405,393	699,812	227,148	331,788												

*Explanation:* In 1998, the average wage of fractile P90–100 was 316,271 francs, the average wage of fractile P95–100 was 405,393 francs, etc.

## APPENDIX D

TABLE D-16

*Definitive estimate of the wage distribution (1947 and 1950-1998 wages),  
as a percentage of total wages*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	P90-100	P95-100	P99-100	P90-95	P95-99	P99-100	P99.9-100	P99.99-100
1947	26.94	17.81	6.57	9.13	11.23	6.57	1.54	
1950	24.43	16.29	7.08	8.15	9.20	7.08		
1951	26.98	17.97	6.99	9.01	10.97	6.99	1.69	
1952	26.82	17.86	6.90	8.96	10.97	6.90	1.63	
1953	26.69	18.14	7.03	8.54	11.11	7.03		
1954	24.88	17.25	6.71	7.63	10.53	6.71		
1955	25.49	18.07	7.07	7.41	11.01	7.07		
1956	25.74	18.58	7.29	7.16	11.29	7.29		
1957	25.40	18.87	7.19	6.53	11.68	7.19		
1958	26.02	19.31	7.65	6.71	11.66	7.65		
1959	27.47	20.37	8.32	7.10	12.05	8.32		
1960	26.78	20.27	8.21	6.52	12.06	8.21		
1961	26.40	19.70	8.29	6.71	11.41	8.29		
1962	27.41	20.11	7.94	7.30	12.16	7.94		
1963	27.38	17.96	7.71	9.42	10.25	7.71		
1964	27.24	18.75	7.62	8.48	11.13	7.62		
1965	28.03	19.15	7.71	8.88	11.44	7.71		
1966	28.18	19.46	7.94	8.71	11.52	7.94		
1967	28.39	19.88	8.22	8.50	11.66	8.22		
1968	28.39	19.40	8.02	8.98	11.38	8.02		
1969	27.94	19.71	7.95	8.23	11.76	7.95		
1970	27.47	18.63	6.70	8.84	11.94	6.70		
1971	27.41	18.53	6.52	8.88	12.01	6.52		
1972	27.81	19.33	6.64	8.47	12.69	6.64		
1973	27.28	18.27	6.44	9.01	11.84	6.44		
1974	27.23	18.37	6.87	8.86	11.50	6.87		
1975	26.43	18.16	6.33	8.28	11.82	6.33		
1976	26.93	17.72	6.44	9.21	11.28	6.44		
1977	26.33	17.13	6.00	9.19	11.14	6.00		
1978	26.10	16.90	5.79	9.20	11.11	5.79		
1979	25.96	16.78	5.74	9.18	11.03	5.74		
1980	25.77	16.63	5.68	9.14	10.96	5.68		

APPENDIX D

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	P90-100	P95-100	P99-100	P90-95	P95-99	P99-100	P99.9-100	P99.99-100
1981	26.17	16.92	5.82	9.26	11.09	5.82		
1982	26.00	16.82	5.83	9.18	10.99	5.83		
1983	25.68	16.64	5.80	9.04	10.84	5.80		
1984	25.99	16.87	5.91	9.12	10.96	5.91		
1985	25.92	16.72	5.72	9.19	11.00	5.72		
1986	26.36	17.15	6.07	9.21	11.09	6.07		
1987	26.38	17.10	5.91	9.28	11.19	5.91		
1988	26.25	16.94	5.74	9.31	11.21	5.74		
1989	26.42	17.09	5.84	9.34	11.24	5.84		
1990	26.15	16.88	5.77	9.27	11.11	5.77		
1991	26.25	16.91	5.78	9.33	11.13	5.78		
1992	25.93	16.65	5.66	9.28	10.99	5.66		
1993	26.24	17.00	6.04	9.24	10.95	6.04	1.45	0.42
1994	25.80	16.62	5.86	9.18	10.76	5.86	1.24	0.29
1995	25.67	16.50	5.75	9.17	10.74	5.75	1.26	0.30
1996	25.38	16.27	5.62	9.11	10.65	5.62	1.20	0.26
1997	25.45	16.31	5.63	9.14	10.68	5.63		
1998	25.73	16.49	5.69	9.24	10.80	5.69		

*Explanation:* In 1998, the P90-100 share of total wages was 25.73 percent, the P95-100 share was 16.49 percent, etc.

over the 1950-1975 period (Baudelot and Lebeauvin did not attempt to estimate series for the various fractiles' shares of total wages). Bayet and Julhès (1996) and Friez and Julhès (1998) published series for the evolution of the P10, P50, and P90 thresholds over the 1950-1996 period, which used the Baudelot-Lebeauvin series for 1950-1975, without adjustment (like Baudelot and Lebeauvin, Bayet, Julhès, and Friez did not attempt to estimate series for the various fractiles' shares of total wages). We have compared the P90 series that those authors published with the P90 series that we have estimated, and we observe that the two series are extremely similar (see Table D-12).<sup>11</sup>

TABLE D-17

*The wage distributions in the Emploi studies, 1990-1998*

	1990	1991	1992	1993	1994	1995	1996	1997	1998
N. Salariés	18,635	18,760	18,758	18,865	18,699	19,106	19,311	19,359	19,726
SalMoy	7,531	7,912	8,240	8,581	8,514	8,564	8,699	8,764	8,836
dt public PT	4,186	4,053	4,012	4,192	4,131	4,140	4,123	4,049	4,100
SalMoy	8,205	8,536	9,130	9,702	9,703	9,914	10,150	10,245	10,548
dt public TP	658	678	691	752	744	798	815	852	879
SalMoy	4,330	4,498	4,793	5,395	5,117	5,400	5,594	5,738	5,654
dt privé PT	12,183	12,404	12,327	11,970	11,689	11,873	11,966	11,908	12,057
SalMoy	8,036	8,473	8,768	9,165	9,184	9,227	9,385	9,504	9,574
dt privé TP	1,607	1,624	1,728	1,951	2,135	2,295	2,407	2,549	2,690
SalMoy	3,255	3,499	3,788	3,821	3,729	3,800	3,859	3,966	4,093
SalMoy PT	8,079	8,489	8,857	9,304	9,320	9,405	9,581	9,692	9,821
SalMoyOuvriers	6,158	6,519	6,850	6,988	6,926	7,123	7,087	7,280	7,357
SalMoyCadSup	16,779	17,723	17,793	17,799	18,181	17,988	18,387	18,568	18,529
Ratio	2.72	2.72	2.60	2.55	2.63	2.53	2.59	2.55	2.52
All wage earners									
P0-10	1,991	2,163	2,161	2,206	2,186	2,212	2,253	2,214	2,262
P10	3,252	3,500	3,500	3,450	3,272	3,300	3,369	3,300	3,352
P25	4,965	5,200	5,400	5,500	5,500	5,525	5,600	5,630	5,742
P50	6,500	6,844	7,042	7,399	7,467	7,500	7,583	7,626	7,800
P75	8,667	9,200	9,500	10,000	10,000	10,009	10,263	10,413	10,534
P90	12,000	12,944	13,000	13,548	13,798	14,000	14,083	14,183	14,500
P90-100	19,029	19,424	20,782	22,029	21,218	20,903	21,269	21,311	21,251



P95	15,600	16,250	16,663	17,232	17,333	17,333	17,833	18,000	18,000
P95-100	24,244	24,616	26,802	28,950	27,090	25,784	26,974	27,131	26,379
P99	25,744	27,083	28,125	28,708	28,750	28,259	30,000	30,000	29,754
P99-100	4,4731	42,303	51,636	60,038	51,322	45,146	48,282	47,654	43,688
%P0-10	2.64	2.73	2.62	2.57	2.57	2.58	2.59	2.53	2.56
%P90-100	25.27	24.55	25.22	25.67	24.92	24.41	24.45	24.32	24.05
%P95-100	16.10	15.56	16.26	16.87	15.91	15.05	15.50	15.48	14.93
%P99-100	5.94	5.35	6.27	7.00	6.03	5.27	5.55	5.44	4.94
P90 / P10	3.69	3.70	3.71	3.93	4.22	4.24	4.18	4.30	4.33
Full-time wage earners									
P0-10	3,372	3,649	3,766	3,831	3,810	4,057	4,063	4,198	4,316
P10	4,400	4,675	4,875	5,000	5,000	5,125	5,200	5,300	5,467
P25	5,391	5,683	5,958	6,100	6,175	6,300	6,392	6,500	6,500
P50	6,833	7,200	7,500	7,875	8,000	8,017	8,125	8,300	8,491
P75	9,000	9,583	9,982	10,383	10,500	10,833	10,833	11,000	11,131
P90	12,667	13,292	13,862	14,083	14,350	14,713	15,000	15,137	15,167
P90-100	19,666	20,211	21,458	22,528	22,413	21,799	22,929	22,448	22,619
P95	16,250	17,000	17,333	18,000	18,083	18,417	19,000	19,095	19,333
P95-100	25,376	25,596	27,314	30,130	28,787	27,454	28,757	28,162	27,884
P99	27,000	27,973	29,000	30,000	30,000	30,000	31,000	30,766	30,333
P99-100	46,497	44,174	52,213	63,740	57,796	48,981	50,331	47,389	45,705
%P0-10	4.17	4.30	4.25	4.12	4.09	4.31	4.24	4.33	4.39
%P90-100	24.34	23.81	24.23	24.21	24.05	23.18	23.93	23.16	23.03
%P95-100	15.70	15.08	15.42	16.19	15.44	14.60	15.01	14.53	14.20
%P99-100	5.76	5.20	5.90	6.85	6.20	5.21	5.25	4.89	4.65
P90 / P10	2.88	2.84	2.84	2.82	2.87	2.87	2.88	2.86	2.77

(continued)

TABLE D-17  
(continued)

	1990	1991	1992	1993	1994	1995	1996	1997	1998
Full-time private-sector wage earners									
P0-10	3,207	3,386	3,619	3,751	3,720	3,776	3,720	4,020	4,062
P10	4,236	4,500	4,708	4,900	4,900	5,000	5,000	5,173	5,300
P25	5,167	5,500	5,717	5,958	5,958	6,000	6,025	6,200	6,317
P50	6,583	7,000	7,258	7,583	7,593	7,692	7,800	8,000	8,017
P75	8,897	9,425	9,750	10,182	10,292	10,500	10,583	10,833	10,833
P90	13,000	13,833	14,083	14,625	14,833	15,000	15,000	15,167	15,167
P90-100	20,938	21,207	21,857	23,279	23,093	22,772	23,362	23,279	23,022
P95	16,875	17,682	18,000	18,988	18,798	19,046	19,500	19,973	19,667
P95-100	26,600	26,979	28,190	30,031	29,779	28,528	29,728	29,156	28,592
P99	28,072	29,748	30,000	30,653	30,333	30,333	32,500	32,500	31,500
P99-100	49,978	47,761	52,505	57,823	55,684	48,114	52,598	50,383	47,645
%P0-10	3.99	4.00	4.13	4.09	4.05	4.09	3.96	4.23	4.24
%P90-100	26.06	25.03	24.93	25.40	25.14	24.68	24.89	24.49	24.05
%P95-100	16.55	15.92	16.08	16.38	16.21	15.46	15.84	15.34	14.93
%P99-100	6.22	5.64	5.99	6.31	6.06	5.21	5.60	5.30	4.98
P90 / P10	3.07	3.07	2.99	2.98	3.03	3.00	3.00	2.93	2.86

*Explanation:* In 1998, the average wage of the 19.726 million wage earners was 8,836 francs, the average wage of the 4.100 million full-time wage earners in the public sector was 10,548 francs, the average wage of the 0.879 million part-time wage earners in the public sector was 5,654 francs, etc.; among full-time private-sector wage earners, the average wage of fractile P0-10 was 4,062 francs (per month), the P10 threshold was 5,300 francs, etc., the P0-10 share of total wages was 4.24 percent, etc.

*Sources:* Tabulations of the files from the *Emploi* study, 1990-1998 (files released by LASMAS). For wages, we used the "salred" variable (this is a net monthly wage variable, which was adjusted by INSEE to take into account nonresponse and wages in installments, and which includes bonuses and "13th months"; when all variables are set, salred = salfr + primfr / 12). The tabulations were carried out for a complete universe of all wage earners (excluding only salred >= 999999), then keeping only wage earners who worked full-time (salred < 999999 & tp = 1), and then keeping only private-sector wage earners (salred < 999999 & tp = 1 & statut = 41). Average wages by socioprofessional category were calculated using the "dcstot" variable (dcstot = 3 or 6).

*Note:* Wages shown in this table are net monthly wages (in all other tables, wages are net annual wages).

However, these imperfections should not be exaggerated. For the period after 1976, INSEE has computer samples of wage declarations that permit tabulations other than those carried out at the time: in Table D-13 we have reproduced the estimates of the levels of the various top-wage fractiles (up to the top 1 percent) that INSEE transmitted to us for the 1976–1996 period, and here again we observe relatively small discrepancies vis-à-vis our own series (see Table D-13). Thus we conclude that, despite the imperfections of the available data, our procedure of extrapolation using a Pareto law gives acceptable results: our series do not make it possible to study the upper strata of the top 1 percent in a satisfactory way, and certain very short-term changes must be interpreted with caution (especially around missing years), but all the other evolutions shown by our series are reliable.

Finally, let us add that the universe of wage declarations analyzed by INSEE was changed in 1963. Up to 1962, INSEE most often limited itself to analyzing declarations concerning so-called permanent wage earners (that is, wage earners working in the same firm over the twelve months of the year in question); starting from the 1963 wage-year, the analyses then covered all wage earners, permanent and nonpermanent.<sup>12</sup> Fortunately, for several years, and for 1963 in particular, we have separate results for permanent wage earners alone and for all wage earners, which allowed us to adjust the pre-1963 estimates and thus obtain a consistent series for the entire period examined.<sup>13</sup> However, we should clarify that this issue of permanent wage earners poses considerable technical problems when it comes to estimating levels for the upper strata of the top 1 percent of wage earners, as illustrated by the example of 1993–1996. The method of accounting for nonpermanent wage earners was always to count them on the basis of an “annualized” wage, in that the wage paid to a worker whose employer declared him to have worked in his firm for six months was multiplied by 2 (the worker was then counted for 0.5 “work-years” in the tabulations).<sup>14</sup> This is a logical way to proceed,<sup>15</sup> but it can result in anomalies, for example, if there is a small number of wage earners who earn very high pay for relatively short periods of work. This issue merits a more complete analysis, but as things stand now, it is difficult to be certain how to interpret the significant discrepancies observed for very high wages in 1993–1996.<sup>16</sup>

## Estimating Consistent Series for the Blue-Collar Wage and the Average Wage over the Long Run (1900–1998)

This appendix describes the sources and methodology that we used to compile consistent annual series for the blue-collar wage and the average wage (all wage earners combined) over the long run (1900–1998). The average wage series was useful to us, notably in estimating the evolution of the various high-wage fractiles' shares of total wages (see Appendix D). We will begin by dealing with the case of the blue-collar wage (section 1), then with wage gaps between the different socioprofessional categories (section 2). We then describe how we compiled a series for the average wage (all wage earners combined) (section 3), and we conclude by presenting data on the wages of civil servants (section 4).

### 1. *The Blue-Collar Wage (1900–1998)*

#### 1.1. The Available Series

It has been only since 1947–1950 that analyses by INSEE of employer wage declarations (DADS) have provided reliable series for the average wages of the different socioprofessional categories (CSPs, or *catégories socioprofessionnelles*), and in particular for blue-collar workers (*ouvriers*). Before the Second World War, the only regular statistics on wages concerned average wages for various blue-collar occupations (carpenters, quarrymen, laborers, assembly workers, etc.), which were measured by SGF inquiries to the labor arbitration courts (*Conseils de Prud'Hommes*) in the Paris region, the departmental administrative centers, and the cities where the labor courts operated.<sup>1</sup> The series, along with a large number of more or less regular series concerning blue-collar wage rates in this or that particular industry (“metalworking in the Paris region,”

mines, etc.), represent the basic materials used in most long-term studies of wages. For example, Fourastié used the *manœuvre prud'hommes* series and extended them into the past (making use of various other sources) to compile a series for “wages of laborers in the provinces” over the very long run, and he used this series as his point of reference to measure the growth of purchasing power.<sup>2</sup> Note that Fourastié explicitly stated that his goal was not to obtain an average blue-collar wage series (let alone an average wage or an average income series), but rather to observe the evolution of the real wage for a particular category of blue-collar workers who were among the worst paid.

Indeed, moving from these raw series to an “average blue-collar wage” series requires a long and painstaking undertaking, since the headcounts corresponding to the different blue-collar occupations whose average wages we do know are generally unknown, so the weights that are needed to move from the raw series to an average blue-collar wage series are difficult to determine precisely. This problem of weighting the raw series is especially important because inequality among these various blue-collar workers is often considerable (between different blue-collar occupations, between men and women, between Paris and the provinces, etc.), and because the evolutions of the various series over time are often quite different (at least in the short term).

Of the very large number of studies based on these raw series, those of Kuczynski are among the most thorough. Between 1960 and 1972, Jürgen Kuczynski, a professor of economic history working at Humboldt University of East Berlin in the postwar period, published a gigantic “Gesichte der Lage der Arbeiter unter dem Kapitalismus” in thirty-eight volumes (of which three—volumes 32, 33, and 34—were devoted to France) in which he offered consistent annual average blue-collar wage series for all of the large Western countries since the early nineteenth century (see Kuczynski 1960–1972). Kuczynski compiled the series from raw data collected and published in the various countries (for France, in addition to the raw series just mentioned, Kuczynski also used the earlier studies of Avenel, Simiand, and Levasseur). Subsequently, a number of scholars, notably Lhomme (1968) and Bayet (1997), took up Kuczynski’s series, compared them to the various available raw series, and concluded that Kuczynski’s series were extremely reliable.

Thus, Lhomme (1968), in his study of “the purchasing power of the French blue-collar worker over a century (1840–1940),” merely reproduced Kuczynski’s annual average blue-collar wage series (annual nominal net full-time wages)

for the years 1840–1913 and 1919–1938, indexed to 100 in 1913. To move from nominal to real wages, Lhomme (1968) used the 1840–1913 and 1919–1938 cost-of-living series Kuczynski had developed, which was very close to the SGF series, and which we have not attempted to use. Finally, Lhomme (1968) did not attempt to join up Kuczynski’s series with the postwar series (he stopped in 1938). The series reproduced by Lhomme were later taken up and used widely (see, for example, Boyer 1978).

Bayet (1997) took up Kuczynski’s series to compile an annual “average blue-collar wage” series for the entire 1820–1995 period (except for the years 1915–1918 and 1939–1945); the 1997 Bayet series is partially reproduced in Marchand-Thélot’s (1997) chapter 8. This series covers the net annual average wage of blue-collar workers working full-time in industry (Bayet also provides estimates for the evolution of average working time, average blue-collar hourly wages, and average blue-collar hourly costs—including social-insurance contributions—but we have not attempted to use them). Bayet constructed his series using the average blue-collar wage from the DADS for the 1950–1995 period (Bayet adjusted the DADS series for the years 1950–1983 to take into account the move to the new CSP nomenclature, which notably excluded foremen and apprentices from the *ouvrier* CSP), and then he went backwards in time using the Kuczynski index for the 1820–1950 period. Bayet also compared the nominal annual wages obtained this way with those observed in the large-scale industrial investigations of the nineteenth century, and he concluded that the series obtained were perfectly consistent with these other sources.

## 1.2. The Series Used in This Book

In this book, we have relied mainly on Bayet’s series, filling in the years of the two world wars (which Bayet was wise enough to leave blank) with the help of Kuczynski’s index, and filling in recent years with the help of the data from the DADS and the *Emploi* studies. References to the sources used and the results obtained are given in Table E-1, and we will merely clarify the following points.

First, Table E-1 shows that Bayet’s series (column [1]) and Kuczynski’s series (column [2]) are effectively equivalent for the prewar period. From 1900 to 1929, the ratio (column [3]) between Bayet’s series (which is expressed as an annual wage in current francs) and Kuczynski’s series (which is expressed as an index with base 100 in 1900) always equals 11.63–11.64 (except for 1914, when

Bayet very slightly revised Kuczynski's index downward, just like Villa; see below). From 1930–1931 through 1938, the ratio moves to 11.17, which is explained by the fact that Bayet dealt with the change from an hourly wage index to an annual full-time wage index in a slightly different way than Kuczynski did. Finally, column (3) of Table E-1 shows that Bayet carried out the splice between 1938 and 1947 by relying mainly on Kuczynski's index: the ratio is 11.17 in 1938 and 11.04 and 1947 (a difference of around 1 percent). On the other hand, we may note that while the 1947 / 1938 change is generally the same (within 1 percent) in the Bayet and Kuczynski series (by construction), the Kuczynski series underestimates the growth between 1947 and the early 1950s observed in the DADS (and adopted by Bayet) by about 15–20 percent (the ratio moves from 11.04 in 1947 to 12.92 in 1952). From 1947 onward, the DADS is by far the most reliable source (both for levels and for changes over time), and there are grounds for suspecting that Kuczynski sought to slightly downplay the positive evolution of wages in the turbulent immediate postwar years.<sup>3</sup>

In addition, Table E-1 shows that the blue-collar wage index published by Villa (1994), converted into base 100 in 1900, which Villa describes as the “Kuczynski series,” coincides exactly with the Kuczynski index for the years 1900–1913 and 1919–1938 (see column [4]). For the years 1914–1918, Villa slightly adjusted Kuczynski's raw series (although the 1919 / 1913 growth rate is exactly the same). Most importantly, Villa adjusted the Kuczynski index for the years 1939–1946: the 1947 / 1938 rate of change is the same overall (index 8775 for Kuczynski in 1947, versus 8859 for Villa, a gap of less than 1 percent), but the Kuczynski index is significantly higher than the Villa index in 1945–1946 (by around 15–20 percent) and it underestimates the positive evolution between 1946 and 1947. It is quite clear that, given the turbulence of the years 1939–1948, and especially because of the very high inflation of 1945–1948, it would be illusory to try to determine the annual change in the average blue-collar wage over this period with certainty. However, an examination of the raw labor court series suggests that, while there are significant disparities between the observed growth rates in Paris and the provinces, between single workers and workers with families, and so on,<sup>4</sup> the Kuczynski index for the years 1939–1946 seems more reliable than the index reproduced by Villa. In particular, the 1943 / 1938 and 1946 / 1938 increases given in the Villa index seem too small, and would result in suspicious jumps in the ratio between income declared under the income tax and the blue-collar wage in 1942–1943 and in 1946. Conversely,

## APPENDIX E

TABLE E-1

*The average blue-collar wage over the long run, 1900-1998*

	(1) Bayet	(2) Kuczynski	(3) (1) / (2)	(4) Villa	(5) <i>Emploi</i> studies	(6) (*)	(7) (*) FF98
1900	1,163	100	11.63	100		1,163	23,383
1901	1,152	99	11.64	99		1,152	23,046
1902	1,128	97	11.63	97		1,128	22,817
1903	1,152	99	11.64	99		1,152	23,420
1904	1,152	99	11.64	99		1,152	23,752
1905	1,152	99	11.64	99		1,152	23,776
1906	1,210	104	11.63	104		1,210	24,653
1907	1,221	105	11.63	105		1,221	24,533
1908	1,256	108	11.63	108		1,256	24,669
1909	1,268	109	11.63	109		1,268	24,955
1910	1,291	111	11.63	111		1,291	24,643
1911	1,315	113	11.64	113		1,315	22,840
1912	1,326	114	11.63	114		1,326	23,288
1913	1,338	115	11.63	115		1,338	22,726
1914	1,353	117	11.56	116		1,353	22,980
1915		123		128		1,422	20,353
1916		138		140		1,596	20,388
1917		177		158		2,047	21,828
1918		219		216		2,533	20,823
1919	3,269	281	11.63	281		3,269	21,503
1920	4,420	380	11.63	380		4,420	21,160
1921	4,735	407	11.63	407		4,735	25,877
1922	4,455	383	11.63	383		4,455	25,335
1923	4,653	400	11.63	400		4,653	23,839
1924	5,433	467	11.63	467		5,433	24,438
1925	5,840	502	11.63	502		5,840	24,481
1926	7,003	602	11.63	602		7,003	22,565
1927	7,061	607	11.63	607		7,061	21,793
1928	7,457	641	11.63	641		7,457	23,061
1929	8,317	715	11.63	715		8,317	24,219
1930	8,664	760	11.40	760		8,664	25,029
1931	8,286	742	11.17	742		8,286	24,909
1932	7,706	690	11.17	690		7,706	25,428
1933	7,828	701	11.17	701		7,828	26,685
1934	7,650	685	11.17	685		7,650	27,221
1935	7,538	675	11.17	675		7,538	29,251



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	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Bayet	Kuczynski	(1) / (2)	Villa	<i>Emploi</i> studies	(*)	(*) FF98
1936	8,588	765	11.23	765		8,588	31,058
1937	10,017	897	11.17	897		10,017	28,796
1938	10,520	942	11.17	942		10,520	26,622
1939		985		950		11,000	26,113
1940		878		968		9,800	19,616
1941		1092		1095		12,200	20,818
1942		1442		1255		16,100	22,875
1943		1764		1387		19,700	22,537
1944		2839		2425		28,531	26,687
1945		4952		4187		49,771	31,413
1946	61,900	7029	8.81	5662		70,651	29,222
1947	96,900	8775	11.04	8859		96,900	26,826
1948	155,900	13342	11.68	14254		155,900	27,230
1949	179,200	14390	12.45	16385		179,200	27,650
1950	192,000	15545	12.35	17554		192,000	26,932
1951	252,300	19718	12.80	21688		252,300	30,430
1952	293,700	22736	12.92	26285		293,700	31,656
1953	300,800					300,800	32,982
1954	340,000					340,000	37,132
1955	379,500					379,500	41,076
1956	422,200					422,200	43,856
1957	462,300					462,300	46,623
1958	513,100					513,100	44,957
1959	540,400					540,400	44,627
1960	5,926					5,926	47,192
1961	6,307					6,307	48,621
1962	6,916					6,916	50,923
1963	7,577					7,577	53,234
1964	8,089					8,089	54,963
1965	8,484					8,484	56,241
1966	8,978					8,978	57,951
1967	9,392					9,392	59,087
1968	10,279					10,279	61,823
1969	11,492					11,492	64,900

(continued)

## APPENDIX E

TABLE E-1  
(continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Bayet	Kuczynski	(1) / (2)	Villa	<i>Emploi</i> studies	(*)	(*) FF98
1970	12,571					12,571	67,485
1971	13,864					13,864	70,546
1972	15,462					15,462	74,084
1973	17,421					17,421	77,792
1974	20,411					20,411	80,161
1975	23,214					23,214	81,547
1976	26,919					26,919	86,279
1977	29,704					29,704	87,025
1978	33,641					33,641	90,339
1979	36,332					36,332	88,055
1980	41,431					41,431	88,392
1981	46,858					46,858	88,157
1982	53,269					53,269	89,641
1983	58,913					58,913	90,455
1984	63,096					63,096	90,202
1985	67,833					67,833	91,658
1986	71,005					71,005	93,422
1987	72,087					72,087	91,994
1988	73,829					73,829	91,740
1989	76,418					76,418	91,569
1990	80,168				1.08	80,168	92,904
1991	82,810				1.06	82,810	92,990
1992	84,499				1.03	84,499	92,662
1993	88,129				1.05	88,129	94,748
1994	88,925				1.07	88,925	94,006
1995	90,730				1.06	90,730	94,311
1996	91,710				1.08	91,710	93,460
1997						93,475	94,130
1998						94,464	94,464

*Explanation:* According to the series used in this book (columns [6] and [7]), the average annual net wage of blue-collar workers in the industry in 1900 was 1,163 francs, or 23,383 1998 francs.

*Sources:* (1): Average blue-collar wage series (annual net nominal full-time wage) in current francs published by Bayet (see Bayet 1997, 25–28; “salaire nominal” series) (series filled in for 1993–1996 by Friez-Julhès [1998, 50]).

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- (2): Average blue-collar wage series (annual net nominal full-time wage) in base 100 for 1900 published by Kuczynski (1960–1972, 33:152) for the 1900–1914 series (“Durchschnittslöhne” series, expressed in base 100 for 1900); see Kuczynski (1960–1972, 33:156) for the 1914–1918 series (“Löhne in Industrie und Landwirtschaft” series, expressed in base 100 for 1900); see Kuczynski (1960–1972, 33:201) for the 1918–1939 series (“Löhne in Industrie und Landwirtschaft” series, expressed in base 100 for 1900); see Kuczynski (1960–1972, 33:284) for the 1939–1952 series (“Nominalnetzlöhne” series expressed in base 100 in 1937, which we have converted to base 985 in 1939). The Kuczynski series, expressed in base 100 in 1900, is also reproduced by Lhomme (1968, 46 [1840–1913] and 52 [1919–1938], series “SN”).
- (3): Ratio between the Bayet and Kuczynski series: (3) = (1) / (2).
- (4): WH series (“Kuczynski series”) published in Villa (1994, 152), expressed in base 100 in 1900 (Villa’s original series is expressed in base 1 in 1938).
- (5): Ratio between column (1) and the average blue-collar wages from the *Emploi* studies 1990–1996 (see Appendix D, Table D-17).
- (6): Average blue-collar wage series (annual net nominal full-time wage) in current francs used in this book. For the years 1900–1914, 1919–1938, and 1947–1996, column (5) = column (1); for the years 1915–1918 and 1939–1946, the series has been filled in by starting with the 1914 value (1938, respectively) and applying the Kuczynski indexes (column [2]); for the years 1915–1918 (respectively, 1939–1946), we have marked down the Kuczynski indexes by 10 percent for the years 1944–1946; for the years 1997–1998, the series has been filled in by marking up the average blue-collar wages from the 1997–1998 *Emploi* studies by 7 percent (see Appendix D, Table D-17).
- (7) = Average blue-collar wage series (net annual full-time wage) in 1998 francs used in this book; (7) = (6) × column (7) of Table F-1 (Appendix F).

Kuczynski seems to slightly overestimate the increase in blue-collar wages in 1944–1945 and 1945–1946. For years after 1947, the indexes Villa adopts are very close to the “official” indexes from the DADS or the Ministry of Labor surveys, so that the 1952 / 1947 growth rate given by Kuczynski (like that given by Bayet) is around 15–20 percent greater than that given by Kuczynski (see above).

We have proceeded in the following way in constructing the average blue-collar wage series (net nominal full-time wage, expressed in current francs) used in this book and shown in column (6) of Table E-1. For the years 1900–1914, 1919–1938, and 1947–1996, we used Bayet’s figures. We filled in the years 1915–1918 by starting with the 1914 figure and applying Kuczynski’s index of change. For 1939–1946, we started with the 1938 figure and applied Kuczynski’s growth index, the only difference being that we marked down Kuczynski’s index by 10 percent for the years 1944–1946, to take into account Kuczynski’s slight overestimate of the growth in the blue-collar wage after the war (see above).<sup>5</sup> Finally, we filled in the years 1997–1998 by relying on the estimates from the March 1997 and March 1998 *Emploi* studies (see Appendix D, Table D-17): column (5) shows that the average blue-collar wage from the *Emploi* studies is always understated by around 6–8 percent relative to the average

blue-collar wage for the years 1990–1996 (which is explained in part by the fact that the estimates in the *Emploi* studies, which are based on wages self-declared by the individuals surveyed, imperfectly account for bonuses, thirteenth months, etc.), so we use the monthly wages from the *Emploi* studies, multiplied by 12 and marked up by 7 percent. The resulting series thus covers all years from 1900 to 1998. This series in current francs (column [6]) can then be converted into 1998 francs (column [7]), using the conversion rates given in column 7 of Table F-1 (Appendix F). Finally, we should make it clear that the resulting series covers only blue-collar workers in industry: some Kuczynski indexes include farm workers, but the 1947–1995 levels that underpin the whole series are for DADS blue-collar workers, which exclude farmworkers.

## 2. *Average Wages by CSP, 1947 and 1950–1998*

Table E-2 describes the evolution of the average wage for two particular CSPs since 1947–1950 (*ouvriers*, or blue-collar workers, and *cadres supérieures*, or high-level managers and professionals), as well as the evolution of the overall average wage. References to the sources used are given in Table E-2, and we will merely clarify the following points. For the most part, we have used the series derived from the DADS and published in Bayet-Julhès (1996, 56) and Friez-Julhès (1998, 50) (for the 1950–1975 period, the Bayet-Friez-Julhès series are from studies by Baudelot and Lebaupin [1979a, 1979b]). These series require a slight adjustment for the year 1950, however, and must be filled in for the years 1997–1998.

Column (3) of Table E-2 shows that for 1951–1975, the Baudelot-Lebaupin-Bayet-Julhès-Friez blue-collar wage series is always 2.3 percent higher than the Bayet blue-collar wage series over the long run, which makes sense, because Bayet excluded foremen (this adjustment preserved continuity with the blue-collar workers of the 1982 nomenclature, which is why we have used the Bayet blue-collar wage series). But for 1950, the DADS series is 23 percent higher than Bayet's. This discontinuity is due to a slight error in how the year 1950 is handled by Baudelot and Lebaupin, which is why, here again, we have used the Bayet blue-collar wage series.<sup>6</sup> For the same reasons, we have adjusted the average wage (for all wage earners combined) for 1950 given by Baudelot-Lebaupin. We also added an estimate of the average wage (for all wage earners

TABLE E-2  
*Average wages by CSP, 1947 and 1950-1998*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Bayet	BJF	(2)/(1)	Average wage	EE90-98	CSup	EE90-98	CSup(*)	(8)/(1)	Average wage(*)	(10)/(1)
1947	96,900									112,223	1.16
1950	192,000	236,900	1.23	272,800		788,600				232,624	1.21
1951	252,300	258,000	1.02	315,100		1,005,000		1,005,000	3.98	315,100	1.25
1952	293,700	300,300	1.02	371,500		1,213,300		1,213,300	4.13	371,500	1.26
1953	300,800	307,600	1.02	380,500		1,261,500		1,261,500	4.19	380,500	1.26
1954	340,000	347,700	1.02	415,800		1,423,500		1,423,500	4.19	415,800	1.22
1955	379,500	388,100	1.02	459,400		1,674,000		1,674,000	4.41	459,400	1.21
1956	422,200	431,700	1.02	507,800		1,819,600		1,819,600	4.31	507,800	1.20
1957	462,300	472,800	1.02	561,000		2,037,100		2,037,100	4.41	561,000	1.21
1958	513,100	524,700	1.02	624,600		2,221,100		2,221,100	4.33	624,600	1.22
1959	540,400	552,600	1.02	664,500		2,480,100		2,480,100	4.59	664,500	1.23
1960	5,926	6,060	1.02	7,310		26,393		26,393	4.45	7,310	1.23
1961	6,307	6,450	1.02	7,894		28,689		28,689	4.55	7,894	1.25
1962	6,916	7,072	1.02	8,663		30,488		30,488	4.41	8,663	1.25
1963	7,577	7,748	1.02	9,526		32,786		32,786	4.33	9,526	1.26
1964	8,089	8,272	1.02	10,137		36,366		36,366	4.50	10,137	1.25
1965	8,484	8,676	1.02	10,743		38,736		38,736	4.57	10,743	1.27
1966	8,978	9,181	1.02	11,422		40,606		40,606	4.52	11,422	1.27

(continued)

TABLE E-2  
(continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Bayet	BJF	(2)/(1)	Average wage	EE90-98	CSup	EE90-98	CSup(*)	(8)/(1)	Average wage(*)	(10)/(1)
1967	9,392	9,604	1.02	12,030		43,713		43,713	4.65	12,030	1.28
1968	10,279	10,511	1.02	13,245		46,410		46,410	4.52	13,245	1.29
1969	11,492	11,752	1.02	14,669		49,500		49,500	4.31	14,669	1.28
1970	12,571	12,855	1.02	16,046		54,559		54,559	4.34	16,046	1.28
1971	13,864	14,177	1.02	17,788		60,263		60,263	4.35	17,788	1.28
1972	15,462	15,811	1.02	19,580		65,771		65,771	4.25	19,580	1.27
1973	17,421	17,815	1.02	21,951		71,241		71,241	4.09	21,951	1.26
1974	20,411	20,872	1.02	25,742		82,185		82,185	4.03	25,742	1.26
1975	23,214	23,739	1.02	29,482		88,900		88,900	3.83	29,482	1.27
1976	26,919	26,816	1.00	34,141		99,321		99,321	3.69	34,141	1.27
1977	29,704	29,529	0.99	37,659		106,746		106,746	3.59	37,659	1.27
1978	33,641	33,469	0.99	42,647		114,548		114,548	3.41	42,647	1.27
1979	36,332	36,201	1.00	46,312		123,537		123,537	3.40	46,312	1.27
1980	41,431	41,237	1.00	52,724		136,279		136,279	3.29	52,724	1.27
1981	46,858	46,582	0.99	59,665		149,884		149,884	3.20	59,665	1.27
1982	53,269	52,888	0.99	67,870		165,504		165,504	3.11	67,870	1.27
1983	58,913	58,724	1.00	75,039				170,639	2.90	75,039	1.27
1984	63,096	63,096	1.00	80,390		175,773		175,773	2.79	80,390	1.27
1985	67,833	67,833	1.00	86,110		182,183		182,183	2.69	86,110	1.27

1986	71,005	71,005	1.00	90,715		189,363		189,363	2.67	90,715	1.28
1987	72,087	72,087	1.00	93,201		202,671		202,671	2.81	93,201	1.29
1988	73,829	73,829	1.00	95,911		207,455		207,455	2.81	95,911	1.30
1989	76,418	76,418	1.00	100,163		214,843		214,843	2.81	100,163	1.31
1990	80,168	80,168	1.00	105,381	1.09	223,494	1.11	223,494	2.79	105,381	1.31
1991	82,810	82,810	1.00	109,140	1.07	229,122	1.08	229,122	2.77	109,140	1.32
1992	84,499	84,499	1.00	111,982	1.06	230,624	1.08	230,624	2.73	111,982	1.33
1993	88,129	88,129	1.00	114,837	1.04	221,871	1.04	221,871	2.52	114,837	1.30
1994	88,925	88,925	1.00	117,649	1.07	231,832	1.06	231,832	2.61	117,649	1.32
1995	90,730	90,730	1.00	120,012	1.08	235,126	1.09	235,126	2.59	120,012	1.32
1996	91,710	91,710	1.00	120,876	1.07	232,540	1.05	232,540	2.54	120,876	1.32
1997	93,475							238,413	2.55	122,031	1.31
1998	94,464							237,912	2.52	122,930	1.30

Sources: (1): Average blue-collar wage series (net annual full-time wage) in current francs used in this book; (1) = column (6) of Table E-1.

(2): Average blue-collar wage series (net annual full-time wage) in current francs published in Bayet-Julhès (1996, 56) (series filled in for 1993–1996 by Friez-Julhès [1998, 50]).

(3) = (2) / (1).

(4): Average wage series (net annual full-time wage) (all DADS wage earners included) in current francs published in Bayet-Julhès (1996, 35) (series filled in for 1993–1996 by Friez-Julhès [1998, 50]).

(5): Ratio between column (4) and the average wages (full-time private sector wage earners) from the 1990–1996 *Emploi* studies (see Appendix D, Table D-17).

(6): Average *cadres supérieurs* wage series (net annual full-time wage) in current francs published in Bayet-Julhès (1996, 56) (series filled in for 1993–1996 by Friez-Julhès [1998, 50]). For the years 1950–1982, this is the average wage of the *cadres supérieurs* CSP from the 1954 nomenclature; for the years 1984–1998, it is the average wage of the *cadres et professions intellectuelles supérieures* CSP from the 1982 nomenclature; for 1983, we have filled in the series by taking an average of the years 1982 and 1984.

(7): Ratio between column (6) and the average wages of *cadres et professions intellectuelles supérieures* from the 1990–1996 *Emploi* studies (see Appendix D, Table D-17).

(8): Average wage series for *cadres supérieures* used in this book. For the years 1951–1996, (8) = (6); for the years 1997–1998, the series has been filled in by marking up the average wages of *cadres et professions intellectuelles supérieures* from the 1997–1998 *Emploi* studies by 7 percent (see Appendix D, Table D-17).

(9): Ratio between the average wage series for *cadres supérieurs* and the average wage series for *ouvriers* used in this book: (9) = (8) / (1).

(10) = The average wage series (net nominal annual full-time wage) used in this book. (10) = (4) for 1951–1996; figures adjusted for 1947 and 1950 (see text); series filled in for 1997 and 1998 by marking up average wages (full-time private-sector) from the 1997–1998 *Emploi* studies by 7 percent (see Appendix D, Table D-17).

(11) = (10) / (1).

combined) for 1947, obtained from an analysis of wage declarations that was published at the time. With these estimates, we arrive at an (average wage) / (blue-collar wage) ratio of 1.16 in 1947, versus 1.21 in 1950 (see column [11] of Table E-2). It is possible that the 1947 ratio is a slight overestimate, and that the true ratio was in fact close to that of 1950 (that is, closer to 1.19–1.20 than to 1.16); the blue-collar wage used by Bayet for 1947 (which we adopt) is perhaps a slight overestimate (at most by 3–4 percent).

For *cadres supérieurs* (high-level managers and professionals), we used the Baudelot-Lebeaupin-Bayet-Julhès-Friez figures for 1951–1996, and gave up on providing figures for 1947 and 1950. The DADS publications only started using the *cadres supérieurs* category with the analysis of 1951 wages, and the DADS publications started using the definitive version of the 1954 CSP nomenclature from 1952: in the publications presenting the analysis of 1947 and 1950 wages, the socioprofessional categories used vary (*direction appointée, cadre technicien, personnel dirigeant, ingénieurs*, etc.), and thus make it difficult to calculate the average wage of *cadres supérieurs*. Marchal and Lecaillon (1958–1970, 1:427) give estimates of the average wage of *cadres supérieurs* for 1947 and 1950–1952, according to which the ratio between the average wage of *cadres supérieurs* and that of *ouvriers* had already started increasing between 1947 and 1950 and then between 1950 and 1951 (which seems likely), but they do not explain how they went about calculating an average wage for *cadres supérieurs* based on the categories of the DADS publications from the time, so we do not use these figures.

For 1997–1998, we filled in the average wage and average *cadres supérieurs* wage by relying on estimates from the *Emploi* studies: as they do with average blue-collar wages, the *Emploi* studies underestimate wages from the DADS by around 6–8 percent (see columns [5] and [7]), so for 1997 and 1998 we use the monthly wages from the *Emploi* studies, multiplied by 12 and marked up by 7 percent.

### 3. *The Average Wage (All Wage Earners Included) (1900–1998)*

The method that we have used to estimate the evolution of the average wage (all wage earners included) over the entire 1900–1998 period is shown in Table E-3, and here we will merely lay out the general principle of the method.



TABLE E-3  
*The average wage relative to the average blue-collar wage, 1900-1998*

	(1) Bayet*	(2) Dugé	(3) NSalRec	(4) Ratio	(5) Temps	(6) Ratio	(7) NSalMT	(8) Ratio	(9) Ratio	(10) (* )Ratio	(11) (* )SalMoy	(12) (* )SalMoyFF98
1900	1,163									1.00	1,163	23,383
1901	1,152									1.00	1,156	23,118
1902	1,128									1.01	1,135	22,960
1903	1,152									1.01	1,163	23,640
1904	1,152									1.01	1,166	24,051
1905	1,152									1.02	1,170	24,150
1906	1,210									1.02	1,233	25,119
1907	1,221									1.02	1,248	25,076
1908	1,256									1.03	1,288	25,293
1909	1,268									1.03	1,304	25,666
1910	1,291									1.03	1,332	25,425
1911	1,315									1.03	1,361	23,639
1912	1,326									1.04	1,377	24,177
1913	1,338	15.7	11461	1.02	3	1.04	11888	0.99	1.00	1.04	1,393	23,667
1914	1,353									1.04	1,413	24,008
1915	1,422									1.05	1,491	21,329
1916	1,596									1.05	1,678	21,433
1917	2,047									1.05	2,158	23,019
1918	2,533									1.06	2,679	22,028
1919	3,269				3					1.06	3,469	22,818
1920	4,420	57.4	11461	1.13	2	1.14	12251	1.06	1.07	1.06	4,705	22,524

(continued)

TABLE E-3  
(continued)

	(1) Bayet*	(2) Dugé	(3) NSalRec	(4) Ratio	(5) Temps	(6) Ratio	(7) NSalMT	(8) Ratio	(9) Ratio	(10) (* )Ratio	(11) (* )SalMoy	(12) (* )SalMoyFF98
1921	4,735	58.7	11461	1.08	10	1.14	12251	1.01	1.07	1.07	5,056	27,631
1922	4,455	58.0	11570	1.13	5	1.15	12290	1.06	1.09	1.07	4,772	27,137
1923	4,653	62.9	11679	1.16	2	1.17	12329	1.10	1.11	1.07	5,000	25,614
1924	5,433	74.0	11789	1.16	2	1.17	12368	1.10	1.11	1.08	5,856	26,340
1925	5,840	79.5	11898	1.14	2	1.16	12407	1.10	1.11	1.08	6,314	26,470
1926	7,003	92.7	12007	1.10	2	1.11	12446	1.06	1.07	1.08	7,595	24,474
1927	7,061	95.1	12039	1.12	6	1.15	12554	1.07	1.11	1.09	7,682	23,710
1928	7,457	103.0	12072	1.14	4	1.17	12661	1.09	1.11	1.09	8,139	25,169
1929	8,317	115.6	12104	1.15	2	1.16	12769	1.09	1.10	1.09	9,106	26,515
1930	8,664	122.2	12137	1.16	2	1.17	12876	1.10	1.11	1.10	9,515	27,488
1931	8,286	116.8	12169	1.16	12	1.23	12984	1.09	1.15	1.10	9,128	27,441
1932	7,706	105.9	11875	1.16	23	1.31	12774	1.08	1.22	1.11	8,516	28,101
1933	7,828	101.1	11580	1.12	24	1.27	12564	1.03	1.17	1.11	8,678	29,582
1934	7,650	92.8	11286	1.07	25	1.23	12355	0.98	1.12	1.11	8,507	30,271
1935	7,538	87.4	10991	1.05	26	1.21	12145	0.95	1.10	1.12	8,409	32,650
1936	8,588	97.6	10697	1.06	24	1.21	11935	0.95	1.08	1.12	9,610	34,754
1937	10,017	119.7	10697	1.12	20	1.24	11935	1.00	1.11	1.12	11,244	32,324
1938	10,520	133.0	10697	1.18	20	1.31	11935	1.06	1.18	1.13	11,846	29,977
1939	11,000									1.13	12,425	29,496
1940	9,800									1.13	11,104	22,227
1941	12,200									1.14	13,867	23,663

1942	16,100
1943	19,700
1944	28,531
1945	49,771
1946	70,651
1947	96,900
1948	155,900
1949	179,200
1950	192,000
1951	252,300
1952	293,700
1953	300,800
1954	340,000
1955	379,500
1956	422,200
1957	462,300
1958	513,100
1959	540,400
1960	5,926
1961	6,307
1962	6,916
1963	7,577
1964	8,089
1965	8,484
1966	8,978
1967	9,392

1.14	18,357	26,082
1.14	22,532	25,776
1.15	32,734	30,619
1.15	57,282	36,154
1.15	81,568	33,737
1.16	112,223	31,068
1.18	183,330	32,021
1.19	213,923	33,008
1.21	232,624	32,630
1.25	315,100	38,004
1.26	371,500	40,042
1.26	380,500	41,721
1.22	415,800	45,410
1.21	459,400	49,724
1.20	507,800	52,748
1.21	561,000	56,576
1.22	624,600	54,727
1.23	664,500	54,875
1.23	7,310	58,213
1.25	7,894	60,856
1.25	8,663	63,786
1.26	9,526	66,928
1.25	10,137	68,879
1.27	10,743	71,216
1.27	11,422	73,726
1.28	12,030	75,683

(continued)

TABLE E-3  
(continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Bayet*	Dugé	NSalRec	Ratio	Temps	Ratio	NSalMT	Ratio	Ratio	(*)Ratio	(*)SalMoy	(*)SalMoyFF98
1968	10,279									1.29	13,245	79,662
1969	11,492									1.28	14,669	82,842
1970	12,571									1.28	16,046	86,140
1971	13,864									1.28	17,788	90,513
1972	15,462									1.27	19,580	93,815
1973	17,421									1.26	21,951	98,020
1974	20,411									1.26	25,742	101,098
1975	23,214									1.27	29,482	103,565
1976	26,919									1.27	34,141	109,426
1977	29,704									1.27	37,659	110,331
1978	33,641									1.27	42,647	114,523
1979	36,332									1.27	46,312	112,243
1980	41,431									1.27	52,724	112,485
1981	46,858									1.27	59,665	112,252
1982	53,269									1.27	67,870	114,211
1983	58,913									1.27	75,039	115,215
1984	63,096									1.27	80,390	114,926
1985	67,833									1.27	86,110	116,355
1986	71,005									1.28	90,715	119,355
1987	72,087									1.29	93,201	118,938
1988	73,829									1.30	95,911	119,179
1989	76,418									1.31	100,163	120,022

1990	80,168	1.31	105,381	122,122
1991	82,810	1.32	109,140	122,556
1992	84,499	1.33	111,982	122,801
1993	88,129	1.30	114,837	123,462
1994	88,925	1.32	117,649	124,371
1995	90,730	1.32	120,012	124,748
1996	91,710	1.32	120,876	123,183
1997	93,475	1.31	122,031	122,886
1998	94,464	1.30	122,930	122,930

*Explanation:* According to the series used in this book (columns [11] and [12]), the average net annual wage (all wage earners included) in 1900 was 1,163 francs, or 23,383 1998 francs.

*Sources:* (1): The average blue-collar wage series (nominal net full-time annual wage) in current francs used in this book = column (6) of Table E-1.

(2): Total wage bill estimated by Dugé (see Appendix G, Table G-12).

(3): Number of wage earners estimated using the censuses and excluding isolated workers (see, Appendix H, Table H-5) (intercensal years were obtained through linear interpolation).

(4): (average wage) / (average blue-collar wage) ratio calculated from columns (1), (2), (3).

(5): Kuczynski's "average percentage of time lost by blue-collar workers" series (partial unemployment) used by Lhomme (1968, 52) (Lhomme calculated the series by dividing the "Durchschnittsreallöhne" series and "Durchschnitts-Nettoreallöhne" series given by Kuczynski [1960–1972, 33:202]). (6): (average wage) / (average blue-collar wage) ratio adjusted for partial unemployment calculated from columns (4) and (5) (assuming that the rate of partial unemployment for blue-collar workers applied to 50 percent of wage earners).

(7): Number of wage earners estimated by Marchand-Thélot (1997, 236–237) from the censuses (sum of columns "salariés agricoles," "cadres et employés," "ouvriers," "domestiques de la personne," "armée, police," and "clergé") (linear interpolation for intercensal years).

(8): (average wage) / (average blue-collar wage) ratio calculated from columns (1), (2), and (7).

(9): (average wage) / (average blue-collar wage) ratio adjusted for partial unemployment, calculated from columns (5) and (8) (assuming that the rate of partial unemployment for blue-collar workers applied to 50 percent of wage earners).

(10): (average wage) / (average blue-collar wage) ratio used in this study = column (11) of Table E-2 for 1947 and 1950–1998, linear interpolation between 1947 and 1950 for 1948–1949, 1.00 for 1900, and assumption of a constant annual growth rate between 1900 and 1947.

(11): Average wage used in this study = column (1) × column (10).

(12) = column (11) converted into 1998 francs; column (12) = column (11) × column (7) of Table F-1 (Appendix F).

One way to proceed would be to start with the blue-collar wage series and then estimate the evolution of the (average wage) / (blue-collar wage) ratio. Of course, it is difficult to precisely estimate the short-term evolution of the gap between the average wage (all wage earners included) and the average blue-collar wage before 1947–1950, especially because of the absence of satisfactory sources on the wages of private-sector *cadres* (wage-earning managers and professionals) and *employés* (non-blue-collar low-level wage earners). But the available data do make it possible to estimate the general long-term evolution of this gap, with relatively small margins of error. First, it is certain that the gap between the average wage and the average blue-collar wage tended to increase during the entire twentieth century. This is simply an automatic consequence of the fact that the number of wage earners who are paid less than blue-collar industrial workers (farm and domestic workers) has tended to decline, whereas the number of wage earners paid more than blue-collar industrial workers (*employés*, mid-level and high-level *cadres*, civil servants) has tended to rise. In fact, the census results show that the number of farmworkers and domestics has declined in each census since 1901, and conversely, the number of *cadres* and *employés* has increased in each census since 1901. Thus the question is how rapidly the gap widened between the average wage for all wage earners and the average blue-collar wage. Bayet (1997) gives no explicit estimate of the average wage over the long run, but, by relying notably on the evolution of headcounts in the various categories of wage earners recorded in the censuses, he estimates this structural effect at 50 percent between the mid-nineteenth century and the late twentieth century: the average wage in the 1990s was around 30–40 percent greater than the average blue-collar wage, and, according to Bayet, it was 10–20 percent less in the mid-nineteenth century, due to the numerical weight of farmworkers in domestics at that time, who were paid less on average than industrial blue-collar workers, and due to the small numbers of *cadres* and *employés*. In other words, in 150 years the average wage relative to the blue-collar wage rose by around 50 percent: because the purchasing power of the blue-collar wage rose eightfold (twofold between the mid-nineteenth century and the start of the twentieth century, and fourfold between the start of the twentieth century and the end of the twentieth century), this means that the purchasing power of the average wage rose twelvefold in 150 years (see Bayet 1997, 7–8). A structural effect of 50 percent in 150 years corresponds to an average structural effect of around

0.3 percent per year: on average, each year, the average wage experienced a 0.3 percent increase in purchasing power, on top of the 1.4 percent average increase experienced by the blue-collar wage. But Bayet estimates that the structural effect was not uniform and tended to accelerate over time, rising from 0.2 percent per year over the 1850–1950 period to 0.5–0.6 percent since 1950 (see Bayet 1997, 7–8).<sup>7</sup>

A second method would be to start with an estimate of the total wage bill and then divide this estimate by the total number of wage earners. We used the estimates of total wages received that Dugé de Bernonville carried out in the interwar period for the years 1913 and 1920–1938 (see Appendix G, Table G-12). Dugé de Bernonville seems to have made the best possible use of all of the sources available in his time (statistics from the social insurance systems and the workers' compensation law for the private sector, budget statistics for civil servants, and so on), and there is no reason to think that his estimates could be significantly improved by going back to his sources.<sup>8</sup> The question, then, concerns the wage-earner headcounts that Dugé de Bernonville's total wage bills must be divided by to obtain the equivalent of an average full-time wage. In addition to the issues of isolated workers, irregular jobs, and part-time workers, this poses the problem of partial unemployment, a particularly significant issue in the 1930s. Dugé de Bernonville explicitly stated that his method took partial unemployment into account: to estimate total blue-collar wages, he used estimates of the day-labor wage, which he multiplied by estimates of the number of working days.<sup>9</sup> This means that if we estimate the average wage in the 1930s by dividing total wages by a wage-earner headcount that includes a significant fraction of workers in partial unemployment, we will significantly underestimate the average full-time wage. And indeed, column (4) of Table E-3 shows that if we divide Dugé de Bernonville's total wages by the number of wage earners from the censuses, we get an artificial decline from 1932 to 1936. If we adjust by the rate of partial unemployment (assuming that the Kuczynski rates concern 6 million blue-collar industrial workers out of 12 million wage earners, around 50 percent of wage earners), then this artificial decline is significantly dampened (see columns [6] and [9]). These adjusted series confirm two things. On the one hand, the (average wage) / (blue-collar wage) ratio does seem to follow a rising trend over the 1913–1938 period, which is consistent with the structure of headcounts from the censuses. On the other hand, the levels we get

TABLE E-4  
*Annual pay of selected jobs in the public sector (1911-1966)*

	Post, telegraph, telephone			Public Education (Paris)		Central government administration (Paris)	
	Rural mail carrier (starting)	Paris Mail carrier (starting)    Mail carrier (maximum)		Schoolteacher (maximum)	University professor (late career)	Rédacteur 2 <sup>ème</sup> classe Secrétaire d'admin. Attaché d'administ.	Chef de bureau Administrateur civil (maximum)
1911	900	1,300	1,900	2,200	15,000	3,100	12,000
1912	900	1,300	1,900	2,200	15,000	3,100	12,000
1913	1,100	1,400	2,100	2,200	15,000	3,100	12,000
1914	1,100	1,400	2,100	2,500	15,000	3,100	12,000
1915	1,100	1,400	2,100	2,500	15,000	3,100	12,000
1916	1,100	1,400	2,100	2,500	15,000	3,100	12,000
1917	1,220	1,520	2,100	2,500	15,000	3,100	12,000
1918	2,180	2,480	3,180	3,580	15,000	4,180	12,000
1919	2,900	3,200	3,900	4,300	15,000	4,900	12,000
1920	4,520	5,720	6,920	8,920	26,200	9,200	19,200
1921	4,520	5,720	6,920	8,920	26,200	9,200	19,200
1922	4,520	5,720	6,920	9,920	27,700	9,200	19,200
1923	4,520	5,720	6,920	10,920	29,200	9,200	22,200
1924	4,520	6,120	7,820	11,320	29,600	9,600	22,600
1925	5,600	7,600	9,700	14,000	37,000	13,400	28,000
1926	5,600	7,600	9,700	14,000	37,000	13,400	28,000
1927	6,900	9,140	11,840	17,240	56,240	18,240	42,240



1928	8,000	10,240	12,240	18,240	56,240	18,240	42,240
1929	8,000	10,240	12,740	18,740	70,240	20,240	50,240
1930	8,500	10,740	13,240	20,240	78,240	20,740	55,240
1931	9,000	11,240	13,740	21,240	92,240	22,240	62,240
1932	9,000	11,240	13,740	21,240	92,240	22,240	62,240
1933	9,000	11,240	13,740	21,240	92,240	22,240	62,240
1934	9,000	11,240	13,740	20,670	85,240	21,640	58,040
1935	8,550	10,790	13,165	20,290	84,140	21,240	57,440
1936	8,920	10,836	12,596	19,116	83,016	20,016	56,016
1937	9,000	11,240	13,740	20,733	81,440		57,440
1938	11,400	14,100	16,600	23,632	93,700	24,920	63,700
1939	12,600	15,700	18,200	28,336	98,600	26,520	67,100
1940	12,600	15,700	18,200	28,336	98,600	26,520	67,100
1941	12,600	15,700	18,200	28,336	98,600	26,520	67,100
1942	14,000	19,000	21,500	33,500	106,000	30,000	73,000
1943	17,000	22,000	24,500	39,600	128,000	38,000	84,000
1944	20,000	25,000	31,000	51,500	145,000	42,000	96,000
1945	36,000	44,000	62,000	107,000	323,000	75,000	210,000
1946	67,200	81,400	97,600	143,000	323,000	113,500	278,500
1947	79,200	96,400	131,800	240,200	612,952	138,700	388,900
1948	127,500	158,437	219,187	376,475	840,028	243,500	856,950
1949	150,000	199,020	271,095	475,345	998,740	294,437	978,500
1950	165,288	212,220	287,595	518,657	1,126,084	314,625	1,036,104
1951	185,658	235,320	315,545	616,232	1,358,404	337,350	1,188,394
1952	242,102	289,760	395,924	785,848	1,856,176	459,000	1,605,080
1953	242,102	289,760	395,924	785,848	1,856,176	459,000	1,605,080
1954	242,102	289,760	395,924	785,848	1,856,176	459,000	1,605,080

(continued)

TABLE E-4  
(continued)

	Post, telegraph, telephone			Public Education (Paris)		Central government administration (Paris)	
	Rural mail carrier (starting)	Paris Mail carrier (starting)      Mail carrier (maximum)		Schoolteacher (maximum)	University professor (late career)	Rédacteur 2 <sup>ème</sup> classe Secrétaire d'admin. Attaché d'administ.	Chef de bureau Administrateur civil (maximum)
1955	281,760	332,200	441,760	869,600	2,345,344	531,156	1,900,322
1956	313,280	363,992	478,716	927,592	2,525,100	569,724	2,051,760
1957	341,092	382,492	509,464	985,100	2,671,340	604,818	2,175,023
1958	388,844	434,000	580,720	1,121,596		683,124	2,559,446
1959	428,196	476,292	646,724	1,267,992		777,270	2,914,552
1960	4,513	5,000	6,595	12,931		7,923	29,722
1961	4,620	5,212	6,876	13,404		9,211	
1962	5,535	6,217	8,569	16,456		10,299	
1963	6,088	6,672	9,200	17,737		11,107	
1964	6,572	7,187	9,916	19,123		11,974	
1965	6,835	7,466	10,303	19,875		12,444	
1966	7,108	7,757	10,708	20,660		12,934	

*Explanation:* In 1911, the annual wage of a starting rural mail carrier was 900 francs (all of these pay amounts are expressed in current francs: old francs through 1959, and new francs from 1960).

*Source:* *Annuaire Statistique de la France—Résumé rétrospectif 1966* (INSEE, 1966), p. 438.

*Note:* These pay amounts include not only official budgetary payments, but also all reimbursed expenses, temporary supplements, provisional top-ups, etc., as well as exceptional levies, temporary withholdings, etc. Also, these are gross pay amounts (before deduction of withholdings for pensions and Social Security).

for the end of the period (1.15–1.20 in the late 1930s) are consistent with the 1947–1950 levels, and those from the start of the period (1.00–1.10 before the First World War) are consistent with Bayet’s estimates for the nineteenth century.

The two methods thus confirm the idea that the (average wage) / (blue-collar wage) ratio rose from a level of around 1.00–1.10 at the beginning of the century to 1.15–1.20 around the Second World War. We therefore adopt the following simplifying assumptions. For 1947 and 1950–1998, we use the ratios from the DADS (filling in the 1948–1949 years by linear interpolation between 1947 and 1950). We then assume that the ratio rose at a uniform annual rate between a level of 1.00 in 1900 and the 1.16 level observed in the DADS for 1947. This assumption corresponds to an average annual growth rate of around 0.3 percent per year. For the 1947–1998 period, moving from a 1.16 level in 1947 to a 1.30–1.35 level in the 1990s also corresponds to an average annual rate of around 0.3 percent. It is possible that the 1.15–1.20 ratios in the DADS for 1947–1950 are a bit overstated, which would explain why we do not find the acceleration of the structural effect that Bayet estimated. In fact, the DADS exclude farm-workers and domestics, which were still numerous in 1947–1950, so the true average wage at the time was probably slightly below the average DADS wage (it all depends on the magnitude of that effect relative to the opposite effect caused by the omission of civil servants). In any event, the error over the long run could only be very small: the true ratio perhaps rose from 1.00 in 1900 to 1.10 in 1947 and 1.30–1.35 in the 1990s. On the other hand, it must be emphasized that our method cannot properly measure short-term changes in the (average wage) / (blue-collar wage) ratio before 1947–1950.

#### 4. *The Wages of Civil Servants*

Here we will merely reproduce a table from the *Annuaire rétrospectif* published by INSEE in 1966. This table provides annual estimates of the pay of certain typical occupations in the public sector from 1911 to 1966; we refer to these estimates frequently in Chapter 3 (section 2.3), and it seemed useful to reproduce them so that interested readers can consult the series without having to refer to the INSEE publication. As we noted in Chapter 3, a complete study of the history of pay inequality in the public sector would far exceed the scope of this book, so we have not attempted to complete the series reproduced in Table E-4 or to make

them consistent (other references for public-sector wages are given in Chapter 3). Note, however, that the series put together by INSEE in 1966 and reproduced in Table E-4 seem at first glance to be relatively consistent, insofar as “pay” includes not only official budgetary payments, but also the many “temporary supplements,” “provisional top-ups,” and so forth (or conversely, “one-time levies,” etc.) that have dotted the history of civil-servant wages.

## Consumption Price Indexes (1900–1998)

This appendix describes the consumption price indexes we have used to convert current francs into 1998 francs within this book.

Since 1949, INSEE has compiled a “modern” index for consumption prices each month, based on a large number of individual price samples that are representative of all food products, manufactured products, and most services. For periods prior to 1949, there is more of an issue concerning the choice of a consumption price index. Indeed, the indexes constructed by the SGF since 1914 were based on much less systematic price samples and covered a far more limited field (thirteen items, including eleven food items, then thirty-four items of which twenty-nine were for food).<sup>1</sup> This explains why many scholars (Kuczynski, Singer-Kerel, Fourastié, etc.) have attempted to improve the official indexes by calculating their own indexes on the basis of their own price samples for the first half of the twentieth century and for the nineteenth century. In practice, however, the various available indexes that resulted from these studies are very close overall to the SGF index, with slight differences for a given year usually being offset over several years,<sup>2</sup> and we have chosen to use the SGF / INSEE indexes. Table F-1 shows the exact references to the publications used, and here we will merely clarify the key points.

INSEE's *Bulletin Mensuel de Statistique* in February 1999 published a retrospective series of consumption price indexes, in the form of conversion rates for francs for the years 1901–1998 into 1998 francs (see *BMS* February 1999, pp. 144–145). This series is reproduced in column (1) of Table F-1, and it makes it possible to calculate the annual inflation rate from 1902 to 1998 (column [3] of Table F-1). Villa, in his collection of long-term macroeconomic series, published a consumption price index (expressed in base 1 for 1938) for the years 1890–1985 (see Villa 1994, 142, series “PCSGF”), which we reproduce in column (2) of Table F-1, and which also makes it possible to calculate an annual inflation rate from 1891 to 1985 (column [4] of Table F-1).<sup>3</sup> The two inflation-rate series thus obtained in columns (3) and (4) are identical for the years

TABLE F-1  
*Consumption price indexes, 1890-1998*

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Raw indexes		Inflation rates			Figures used index	p98 / pn	Rent indexes and ratio to the overall index			
<i>BMS</i>	Villa	<i>BMS</i>	Villa	Inflation						
1890	0.1285				1.000	19.750				
1891	0.1308		1.8	1.80	1.018	19.401				
1892	0.1297		-0.9	-0.90	1.009	19.577				
1893	0.1277		-1.5	-1.50	0.994	19.875				
1894	0.1317		3.1	3.10	1.025	19.278				
1895	0.1282		-2.6	-2.60	0.998	19.792				
1896	0.1262		-1.6	-1.60	0.982	20.114				
1897	0.1228		-2.7	-2.70	0.955	20.672				
1898	0.1245		1.4	1.40	0.969	20.387				
1899	0.1262		1.4	1.40	0.982	20.105				
1900	0.1262		0.0	0.00	0.982	20.105	84.48	91.00	1.08	
1901	19.841	0.1268	0.5	0.50	0.987	20.005	84.90	89.00	1.05	
1902	19.841	0.1254	0.0	-1.1	-1.10	0.976	20.228	83.97	89.00	1.06
1903	19.841	0.1248	0.0	-0.5	-0.50	0.972	20.330	83.55	90.00	1.08
1904	19.841	0.1231	0.0	-1.4	-1.40	0.958	20.618	82.38	90.00	1.09
1905	19.841	0.1230	0.0	-0.1	-0.10	0.957	20.639	82.29	90.00	1.09
1906	21.494	0.1245	-7.7	1.3	1.30	0.969	20.374	83.36	90.00	1.08

1907	19.841	0.1262	8.3	1.4	1.40	0.983	20.093	84.53	91.00	1.08
1908	19.841	0.1291	0.0	2.3	2.30	1.006	19.641	86.48	91.00	1.05
1909	19.841	0.1288	0.0	-0.2	-0.20	1.004	19.680	86.30	93.00	1.08
1910	19.841	0.1328	0.0	3.1	3.10	1.035	19.089	88.98	94.00	1.06
1911	17.195	0.1459	15.4	9.9	9.90	1.137	17.369	97.79	95.00	0.97
1912	17.195	0.1443	0.0	-1.1	-1.10	1.125	17.562	96.71	96.00	0.99
1913	17.195	0.1492	0.0	3.4	3.40	1.163	16.985	100.00	99.00	0.99
1914	17.195	0.1492	0.0	0.0	0.00	1.163	16.985	100.00	100.00	1.00
1915	14.329	0.1770	20.0	18.7	18.70	1.380	14.309	118.70	100.00	0.84
1916	12.896	0.1984	11.1	12.0	12.00	1.546	12.776	132.94	100.00	0.75
1917	10.747	0.2377	20.0	19.8	19.80	1.852	10.664	159.27	100.00	0.63
1918	8.320	0.3082	29.2	29.7	29.70	2.402	8.222	206.57	100.00	0.48
1919	6.788	0.3852	22.6	25.0	25.00	3.003	6.578	258.21	100.00	0.39
1920	4.867	0.5295	39.5	37.4	37.40	4.125	4.787	354.78	100.00	0.28
1921	5.607	0.4639	-13.2	-12.4	-12.40	3.614	5.465	310.79	116.00	0.37
1922	5.732	0.4459	-2.2	-3.9	-3.90	3.473	5.687	298.67	164.00	0.55
1923	5.264	0.4951	8.9	11.0	11.00	3.855	5.123	331.52	200.00	0.60
1924	4.606	0.5639	14.3	13.9	13.90	4.391	4.498	377.60	200.00	0.53
1925	4.299	0.6049	7.1	7.3	7.30	4.711	4.192	405.17	210.00	0.52
1926	3.265	0.7869	31.7	30.1	30.10	6.130	3.222	527.12	243.00	0.46
1927	3.145	0.8213	3.8	4.4	4.40	6.399	3.086	550.32	263.00	0.48
1928	3.145	0.8197	0.0	-0.2	-0.20	6.386	3.093	549.22	288.00	0.52
1929	2.965	0.8705	6.1	6.2	6.20	6.782	2.912	583.27	325.00	0.56
1930	2.931	0.8770	1.2	0.8	0.80	6.837	2.889	587.94	350.00	0.60

(continued)

TABLE F-I  
(continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Raw indexes		Inflation rates			Figures used index		Rent indexes and ratio to the overall index		
	<i>BMS</i>	Villa	<i>BMS</i>	Villa	Inflation		p98 / pn			
1931	3.071	0.8426	-4.6	-3.9	-3.90	6.570	3.006	565.01	355.00	0.63
1932	3.350	0.7672	-8.3	-8.9	-8.90	5.985	3.300	514.72	363.00	0.71
1933	3.486	0.7426	-3.9	-3.2	-3.20	5.794	3.409	498.25	375.00	0.75
1934	3.633	0.7115	-4.0	-4.2	-4.20	5.550	3.558	477.32	375.00	0.79
1935	3.968	0.6525	-8.4	-8.3	-8.30	5.090	3.880	437.71	382.00	0.87
1936	3.685	0.7000	7.7	7.3	7.30	5.461	3.616	469.66	363.00	0.77
1937	2.931	0.8803	25.7	25.8	25.80	6.870	2.875	590.83	375.00	0.63
1938	2.579	1.0000	13.6	13.6	13.60	7.805	2.531	671.18	414.00	0.62
1939	2.411	1.0656	7.0	6.6	6.60	8.320	2.374	715.48	426.00	0.60
1940	2.047	1.2639	17.8	18.6	18.60	9.867	2.002	848.56	431.00	0.51
1941	1.743	1.4820	17.4	17.3	17.30	11.574	1.706	995.36	439.00	0.44
1942	1.449	1.7803	20.3	20.1	20.10	13.901	1.421	1,195.43	455.00	0.38
1943	1.167	2.2115	24.2	24.2	24.20	17.265	1.144	1,484.72	464.00	0.31
1944	0.955	2.7049	22.2	22.3	22.30	21.115	0.935	1,815.81	489.00	0.27
1945	0.643	4.0098	48.5	48.2	48.20	31.292	0.631	2,691.04	563.00	0.21
1946	0.421	6.1180	52.7	52.6	52.60	47.752	0.414	4,106.52	646.00	0.16



1947	0.283	9.1410	48.8	49.4	49.40	71.341	0.277	6,135.14	745.00	0.12
1948	0.178	14.485	59.0	58.5	58.50	113.08	0.175	9,724.20	944.00	0.10
1949	0.157	16.393	13.4	13.2	13.20	128.00	0.154	11,007.79	1,831.00	0.17
1950	0.143	18.033	9.8	10.0	10.00	140.80	0.140	12,108.57	2,488.28	0.21
1951	0.123	20.967	16.3	16.3	16.30	163.75	0.121	14,082.27	2,981.24	0.21
1952	0.110	23.454	11.8	11.9	11.90	183.24	0.108	15,758.06	3,802.85	0.24
1953	0.112	23.066	-1.8	-1.7	-1.70	180.12	0.110	15,490.17	4,295.81	0.28
1954	0.111	23.164	0.9	0.4	0.40	180.84	0.109	15,552.13	4,788.77	0.31
1955	0.110	23.377	0.9	0.9	0.90	182.47	0.108	15,692.10	5,328.68	0.34
1956	0.106	24.361	3.8	4.2	4.20	190.14	0.104	16,351.17	5,939.01	0.36
1957	0.103	25.097	2.9	3.0	3.00	195.84	0.101	16,841.71	6,338.08	0.38
1958	0.089	28.887	15.7	15.1	15.10	225.41	0.088	19,384.80	7,324.00	0.38
1959	0.084	30.661	6.0	6.1	6.10	239.16	0.083	20,567.28	8,333.40	0.41
1960	8.116	31.793	3.5	3.7	3.70	2.4801	7.963	213.28	97.65	0.46
1961	7.856	32.830	3.3	3.3	3.30	2.5619	7.709	220.32	110.56	0.50
1962	7.496	34.387	4.8	4.7	4.70	2.6824	7.363	230.68	119.25	0.52
1963	7.153	36.038	4.8	4.8	4.80	2.8111	7.026	241.75	133.10	0.55
1964	6.915	37.264	3.4	3.4	3.40	2.9067	6.795	249.97	139.91	0.56
1965	6.747	38.208	2.5	2.5	2.50	2.9794	6.629	256.22	153.52	0.60
1966	6.570	39.246	2.7	2.7	2.70	3.0598	6.455	263.14	166.90	0.63
1967	6.395	40.283	2.7	2.6	2.60	3.1394	6.291	269.98	184.51	0.68
1968	6.119	42.123	4.5	4.6	4.60	3.2838	6.015	282.40	199.77	0.71
1969	5.748	44.859	6.5	6.5	6.50	3.4972	5.647	300.75	217.26	0.72
1970	5.463	47.170	5.2	5.2	5.20	3.6791	5.368	316.39	234.74	0.74

(continued)

TABLE F-1  
(continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Raw indexes		Inflation rates			Figures used index		Rent indexes and ratio to the overall index		
	<i>BMS</i>	Villa	<i>BMS</i>	Villa	Inflation		p98 / pn			
1971	5.170	49.764	5.7	5.5	5.50	3.8814	5.088	333.79	247.42	0.74
1972	4.870	52.831	6.2	6.2	6.20	4.1221	4.791	354.49	258.92	0.73
1973	4.459	56.699	9.2	7.3	7.30	4.4230	4.465	380.36	279.11	0.73
1974	3.921	64.482	13.7	13.7	13.70	5.0289	3.927	432.47	298.83	0.69
1975	3.508	72.076	11.8	11.8	11.80	5.6223	3.513	483.51	327.94	0.68
1976	3.201	79.010	9.6	9.6	9.60	6.1621	3.205	529.92	361.27	0.68
1977	2.926	86.416	9.4	9.4	9.40	6.7413	2.930	579.74	392.49	0.68
1978	2.683	94.246	9.1	9.1	9.10	7.3548	2.685	632.49	423.01	0.67
1979	2.423	104.39	10.7	10.8	10.80	8.1491	2.424	700.80	467.14	0.67
1980	2.133	118.54	13.6	13.6	13.60	9.2573	2.133	796.11	525.12	0.66
1981	1.881	134.43	13.4	13.4	13.40	10.498	1.881	902.79	593.43	0.66
1982	1.682	150.28	11.8	11.8	11.80	11.737	1.683	1,009.32	650.47	0.64
1983	1.535	164.76	9.6	9.6	9.60	12.863	1.535	1,106.21	714.09	0.65
1984	1.429	176.98	7.4	7.4	7.40	13.815	1.430	1,188.07	769.02	0.65
1985	1.350	187.31	5.9	5.8	5.80	14.616	1.351	1,256.98	818.55	0.65
1986	1.315		2.7		2.70	15.011	1.316	1,290.92	863.86	0.67
1987	1.275		3.1		3.10	15.476	1.276	1,330.94	912.68	0.69

1988	1.242	2.7	2.70	15.894	1.243	1,366.87	972.07	0.71
1989	1.198	3.7	3.70	16.482	1.198	1,417.45	1,025.59	0.72
1990	1.159	3.4	3.40	17.043	1.159	1,465.64	1,074.96	0.73
1991	1.123	3.2	3.20	17.588	1.123	1,512.54	1,127.47	0.75
1992	1.097	2.4	2.40	18.010	1.097	1,548.84	1,184.71	0.76
1993	1.075	2.0	2.00	18.370	1.075	1,579.82	1,237.28	0.78
1994	1.057	1.7	1.70	18.683	1.057	1,606.67	1,272.75	0.79
1995	1.039	1.7	1.70	19.000	1.039	1,633.99	1,306.07	0.80
1996	1.019	2.0	2.00	19.380	1.019	1,666.67	1,335.10	0.80
1997	1.007	1.2	1.20	19.613	1.007	1,686.67	1,352.30	0.80
1998	1.000	0.7	0.70	19.750	1.000	1,698.47	1,380.25	0.81

Sources: (1) = Series given in the *BMS*, February 1999, pp. 144–145 (“coefficient of transformation from a franc of an older year into a franc from a current year [deflation by the overall retail price index]”).

(2) = Consumption price index (expressed in base 1 in 1938) published by Villa (1994, 142, series “PCSGF”).

(3) = Average annual inflation rate calculated on the basis of series (1).

(4) = Average annual inflation rate calculated on the basis of series (2).

(5) = Inflation rate used in this book = column (4) for the years 1891–1985, column (3) for the years 1986–1998.

(6) = Price index in base 1 in 1890 calculated on the basis of column (5).

(7) = Conversion rate for 1890–1998 francs into 1998 francs calculated on the basis of column (6).

(8) = Column (6) converted into base 100 in 1914.

(9) = SGF / INSEE residential rent index, in base 100 in 1914. 1900–1949: residential rent price index in base 100 in 1914, published in *Annuaire Statistique de la France 1966—Résumé rétrospectif* (INSEE, 1966), p. 404 (also reproduced in Fourastié [1970, pp. 458–460]); 1949–1989: INSEE rent index in base 100 in 1970 published in *Annuaire Rétrospectif de la France 1948–1988* (INSEE, 1990), p. 288, converted into base 1831 in 1949; 1989–1993: INSEE index in base 100 in 1980 published in the *BMS* (February 1990, p. 61; January 1991, p. 63; February 1992, p. 64; January 1993, p. 64), converted into base 1025.6 in 1989; 1993–1998: INSEE principal residence rent index in base 100 in 1990, published in the *BMS* (January 1994, p. 66; January 1995, p. 75; January 1996, p. 82; January 1997, p. 92; January 1998, p. 93; January 1999, p. 93), converted into base 1075.0 in 1990) (the SGF / INSEE index, like the overall consumption price indexes, is Parisian until 1961, and national starting from 1962).

(10) = (9) / (8).

1949–1985,<sup>4</sup> and they are extremely close for the years 1914–1949 (the slight differences are always offset over a few years). On the other hand, for the 1901–1914 period, the figures published in the *BMS* are inconsistent: the conversion rates into 1998 francs are rigorously identical for the years 1901–1905, 1907–1910, and 1911–1914 (see column [1]), which implies nonzero inflation rates only for the years 1906–1907 (the inflation rates for these two years offset each other exactly).<sup>5</sup> The figures published by Villa for the years 1890–1914, which are based notably on the Fourastié studies, seem more reasonable.

We have thus proceeded in the following way. For the years 1891–1985, we have used Villa's annual inflation rates: column (5) = column (4) for the years 1891–1985. For the years 1986–1998, we have used the annual inflation rates from the *BMS*: column (5) = column (3) for the years 1986–1998. In column (5) and for later calculations of inflation rates, we have used inflation rates with a single digit after the decimal, so that all of our calculations may be reproduced without encountering difficulties connected to the number of decimal places available (in any case, claiming to measure price increases with a precision greater than a single decimal place is illusory). Column (6) shows the consumption price index (expressed in base 1 in 1890) used in this book, calculated on the basis of the annual inflation rates in column (5). Finally, column (7) shows the conversion rates for 1890–1998 francs into 1998 francs used in this book to convert old incomes into 1998 francs, calculated from column (6) (by construction, these conversion rates into 1998 francs are very close to those published in the *BMS*).

Columns (8) to (10) in Table F-1 also reproduce the rent indexes used in Chapter 1 of this book (see Figure 1-9). Column (8) reproduces the overall consumption price index from column (6), converted into base 100 in 1914. Column (9) reproduces the SGF/INSEE rent index, also expressed in base 100 in 1914, which we have obtained by splicing together the indexes from the different periods (the publications used are described in the table). Column (10) equals the ratio between column (9) and column (8).

## Methodology and Results of the Estimates Based on the National Accounts Series (1900–1998)

This appendix describes the national accounting series we used and the estimates we carried out on the basis on them. We begin by laying out how we compiled a consistent series for total fiscal income and average fiscal income for the entire 1900–1998 period (section 1) (this series was useful to us especially in calculating the various top-income fractiles' shares of total income; see Appendix B, section 1.5). We then present series decomposing business value-added between labor and capital over the entire period (section 2). Finally, we provide a number of complementary tables decomposing household income and comparing the various available series (section 3).

### *1. Estimating Consistent Total Fiscal Income and Average Fiscal Income Series from 1900 to 1998*

Tables G-1 and G-2 show how we have gone about estimating a consistent annual series for total fiscal income and average fiscal income from 1900 to 1998. All sources used, and all calculations are given precisely in the tables; here we will simply clarify the key points.

Two principal difficulties occupied our attention. First, because the concept of household income in the national accounting sense is far broader than the concept of fiscal income,<sup>1</sup> household income series in the national accounting sense must be substantially adjusted to obtain series for fiscal income. Second, it is important to be extremely precise about the nature of the national accounting series one uses, since there are often several available series. In particular, it is

important to keep in mind that the first “official” national accounts compiled by the French statistical administration began only with the year 1949: the annual series of the “official” national accounts (GDP, wage bill, business profits, household incomes, etc.) cover the years 1949–1998 and never go back further than 1949.<sup>2</sup> It is true that an attempt was made by the administration in the immediate postwar period to compile simplified national accounts for the year 1938, and these “economic accounts for the year 1938” were revised several times up to the publication of their “definitive” version in 1957.<sup>3</sup> But other than the year 1938, all national accounting series for years prior to 1949 have come from scholars working independently, so there are several competing national accounts series for the interwar era and early twentieth century, based on more or less sophisticated accounting frameworks depending on the authors, sometimes compiled on an annual basis and sometimes only for a few scattered years. The main authors who attempted to compile “national accounting” series (in a broad sense—that is, using concepts that were sometimes quite remote from those of modern national accounting) for periods prior to 1949 and whose works we have used, are, in order of publication, Dugé de Bernonville (1931, 1933, 1935, 1936, 1937, 1938, 1939), Mitzakis (1944), Froment and Gavanier (1947, 1948), Malissen (1953), Sauvy (1954, 1965–1975, 1984), Vincent (1962, 1965, 1972), Carré, Dubois, and Malinvaud (1972), Toutain (1987, 1997), Villa (1993, 1994, 1997), and Maddison (1995).<sup>4</sup> However, the difficulties arising from the multiplicity of available series should not be exaggerated. The different authors based their work on the same kinds of raw statistical materials (production indexes, price indexes, censuses, sectoral surveys, administrative data, etc.) that were used in the “official” postwar national accounts, and they generally gave extremely detailed explanations of how they analyzed these raw materials, which lends some reliability to their estimates.

Homage must be paid to Dugé de Bernonville for the precision with which he described his methodology: Dugé de Bernonville seems to have made the best possible use of the statistical apparatus of his era, and there is no reason to think that his estimates of “private incomes” could really be improved upon (apart from a few details).<sup>5</sup> It may also be pointed out that while the various available series were arrived at largely independently by the various authors, overall they are very consistent with one another: we have systematically compared the different available series, and we have observed that discrepancies are generally of only a few percentage points (see section 3, and in particular

Tables B-20 to B-22). These series may therefore be regarded as relatively reliable. In compiling our own estimates, we have principally made use of Dugé de Bernonville's studies, which truly represent the central reference when studying household incomes on the eve of the First World War and the interwar period, as well as the studies by Villa, which still represent the most systematic attempt to compile complete national accounts for the 1900–1949 period, and which are based notably on a synthesis of the studies by all previous authors; thus they demonstrate the very high degree of convergence between the different available series.

In Table G-1, for the 1900–1949 period we have used the GDP and household income series estimated by Villa. For GDP, we used the production-side GDP series estimated by Villa,<sup>6</sup> which has the virtue of covering all years of the 1900–1949 period, including the war years.<sup>7</sup> For household income, Villa only estimated a series for gross disposable income (GDI); we have not attempted to estimate a series for gross primary income (GPI), but the available data show that the GPI share of GDP before the Second World War very slightly exceeded the GDI share of GDP, as it also did after 1949. Villa's GDI series does not cover the years 1914–1919 or 1939–1948, and we have not attempted to complete it (see later in this section on how we proceeded for the war years). For the 1949–1998 period, in Table G-1 we have used the “official” GDP and household income series (GPI and GDI).<sup>8</sup>

To estimate our total fiscal income series for 1900 to 1998, we proceeded in the following way. In Piketty (1998), we estimated an annual total taxable income series for the years 1970–1995, which we obtained by using the available tax statistics for the years 1985–1995 (the annual tax statistics have included nontaxable tax units since 1985) and by estimating the evolution of the (taxable income) / GPI ratio for the years 1970–1985, based notably on the information provided in the *Revenus fiscaux* studies from 1970, 1975, 1979, 1984, and 1990 (which provide estimates of total fiscal income for all tax units). We thus used this 1970–1995 total taxable income series, filling it out with the latest available tax statistics for the years 1996–1998 (column [1] of Table G-2), and converted it into a 1970–1998 total fiscal income series by assuming a uniform (taxable income) / (fiscal income) ratio of 70 percent.<sup>9</sup>

For the years 1949–1970, we assumed that the (fiscal income) / GPI ratio rose linearly from 58.0 percent in 1949 to 64.3 percent in 1970 (column [3] of Table G-2), and total fiscal income was obtained by applying those ratios to the

TABLE G-1  
*GDP, GPI, and GDI, 1900-1998*

	(1) Market GDP (current francs)	(2) Market GDP (constant francs)	(3) g(GDP)	(4) Total GDP (current francs)	(5) % (4) / (1)	(6) GPI (current francs)	(7) GDI (current francs)	(8) % (7) / (6)	(9) % (6) / (1)	(10) % (7) / (1)
1900	36.1	290.4					33.7			93.3
1901	34.2	276.3	-4.9				32.4			94.8
1902	34.3	273.2	-1.1				31.3			91.3
1903	35.9	282.6	3.4				32.7			91.1
1904	36.9	288.5	2.1				33.3			90.5
1905	38.0	295.9	2.5				33.1			87.0
1906	38.4	291.9	-1.3				33.5			87.2
1907	41.9	315.2	8.0				36.3			86.8
1908	41.2	314.7	-0.2				36.9			89.5
1909	43.0	325.0	3.3				38.0			88.5
1910	42.2	310.0	-4.6				38.5			91.2
1911	46.1	342.1	10.3				41.6			90.2
1912	51.2	370.8	8.4				44.1			86.2
1913	50.8	368.4	-0.6				43.6			85.8
1914	45.1	309.0	-16.1							
1915	45.1	264.5	-14.4							
1916	59.6	299.2	13.1							
1917	70.7	291.8	-2.5							



1918	78.2	244.5	-16.2		
1919	105.0	270.5	10.7		
1920	159.5	291.0	7.6	163.4	102.5
1921	128.6	278.2	-4.4	158.6	123.3
1922	159.9	334.6	20.3	173.7	108.6
1923	189.8	354.0	5.8	189.6	99.9
1924	241.8	396.4	12.0	213.7	88.4
1925	265.8	401.8	1.4	233.0	87.7
1926	330.6	417.8	4.0	273.1	82.6
1927	342.5	409.6	-2.0	280.1	81.8
1928	356.1	434.6	6.1	312.2	87.7
1929	400.2	473.1	8.9	334.1	83.5
1930	392.2	460.8	-2.6	328.5	83.8
1931	365.6	442.9	-3.9	299.8	82.0
1932	316.5	403.8	-8.8	265.1	83.8
1933	312.8	415.8	3.0	259.6	83.0
1934	297.3	401.7	-3.4	239.8	80.7
1935	280.1	391.5	-2.5	234.3	83.6
1936	281.3	396.6	1.3	268.4	95.4
1937	349.3	405.8	2.3	322.8	92.4
1938	395.8	395.8	-2.5	366.0	92.5
1939	453.3	411.5	4.0		
1940	371.1	315.8	-23.3		
1941	413.0	294.6	-6.7		
1942	480.9	295.1	0.1		
1943	531.4	291.3	-1.3		

(continued)

TABLE G-1  
(continued)

	(1) Market GDP (current francs)	(2) Market GDP (constant francs)	(3) g(GDP)	(4) Total GDP (current francs)	(5) % (4)/(1)	(6) GPI (current francs)	(7) GDI (current francs)	(8) % (7)/(6)	(9) % (6)/(1)	(10) % (7)/(1)
1944	575.4	222.2	-23.7							
1945	1,102.3	277.9	25.0							
1946	2,437.5	375.1	35.0							
1947	3,635.4	398.7	6.3							
1948	6,556.1	451.2	13.2							
1949a	8,100.6	479.4	6.2				6,722.9			83.0
1949b	7,708.3	227.5		8,491.8	110.2	6,626.7	6,500.6	98.1	86.0	84.3
1950	9,017.4	244.7	7.6	9,956.8	110.4	7,700.1	7,551.5	98.1	85.4	83.7
1951	11,338.0	260.4	6.4	12,525.1	110.5	9,606.1	9,520.9	99.1	84.7	84.0
1952	13,195.7	268.7	3.2	14,605.5	110.7	11,242.6	11,062.7	98.4	85.2	83.8
1953	13,601.3	278.6	3.7	15,103.0	111.0	11,568.3	11,356.4	98.2	85.1	83.5
1954	14,375.8	293.8	5.4	15,995.0	111.3	12,301.9	12,101.7	98.4	85.6	84.2
1955	15,448.1	309.7	5.4	17,139.4	110.9	13,275.8	13,128.9	98.9	85.9	85.0
1956	16,922.4	325.8	5.2	18,880.2	111.6	14,630.8	14,388.4	98.3	86.5	85.0
1957	19,086.6	345.1	5.9	21,271.7	111.4	16,363.9	16,112.8	98.5	85.7	84.4
1958	22,050.2	354.4	2.7	24,567.9	111.4	18,753.7	18,269.6	97.4	85.1	82.9
1959	23,898.3	363.5	2.6	26,722.8	111.8	20,024.8	19,372.8	96.7	83.8	81.1
1960	266.5	392.5	8.0	296.5	111.2	221.9	215.5	97.1	83.2	80.9

1961	290.1	415.0	5.7	323.5	III.5	242.1	234.0	96.7	83.5	80.7
1962	323.2	444.6	7.1	361.2	III.7	274.2	268.3	97.8	84.8	83.0
1963	361.6	471.1	6.0	404.9	III.0	306.0	299.5	97.9	84.6	82.8
1964	401.8	504.2	7.0	449.2	III.8	334.8	326.4	97.5	83.3	81.2
1965	433.2	530.1	5.1	483.5	III.6	360.3	351.1	97.4	83.2	81.0
1966	469.7	560.4	5.7	523.4	III.4	387.8	377.3	97.3	82.6	80.3
1967	507.4	587.6	4.9	565.4	III.4	421.2	409.8	97.3	83.0	80.8
1968	547.4	611.9	4.1	614.5	III.3	462.7	445.6	96.3	84.5	81.4
1969	625.3	658.0	7.5	700.7	III.1	519.8	497.8	95.8	83.1	79.6
1970a	697.9	697.9	6.1	782.6	III.1	584.6	561.1	96.0	83.8	80.4
1970b	695.7	1,704.5		793.5	III.1	592.3	562.6	95.0	85.1	80.9
1971	772.5	1,790.3	5.0	884.2	III.5	658.4	621.7	94.4	85.2	80.5
1972	862.7	1,872.8	4.6	987.9	III.5	736.6	699.3	94.9	85.4	81.1
1973	987.0	1,982.7	5.9	1,129.8	III.5	833.7	793.5	95.2	84.5	80.4
1974	1,129.8	2,042.7	3.0	1,303.0	III.3	976.3	929.5	95.2	86.4	82.3
1975	1,255.7	2,024.3	-0.9	1,467.9	III.6	1,130.5	1,075.5	95.1	90.0	85.7
1976	1,448.9	2,113.6	4.4	1,700.6	III.7	1,293.8	1,209.0	93.4	89.3	83.4
1977	1,625.4	2,180.5	3.2	1,917.8	III.0	1,468.3	1,366.5	93.1	90.3	84.1
1978	1,843.3	2,250.9	3.2	2,182.6	III.4	1,667.7	1,579.6	94.7	90.5	85.7
1979	2,094.3	2,323.6	3.2	2,481.1	III.5	1,888.6	1,767.2	93.6	90.2	84.4
1980	2,360.1	2,360.1	1.6	2,808.3	III.0	2,159.6	1,996.6	92.4	91.5	84.6
1981	2,644.8	2,384.2	1.0	3,164.8	III.7	2,472.4	2,314.8	93.6	93.5	87.5
1982	3,012.0	2,441.3	2.4	3,626.0	III.4	2,817.7	2,648.5	94.0	93.5	87.9
1983	3,321.5	2,452.3	0.5	4,006.5	III.6	3,101.7	2,883.3	93.0	93.4	86.8
1984	3,611.4	2,482.7	1.2	4,361.9	III.8	3,324.4	3,086.3	92.8	92.1	85.5

(continued)

TABLE G-1  
(continued)

	(1) Market GDP (current francs)	(2) Market GDP (constant francs)	(3) g(GDP)	(4) Total GDP (current francs)	(5) % (4) / (1)	(6) GPI (current francs)	(7) GDI (current francs)	(8) % (7) / (6)	(9) % (6) / (1)	(10) % (7) / (1)
1985	3,904.6	2,530.0	1.9	4,700.1	120.4	3,550.0	3,323.1	93.6	90.9	85.1
1986	4,224.0	2,598.8	2.7	5,069.3	120.0	3,728.8	3,500.0	93.9	88.3	82.9
1987	4,462.7	2,662.2	2.4	5,336.7	119.6	3,900.0	3,629.1	93.1	87.4	81.3
1988	4,821.5	2,790.8	4.8	5,735.1	118.9	4,106.4	3,853.0	93.8	85.2	79.9
1989	5,198.3	2,926.7	4.9	6,159.7	118.5	4,443.4	4,139.4	93.2	85.5	79.6
1990	5,494.0	3,005.9	2.7	6,509.5	118.5	4,731.9	4,412.9	93.3	86.1	80.3
1991	5,699.4	3,018.9	0.4	6,776.4	118.9	4,993.8	4,649.7	93.1	87.6	81.6
1992	5,853.3	3,046.1	0.9	6,999.5	119.6	5,178.1	4,850.8	93.7	88.5	82.9
1993	5,865.7	2,985.7	-2.0	7,077.1	120.7	5,276.2	4,995.6	94.7	89.9	85.2
1994	6,128.2	3,072.4	2.9	7,389.7	120.6	5,436.9	5,140.3	94.5	88.7	83.9
1995	6,342.1	3,141.7	2.3	7,662.4	120.8	5,693.4	5,364.2	94.2	89.8	84.6
1996	6,494.7	3,183.8	1.3	7,871.7	121.2	5,871.2	5,493.5	93.6	90.4	84.6
1997	6,724.5	3,264.2	2.5	8,137.1	121.0	6,067.4	5,685.3	93.7	90.2	84.5
1998	7,000.2	3,368.7	3.2	8,470.7	121.0	6,310.1	5,878.6	93.2	90.1	84.0

*Explanation:* In 1998, the market GDP of France was 7,000.2 billion 1998 francs and 3,368.7 billion 1980 francs (a growth rate of 3.2 percent for market GDP in quantity terms between 1997 and 1998), total GDP (market + nonmarket) was 8,470.7 billion 1998 francs (121.0 percent of market GDP), gross primary income (GPI) of households was 6,310.1 billion 1998 francs (90.1 percent of market GDP), and gross disposable income (GDI) of households was 5,878.6 billion 1998 francs (93.2 percent of GPI and 84.0 percent of market GDP).

*Sources:* (1) = Market GDP in billions of current francs (in billions of old francs for the years 1900–1959, and in billions of new francs for 1960–1998). 1900–1949a: series PIBQ (gross domestic production calculated by production) from Villa (see Villa 1994, 466); 1949b–1970a: market GDP series rebased to base 1971 from INSEE (see *Annuaire Rétrospectif de la France 1948–1988* [INSEE, 1990], p. 239); 1970b–1997: market GDP series in base 1980 from INSEE (see “Comptes et indicateurs économiques—Rapport sur les Comptes de la Nation 1997,” *INSEE-Résultats* no. 607–608–609 [series Economie générale no. 165–166–167], June 1998, p. 25); market GDP in current francs 1998 was obtained by applying a 1998 / 1997 growth rate of 4.1 percent (see “Comptes et indicateurs économiques—Rapport sur les Comptes de la Nation 1998,” *INSEE-Résultats* no. 664 [series Economie générale no. 182], July 1999, p. 9).

(2) = Market GDP in quantity terms. 1900–1949a = PIBQ series (gross domestic production calculated by production in billions of 1938 francs) from Villa (see Villa 1994, 466); 1949b–1970a: market GDP series rebased to base 1971 in billions of 1970 francs from INSEE (see *Annuaire Rétrospectif de la France 1948–1988* [INSEE, 1990], p. 242); 1970b–1997: market GDP series in base 1980, in billions of 1980 francs, from INSEE (see “Comptes et indicateurs économiques—Rapport sur les Comptes de la Nation 1997,” *INSEE-Résultats* no. 607–608–609 [series Economie générale no. 165–166–167], June 1998, p. 26); market real GDP in 1998 francs was obtained by applying a 1998 / 1997 growth rate of 3.2 percent (see “Comptes et indicateurs économiques—Rapport sur les Comptes de la Nation 1998,” *INSEE-Résultats* no. 664 [series Economie générale no. 182], July 1999, p. 9).

(3) = Growth rate of market GDP in quantity terms; (3) = annual growth rate from (2).

(4) = Total GDP (market + nonmarket) in billions of current francs (in billions of old francs for 1949–1959 and in billions of new francs for 1960–1998). 1949b–1970a: Total GDP series rebased to base 1971 from INSEE (see *Annuaire Rétrospectif de la France 1948–1988* [INSEE, 1990], p. 239); 1970b–1997: Total GDP series in base 1980 from INSEE (see “Comptes et indicateurs économiques—Rapport sur les Comptes de la Nation 1997,” *INSEE-Résultats* no. 607–608–609 [series Economie générale no. 165–166–167], June 1998, p. 25); total GDP in current 1998 francs was obtained by applying a 1998 / 1997 growth rate of 4.1 percent (see “Comptes et indicateurs économiques—Rapport sur les Comptes de la Nation 1998,” *INSEE-Résultats* no. 664 [series Economie générale no. 182], July 1999, p. 9).

(5) = Total GDP (market + nonmarket) expressed as a percentage of market GDP; (5) = percent (4) / (1).

(6) = GPI of households in billions of current francs. 1949b–1970a: GPI series rebased to base 1971 by INSEE (see *Annuaire Rétrospectif de la France 1948–1988* [INSEE, 1990], p. 251); 1970b–1997: GPI series in base 1980 from INSEE (see “Comptes et indicateurs économiques—Rapport sur les Comptes de la Nation 1997,” *INSEE-Résultats* no. 607–608–609 [series Economie générale no. 165–166–167], June 1998, p. 163); 1998 GPI was obtained by applying a 1998 / 1997 growth rate of 4.0 percent (see “Comptes et indicateurs économiques—Rapport sur les Comptes de la Nation 1998,” *INSEE-Résultats* no. 664 [series Economie générale no. 182], July 1999, p. 77):  $6292.372 / 6049.793 = 1.040$ .

(7) = GDI of households in billions of current francs. 1900–1913, 1920–1938, and 1949a: RDM series (gross disposable income of households) from Villa. See Villa (1997, 207) for 1900–1913 and Villa (1994, 147) for 1920–1938 and 1949a; 1949b–1970a: GDI series rebased to base 1971 by INSEE (see *Annuaire Statistique de la France 1948–1988* [INSEE, 1990], p. 251); 1970b–1997: GDI series in base 1980 from INSEE (see “Comptes et indicateurs économiques—Rapport sur les Comptes de la Nation 1997,” *INSEE-Résultats* no. 607–608–609 [series Economie générale no. 165–166–167], June 1998, p. 163); 1998 GDI was obtained by applying a 1998 / 1997 growth rate of 3.4 percent (see “Comptes et indicateurs économiques—Rapport sur les Comptes de la Nation 1998,” *INSEE-Résultats* no. 664 [series Economie générale no. 182], July 1999, p. 77):

$5513.142 / 5332.014 = 1.034$ .

(8) = GDI expressed as a percentage of GPI; (8) = % (7) / (6).

(9) = GPI expressed as a percentage of market GDP; (9) = % (6) / (1).

(10) = GDI expressed as a percentage of market GDP; (10) = % (7) / (1).

## APPENDIX G

TABLE G-2

*Total fiscal income and fiscal physical income, 1900-1998*

	(1) Taxable income (current francs)	(2) Total fiscal income (current francs)	(3) % Fiscal income / GPI	(4) Total fiscal income (current francs)	(5) % fiscal income / Dugé income
1900			60.0	20.2	
1901			60.0	19.4	
1902			60.0	18.8	
1903			60.0	19.6	
1904			60.0	20.0	
1905			60.0	19.9	
1906			60.0	20.1	
1907			60.0	21.8	
1908			60.0	22.1	
1909			60.0	22.8	
1910			60.0	23.1	
1911			60.0	25.0	
1912			60.0	26.5	
1913			58.9	25.7	70.8
1914				26.2	
1915				27.4	
1916				30.6	
1917				39.0	
1918				48.0	
1919				61.7	
1920			50.7	82.9	75.4
1921			54.3	86.1	74.8
1922			51.4	89.2	75.0
1923			52.5	99.5	74.3
1924			54.2	115.7	74.7
1925			54.1	126.0	73.3
1926			54.5	148.8	71.6
1927			53.7	150.5	71.6
1928			51.8	161.8	71.3

## APPENDIX G

(6)	(7)	(8)	(9)	(10)	(11)
Average fiscal income (per tax unit) (current francs)	Average fiscal income (per tax unit) (1998 francs)	Average fiscal income (per capita) (current francs)	Average fiscal income (per capita) (1998 francs)	Average fiscal income / average blue-collar wage	Average fiscal income / average wage
1,430	28,760	525	10,551	1.23	1.23
1,377	27,537	505	10,103	1.19	1.19
1,326	26,819	488	9,866	1.18	1.17
1,376	27,979	508	10,322	1.19	1.18
1,396	28,787	517	10,649	1.21	1.20
1,380	28,474	512	10,563	1.20	1.18
1,389	28,310	517	10,532	1.15	1.13
1,502	30,185	560	11,261	1.23	1.20
1,518	29,821	568	11,157	1.21	1.18
1,558	30,660	585	11,503	1.23	1.19
1,571	29,994	591	11,286	1.22	1.18
1,686	29,279	636	11,048	1.28	1.24
1,772	31,123	675	11,851	1.34	1.29
1,701	28,893	654	11,103	1.27	1.22
1,716	29,140	665	11,302	1.27	1.21
1,799	25,740	699	9,999	1.26	1.21
2,013	25,717	783	10,005	1.26	1.20
2,575	27,460	1,003	10,700	1.26	1.19
3,178	26,127	1,240	10,196	1.25	1.19
4,091	26,908	1,599	10,517	1.25	1.18
5,516	26,408	2,160	10,339	1.25	1.17
5,616	30,692	2,219	12,129	1.19	1.11
5,775	32,840	2,289	13,019	1.30	1.21
6,377	32,671	2,536	12,993	1.37	1.28
7,323	32,941	2,922	13,142	1.35	1.25
7,874	33,009	3,151	13,211	1.35	1.25
9,218	29,702	3,701	11,925	1.32	1.21
9,257	28,569	3,724	11,493	1.31	1.20
9,895	30,602	3,989	12,335	1.33	1.22

(continued)

## APPENDIX G

TABLE G-2  
(continued)

	(1) Taxable income (current francs)	(2) Total fiscal income (current francs)	(3) % Fiscal income / GPI	(4) Total fiscal income (current francs)	(5) % fiscal income / Dugé income
1929			52.6	175.9	71.8
1930			55.4	182.1	74.9
1931			57.0	171.0	75.0
1932			57.9	153.6	74.6
1933			56.8	147.4	74.1
1934			57.1	136.9	74.4
1935			56.1	131.5	75.2
1936			54.9	147.3	73.3
1937			54.8	176.9	73.1
1938			53.6	196.3	73.5
1939				199.8	
1940				181.7	
1941				218.0	
1942				292.6	
1943				361.8	68.6
1944				439.1	
1945				791.1	
1946				1343.5	
1947				1774.5	
1948				3015.1	
1949			58.0	3843.5	
1950			58.3	4489.1	
1951			58.6	5629.0	
1952			58.9	6621.6	
1953			59.2	6848.1	
1954			59.5	7319.2	
1955			59.8	7938.3	
1956			60.1	8792.4	
1957			60.4	9882.8	



## APPENDIX G

(6)	(7)	(8)	(9)	(10)	(11)
Average fiscal income (per tax unit) (current francs)	Average fiscal income (per tax unit) (1998 francs)	Average fiscal income (per capita) (current francs)	Average fiscal income (per capita) (1998 francs)	Average fiscal income / average blue-collar wage	Average fiscal income / average wage
10,689	31,127	4,317	12,571	1.29	1.17
11,000	31,778	4,452	12,860	1.27	1.16
10,220	30,721	4,144	12,457	1.23	1.12
9,159	30,224	3,722	12,282	1.19	1.08
8,769	29,892	3,571	12,174	1.12	1.01
8,132	28,937	3,319	11,811	1.06	0.96
7,794	30,245	3,188	12,372	1.03	0.93
8,720	31,537	3,575	12,930	1.02	0.91
10,470	30,099	4,295	12,347	1.05	0.93
11,605	29,367	4,763	12,052	1.10	0.98
12,352	29,323	5,072	12,040	1.12	0.99
11,198	22,415	4,601	9,209	1.14	1.01
14,182	24,200	5,830	9,947	1.16	1.02
19,034	27,044	7,828	11,122	1.18	1.04
23,680	27,089	9,744	11,146	1.20	1.05
29,101	27,221	11,980	11,206	1.02	0.89
52,260	32,984	21,525	13,586	1.05	0.91
81,249	33,605	33,483	13,849	1.15	1.00
106,590	29,509	43,872	12,146	1.10	0.95
179,285	31,315	73,700	12,873	1.15	0.98
226,600	34,964	93,033	14,355	1.26	1.06
262,870	36,873	107,789	15,120	1.37	1.13
327,181	39,462	133,993	16,161	1.30	1.04
382,705	41,250	156,536	16,872	1.30	1.03
393,338	43,129	160,686	17,619	1.31	1.03
418,299	45,683	170,670	18,639	1.23	1.01
449,832	48,689	183,639	19,877	1.19	0.98
493,392	51,251	201,535	20,934	1.17	0.97
548,838	55,350	224,309	22,621	1.19	0.98

(continued)

## APPENDIX G

TABLE G-2  
(continued)

	(1) Taxable income (current francs)	(2) Total fiscal income (current francs)	(3) % Fiscal income / GPI	(4) Total fiscal income (current francs)	(5) % fiscal income / Dugé income
1958			60.7	11382.3	
1959			61.0	12213.7	
1960			61.3	136.0	
1961			61.6	149.1	
1962			61.9	169.7	
1963			62.2	190.3	
1964			62.5	209.2	
1965			62.8	226.3	
1966			63.1	244.7	
1967			63.4	267.0	
1968			63.7	294.7	
1969			64.0	332.6	
1970	266.5	380.8	64.3	380.8	
1971	296.5	423.5	64.3	423.5	
1972	331.9	474.2	64.4	474.2	
1973	376.0	537.1	64.4	537.1	
1974	440.5	629.3	64.5	629.3	
1975	510.5	729.2	64.5	729.2	
1976	589.3	841.9	65.1	841.9	
1977	674.5	963.6	65.6	963.6	
1978	772.6	1103.8	66.2	1103.8	
1979	882.4	1260.6	66.7	1260.6	
1980	1012.5	1446.4	67.0	1446.4	
1981	1163.1	1661.5	67.2	1661.5	
1982	1330.0	1899.9	67.4	1899.9	
1983	1469.0	2098.5	67.7	2098.5	
1984	1579.8	2256.8	67.9	2256.8	
1985	1692.6	2418.0	68.1	2418.0	
1986	1789.6	2556.5	68.6	2556.5	

## APPENDIX G

(6) Average fiscal income (per tax unit) (current francs)	(7) Average fiscal income (per tax unit) (1998 francs)	(8) Average fiscal income (per capita) (current francs)	(9) Average fiscal income (per capita) (1998 francs)	(10) Average fiscal income / average blue-collar wage	(11) Average fiscal income / average wage
624,607	54,727	255,420	22,380	1.22	1.00
663,131	54,762	271,326	22,406	1.23	1.00
7306	58,183	2,991	23,819	1.23	1.00
7,931	61,144	3,249	25,046	1.26	1.00
8,921	65,684	3,656	26,921	1.29	1.03
9,741	68,439	4,000	28,104	1.29	1.02
10,566	71,792	4,347	29,537	1.31	1.04
11,303	74,926	4,659	30,885	1.33	1.05
12,133	78,316	4,998	32,260	1.35	1.06
13,135	82,633	5,407	34,016	1.40	1.09
14,408	86,657	5,927	35,647	1.40	1.09
16,042	90,596	6,638	37,488	1.40	1.09
18,104	97,186	7,536	40,455	1.44	1.13
19,833	100,919	8,302	42,244	1.43	1.11
21,898	104,920	9,209	44,125	1.42	1.12
24,501	109,405	10,345	46,195	1.41	1.12
28,398	111,530	12,028	47,238	1.39	1.10
32,608	114,546	13,864	48,701	1.40	1.11
37,421	119,939	15,945	51,105	1.39	1.10
42,432	124,315	18,175	53,247	1.43	1.13
48,118	129,214	20,720	55,641	1.43	1.13
54,368	131,768	23,571	57,127	1.50	1.17
61,661	131,552	26,919	57,432	1.49	1.17
69,960	131,620	30,752	57,856	1.49	1.17
79,024	132,981	34,967	58,843	1.48	1.16
86,419	132,688	38,399	58,958	1.47	1.15
91,844	131,301	41,111	58,773	1.46	1.14
96,169	129,946	43,839	59,237	1.42	1.12
100,121	131,731	46,138	60,704	1.41	1.10

(continued)

## APPENDIX G

TABLE G-2  
(continued)

	(1) Taxable income (current francs)	(2) Total fiscal income (current francs)	(3) % Fiscal income / GPI	(4) Total fiscal income (current francs)	(5) % fiscal income / Dugé income
1987	1888.2	2697.4	69.2	2697.4	
1988	1985.2	2836.0	69.1	2836.0	
1989	2111.5	3016.4	67.9	3016.4	
1990	2250.8	3215.5	68.0	3215.5	
1991	2358.5	3369.3	67.5	3369.3	
1992	2434.9	3478.4	67.2	3478.4	
1993	2489.0	3555.7	67.4	3555.7	
1994	2544.3	3634.7	66.9	3634.7	
1995	2627.5	3753.6	65.9	3753.6	
1996	2714.8	3878.3	66.1	3878.3	
1997	2785.9	3979.9	65.6	3979.9	
1998	2914.2	4163.1	66.0	4163.1	

*Explanation:* In 1998, average fiscal income per tax unit was 129,085 francs, and average fiscal income per capita was 70,894 francs.

*Sources:* (1) = Total taxable income (taxable and nontaxable tax units), expressed in billions of current francs. For 1970–1995, see Piketty (1998, 94, table C-2, column [10]); for 1996–1997, the figure given in column (1) is total taxable income (taxable and nontaxable tax units) from l'Etat 1921 on 12 / 31 /  $n + 2$ ; for 1998, the figure given in column (1) is total taxable income (taxable and nontaxable tax units) from l'Etat 1921 on 12 / 31 /  $n + 1$ , marked up by 1 percent to take into account tax issuances from the year  $n + 2$  (see Appendix A, section 1.5).

(2) = 1970–1998 total fiscal income series subtracted from column (1) assuming an average (taxable income) / (fiscal income) ratio of 70 percent; (2) = (1) / 0.7.

(3) = Total fiscal income expressed as a percentage of GPI for the 1949–1998 period and as a percentage of GDI for the 1900–1913 and 1920–1938 periods. For 1970–1998, (3) = % (2) / (column [6] of Table G-1); for 1949–1969, we assumed that this percentage changed linearly from 58.0 percent in 1949 to its 64.3 percent value in 1970; for 1913 and 1920–1938, (3) = % (4) / (column [7] of Table G-1); for 1900–1912, we assumed that this percentage was equal to 60 percent.

(4) = Total fiscal income series used in this book, expressed in billions of current francs (in billions of old francs for 1900–1959 and in billions of new francs for 1960–1998). For 1970–1998, (4) = (2); for 1949–1969, (4) = (3) × (column [6] of Table G-1) (with 1949b for 1949); for 1900–1912, (4) = (3) × column (7) of Table G-1; for 1913, 1920–1938, and 1943, (4) was estimated from Dugé de Bernonville's assessments of "private incomes" (extended by Mitzakis for 1943), applying the following coefficients to the figures in Table G-12: 95 percent for wages, 70 percent for investment income, 75 percent for income from built property, 25 percent for BA, 75 percent for industrial and commercial profits in 1913 and 1920–1929 and 85 percent in 1930–1938 and 1943, 100 percent for income from liberal professions, and 0 percent for pensions; for 1914–1919, 1939–1942, and 1944–1948, (4) = (6) × (column [10] of Table H-1).

## APPENDIX G

(6)	(7)	(8)	(9)	(10)	(11)
Average fiscal income (per tax unit) (current francs)	Average fiscal income (per tax unit) (1998 francs)	Average fiscal income (per capita) (current francs)	Average fiscal income (per capita) (1998 francs)	Average fiscal income / average blue-collar wage	Average fiscal income / average wage
102,403	130,682	48,444	61,821	1.42	1.10
105,854	131,534	50,673	62,966	1.43	1.10
110,248	132,106	53,605	64,233	1.44	1.10
114,718	132,943	56,834	65,863	1.43	1.09
117,780	132,259	59,222	66,502	1.42	1.08
119,729	131,296	60,793	66,666	1.42	1.07
120,295	129,330	61,806	66,448	1.36	1.05
121,003	127,917	62,907	66,501	1.36	1.03
122,725	127,569	64,695	67,248	1.35	1.02
124,569	126,946	66,573	67,843	1.36	1.03
126,194	127,077	68,045	68,521	1.35	1.03
129,085	129,085	70,894	70,894	1.37	1.05

(5) = % (4) / (column "Total" from Table G-12).

(6) = Average fiscal income per tax unit series used in this book, expressed in current francs (in old francs for 1900–1959 and in new francs for 1960–1998). For 1900–1913, 1920–1938, 1943, and 1949–1998, (6) = (4) / (column [10] of Table H-1); for 1914–1919, 1939–1942, and 1944–1948, (6) = (10) × (column [6] of Table E-1).

(7) = Average fiscal income per tax unit series used in this book, expressed in 1998 francs; (7) = (6) × (column [7] of Table F-1).

(8) = Average fiscal income per capita series used in this book, expressed in current francs (in old francs for the 1900–1959, and in new francs for 1960–1998); (8) = (4) / (column [1] of Table H-1).

(9) = Average fiscal income per capita series used in this book, expressed in 1998 francs; (9) = (8) × (column [7] of Table F-1).

(10) = (Average fiscal income per tax unit) / (average blue-collar wage) ratio. For 1900–1913, 1920–1938, 1943, and 1949–1998, (10) = (6) / (column [6] of Table E-1); for 1914–1919, we assumed that the ratio moved linearly from its 1913 value to its 1920 value; for 1939–1942, we assumed that the ratio moved linearly from its 1938 value to its 1943 value; for 1944–1948, we assumed ratios of 1.02, 1.05, 1.15, 1.10, and 1.15 (see Appendix G, section 1).

(11) = (Average fiscal income per tax unit) / (average wage) ratio; (11) = (6) / (column [11] of Table E-3).

1949–1970 GPI series shown in Table G-1. This simplifying assumption is consistent with the *Revenus fiscaux* studies from 1956, 1962, 1965, and 1970, which show that fiscal income as measured in those studies grew slightly faster than household income in the national accounting sense over the 1950s–1960s.<sup>10</sup> This assumption is also consistent with the results that we obtained concerning the evolution of household income composition (see section 3, Tables G-5 to G-11): over the long run, the near stability in the (fiscal income) / (household income in the national accounting sense) ratio is explained by the fact that the decline in the weight of self-employed mixed incomes (which the national accounts record at a much higher level than the tax authorities or than is declared by the parties concerned) was offset by the increase in the relative weight of social benefits (among the latter, only retirement pensions are systematically taxable, at least when they are not veterans' or disability pensions); in the 1950s–1960s, the decline in the weight of mixed incomes was particularly rapid, so that the first factor tends to dominate (hence there is a slight upward trend in the (fiscal income) / GPI ratio). Note, too, that according to our estimates, the (fiscal income) / GPI ratio continued its slight upward trend over the 1970s, before stabilizing in the 1980s–1990s and then even declining slightly in the late 1990s (see column [3] of Table G-2), which is explained by the fact that the collapse of mixed incomes almost came to a halt and the expansion of social benefits was reinforced by the expansion of nontaxable capital incomes. Thus, our estimates of the evolution of total fiscal income (and thus average fiscal income) over the 1949–1998 period are ultimately consistent with the information provided by two largely independent sources (the *Revenus fiscaux* studies and the national accounts), and they may therefore be regarded as relatively reliable, within 1 percent or 2 percent. It is possible that our methodology led us to (very) slightly overestimate the level of the (fiscal income) / GPI ratio reached in 1970, and that we therefore (very) slightly overestimated the growth of average fiscal income over the 1950s–1960s, which would mean that the growth in the top-income share of total fiscal income during this period was actually even greater than we estimated, but it does not seem possible that this slight bias exceeded 1 percent or 2 percent.<sup>11</sup>

For the years 1913 and 1920–1938, we chose to estimate total fiscal income by directly using Dugé de Bernonville's estimates of "private income," rather than estimates of household income in the national accounting sense. This is justified by the fact that the income concepts used by Dugé de Bernonville are

much closer to the concept of fiscal income than are those of the national accounts (in particular, Dugé de Bernonville estimates “net” profits rather than gross operating surpluses), and by the fact that the available estimates of household income in the national accounting sense for the interwar era, particularly those of Villa, were all obtained from Dugé de Bernonville’s estimates.<sup>12</sup> To calculate the total fiscal income shown in Table G-2 for the years 1913 and 1920–1938, we thus applied the coefficients shown in the notes of Table G-2 to Dugé de Bernonville’s estimates reproduced in Table G-12; the coefficients seemed “reasonable” to us, given the methodology, concepts, and sources that Dugé de Bernonville used.<sup>13</sup> Let us note, however, that since the first *Revenus fiscaux* study was undertaken in 1956, we have no other sources with which to confront our estimates of total fiscal income for this period: our estimates of total fiscal income and average fiscal income are thus inevitably more fragile for the interwar and pre-World War I eras than for the post-Second World War period. Note, however, that with this methodology based on directly estimating fiscal income from Dugé de Bernonville’s series, we obtain (fiscal income)/GDI ratios for the years 1913 and 1920–1938 between 50 percent and 60 percent, and generally around 55–60 percent, that is, very close to the 58.0 percent (fiscal income)/GPI ratio used for 1949 (see column [3] of Table G-2), which suggests that any estimation errors are probably only a few percentage points, and confirms the hypothesis of a generally constant (fiscal income)/GDI or (fiscal income)/GPI ratio over the course of the century. In particular, the fact that these ratios are slightly lower for the interwar era (and notably for the 1920s) than for the immediate postwar era is perfectly consistent with the changes in the relative weight of self-employed mixed incomes. Though it would seem that this phenomenon is also explained by a slight overestimate of interwar GDI (the GDI used by Villa for the years 1920, 1922, and 1928 seem particularly high<sup>14</sup>). For the years 1900–1912, in the absence of estimates of the kind carried out by Dugé de Bernonville, we assumed a uniform (fiscal income)/GDI ratio of 60.0 percent, a level very close to the 58.9 percent ratio obtained for 1913.

For the war years, the available statistical sources are relatively poor (very few authors have ventured to give estimates of household income for those years), and we have resorted to assumptions about the evolution of the (average income)/(average blue-collar wage) ratio, which is justified by the fact that wages are probably the magnitudes whose evolution over these chaotic periods

is the least poorly understood, and by the fact that this ratio generally tends to change relatively slowly (see column [10] of Table G-2).

For the years 1939–1948, thanks to the estimates by Mitzakis (1944), we have a relatively solid reference point for the year 1943. In 1944, Mitzakis carried out an estimate of “private income” for the year 1943 that seems relatively reliable (given the difficulties inherent in the war years): Mitzakis used the same methods and categories as Dugé de Bernonville, and, like his model, he mobilized all of the period’s statistical sources.<sup>15</sup> Moreover, when we take the same coefficients we applied to Dugé de Bernonville’s estimates and apply them to the Mitzakis estimates reproduced in Table G-12, we obtain an (average income) / (average blue-collar wage) ratio of 1.20 in 1943, that is, a ratio about 10 percent higher than the 1.10 ratio obtained for 1938 (see column [10] of Table G-2). This seems consistent with the information in the tax statistics derived from the schedular tax on BIC, which shows that BIC grew slightly faster than wages during the inflation of the 1938–1943 years.<sup>16</sup> The total fiscal income shown in Table G-2 for the year 1943 was thus obtained by taking the same coefficients we applied to Dugé de Bernonville’s estimates and applying them to Mitzakis’s estimates, and then for 1939–1942 we assumed that the (average income) / (average blue-collar wage) ratio changed linearly between 1938 and 1943 (see column [10] of Table G-2). For the years 1944–1948, such an assumption is not feasible. It is true that the (average income) / (average blue-collar wage) ratio obtained for 1943 (1.20) is relatively close to the ratio obtained for 1949 (1.26), so we might assume that the linear evolution used for the years 1938–1943 continued over the years 1943–1949. But comparing the rates of GDP growth, wage growth, and the growth rates obtained from the tax statistics derived from the schedular tax on BIC suggests that the (average income) / (average blue-collar wage) ratio followed a nonmonotonic evolution over the 1943–1949 period, with a sharp decline in 1944, a slight recovery in 1945, a significant increase in 1946, a slight decline in 1947, and then the new increase in 1948–1949. From this information, then, we calculated total fiscal income for 1944–1948 assuming an (average income) / (average blue-collar wage) ratio of 1.02 in 1944, 1.05 in 1945, 1.15 in 1946, 1.10 in 1947, and 1.15 in 1948 (see column [10] of Table G-2). These estimates are obviously relatively imprecise, but they are consistent with all available information. In particular, they are far more satisfactory than the estimates of total fiscal income that could be obtained by using Froment et Gavanier’s estimates (1947, 921; 1948,



738), according to which household income rose from 371 billion current francs in 1938 to 2,300 billion in 1946 and 3,148 billion in 1947 (to our knowledge these are the only estimates of household income in the national accounting sense that have been attempted for the years 1939–1948). Applying these 1946 / 1938 and 1947 / 1938 growth rates to the total fiscal income we adopted for 1938, we would obtain an average 1946 income just barely higher than the average blue-collar wage, which seems too low, given the very strong economic recovery in 1947 (a comparison of the growth rates for wages, GDP, and BIC suggests that the [average income] / [average blue-collar wage] ratio was around 1.10–1.15 at a minimum in 1946, and the 1.15 value we adopted is more of an “average” value), and which would result in a recovery in the top-income share in 1946 that would be far too strong not to be suspect, whereas our estimates lead to “reasonable” fluctuations in the top-income share. However, it is possible that we have slightly overestimated the drop in the (average income) / (average blue-collar wage) ratio in 1944: with a slightly higher ratio, the decline in the top-income share observed in 1944 would be even greater than what we estimated.

For the years 1914–1919, estimates of household income are even rarer than they were for the 1939–1948 period (which is chiefly explained by the fact that statistics from the schedular taxes, and in particular the schedular tax on BIC, began only in 1919). The only estimate we are aware of comes from Lecaillon (1948), who spliced together the “private income” estimates carried out by Dugé de Bernonville for the years 1913 and 1920 using industrial and agricultural production indexes.<sup>17</sup> Such a method, which would be relatively imprecise in peacetime, is completely unacceptable in wartime, given that household incomes generally decline by much less and far less rapidly than production in wartime (due, among other things, to public borrowing and international transfers). In any event, the timing can vary significantly (which also explains why it is impossible to use the production side GDP series estimated by Villa to estimate household income during the war years). Indeed, using Lecaillon’s estimates for the years 1914–1919 would result in major inconsistencies, so we have not used them.<sup>18</sup> Given that the estimates adopted for 1913 and 1920 result in (average income) / (average blue-collar wage) ratios that are very close for those two years (1.27 in 1913, 1.25 in 1920), the most natural hypothesis is to assume that the ratio evolved linearly between 1913 and 1920 (see column [10] of Table G-2). The fact that the (average income) / (average blue-collar wage)

ratio during the First World War did not experience the same kind of collapse as it did in 1944–1945 seems consistent with the fact that the First World War did not bring about the same kind of major wage hikes (in a context of collapsing production) that took place at the Liberation. In fact, if we were to assume that price increases and insufficient indexation of wages resulted in a rise in the capital share of value-added during the First World War, we might even be led to conclude that over the years 1914–1918 there was an increase in the (average income) / (average blue-collar wage) ratio, which only regained its level of around 1.25–1.27 in 1919–1920. However, the few estimates available rather suggest relative stability in the capital-labor split over the course of the First World War.<sup>19</sup> In these circumstances, the most reasonable hypothesis is to assume that the (average income) / (average blue-collar wage) ratio evolved linearly between 1913 and 1920, and that is how we have proceeded.

## *2. Estimating a Homogenous Series Decomposing Value-Added between Labor and Capital from 1900 to 1998*

Tables G-3 and G-4 show how we have gone about obtaining consistent annual series decomposing value-added between labor and capital from 1900 to 1998. Here again, all sources used in all calculations undertaken are shown precisely in the tables; here we will simply clarify the key points.

For the 1900–1949 period, we used Villa's series for income-side GDP and its various components: by construction, GDP calculated by income equals the sum of total compensation paid to wage earners by firms (wages, payroll taxes, and benefits), gross operating surplus (GOS) of firms (apart from individual enterprises [IE]) (which breaks down, in the accounting framework adopted by Villa, into interest and dividends paid by firms and gross enterprise savings),<sup>20</sup> gross operating income of individual enterprises, gross operating income of households (apart from individual enterprises; that is, essentially rent, and notably fictive rent),<sup>21</sup> and production taxes (net of subsidies) (the accounting equation to decompose GDP calculated by income as estimated by Villa is reproduced in the notes of Table G-3).<sup>22</sup> Villa's series provide a complete decomposition of income-side GDP only for the years 1900–1913 and 1920–1938 (see Table G-3), and we have not attempted to fill out the series for 1914–1919. However, for the years 1939–1949, we did fill out Villa's "IDVE" series (interest

and dividends paid by firms) starting with its 1938 value and using Malissen's 1939–1949 series on profits distributed by firms as an indicator of change (see Table G-15, column [2]).<sup>23</sup> This method is consistent, since it was also using Malissen's series that Villa estimated the evolution of his IDVE variable for the interwar era,<sup>24</sup> and it is a priori relatively reliable, since Malissen estimated the series from the statistics derived from the IRVM, which are generally regarded as very reliable.<sup>25</sup> This addition to Villa's series thus allows us to extend our estimated decomposition of value-added for the Second World War years, and the results obtained seem relatively "reasonable."<sup>26</sup>

Generally speaking, we attempted to obtain a decomposition of "net" value-added between labor and capital, that is, value-added net of production taxes and subsidies, which seems the most logical way to proceed, since taxes arising from production fall on all of value-added.<sup>27</sup> We also excluded gross operating income of households from value-added, since this item does not correspond to any production by businesses (on the other hand, this item is obviously taken into account in the decomposition of household income; see Tables G-5 to G-11). The first decomposition we carried out was to calculate the share of individual enterprises in value-added (see column [13] of Table G-3). The second decomposition divided the value-added of firms strictly speaking (excluding IE) between the share going to labor and the share going to capital, with the sum of these two shares equaling 100 percent by construction (see columns [14] and [15] of Table G-3).

For the 1949–1998 period, we tried to obtain the same kind of decomposition of value-added as we did for the 1900–1949 period. To do this, we merely reproduce in Table G-4 the "official" series for the three main items of total compensation paid to wage earners by companies, gross operating surpluses of companies (other than individual enterprises), and gross operating surpluses of individual enterprises (see columns [1], [2], and [3] of Table G-4). These three magnitudes are conceptually the same as those we used for the decomposition of value-added for 1900–1949.<sup>28</sup> As was the case for the 1900–1949 period, the sum of these three magnitudes is less than GDP, since gross operating surpluses of households as well as production taxes and subsidies must be added to them, along with the value-added of financial institutions and insurance companies, which pose particular measurement problems, and are broken out separately from other firms within the "modern" national accounting series, and which we have excluded from our decomposition of value-added. Because

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TABLE G-3

*Decomposition of value-added between labor and capital, 1900-1949*

	(1) PIBE	(2) MSE	(3) PSE	(4) CSE	(5) EBE	(6) IDVE	(7) RBEI	(8) RBM
1900	34.9	13.2	0.1	0.0	1.6	1.6	12.9	3.2
1901	32.9	13.1	0.1	0.0	1.0	1.5	12.1	3.0
1902	32.1	12.8	0.1	0.0	1.3	1.4	11.5	2.8
1903	33.7	13.2	0.1	0.0	1.4	1.5	12.4	3.0
1904	34.3	13.1	0.1	0.0	1.4	1.5	12.9	3.2
1905	34.5	12.9	0.1	0.0	1.9	1.5	12.8	3.1
1906	34.1	13.3	0.1	0.0	1.3	1.7	12.4	3.0
1907	38.0	13.6	0.1	0.0	2.4	1.9	14.0	3.5
1908	37.8	14.2	0.1	0.0	1.8	1.9	13.9	3.4
1909	39.3	14.5	0.1	0.0	2.3	2.0	14.3	3.5
1910	39.2	14.9	0.1	0.0	1.7	2.3	14.0	3.4
1911	43.6	15.2	0.1	0.0	2.8	2.5	16.0	3.9
1912	47.3	15.3	0.1	0.0	4.5	2.7	17.6	4.3
1913	46.7	15.3	0.1	0.0	4.2	2.8	17.1	4.2
1914				0.0	2.8			
1915				0.0	2.5			
1916				0.0	5.6			
1917				0.0	7.7			
1918				0.0	7.7			
1919		38.1	0.2	0.1	11.9	4.7		
1920	162.6	59.1	0.4	0.4	20.0	5.3	61.5	5.5
1921	162.6	60.5	0.3	0.2	18.4	5.1	59.7	6.6
1922	174.4	59.7	0.2	0.3	20.8	4.9	65.8	9.2
1923	195.7	64.8	0.3	0.3	22.8	5.7	76.6	9.6
1924	226.3	76.2	0.3	0.3	26.1	7.8	86.5	11.0
1925	250.6	81.9	0.4	0.3	27.4	9.7	97.6	12.3
1926	312.5	95.8	0.5	0.4	34.1	11.3	123.6	14.1
1927	322.4	98.0	0.7	0.5	34.8	11.6	123.1	15.7
1928	346.4	106.0	0.8	0.7	35.8	12.8	132.8	17.3
1929	371.0	119.0	0.9	0.9	37.5	14.8	134.8	18.9
1930	361.7	127.4	2.2	1.9	38.2	14.0	116.4	20.9
1931	338.6	122.0	3.6	3.1	37.5	10.9	98.7	22.0
1932	300.1	110.6	3.3	2.9	29.0	7.0	86.3	22.0
1933	292.0	105.6	3.1	2.7	31.3	7.7	83.5	21.2

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(9) TAXE	(10) TAXIM	(11) SUBE	(12) DOME	(13) % EI	(14) % Tr.	(15) % K	(16) % Tr.	(17) % K
2.3	0.5	0.5	0.0	44.0	80.8	19.2	76.7	23.3
2.3	0.4	0.5	0.0	43.5	84.1	15.9	80.0	20.0
2.3	0.4	0.6	0.0	42.4	82.5	17.5	78.4	21.6
2.3	0.4	0.6	0.0	43.4	82.3	17.7	78.2	21.8
2.3	0.4	0.6	0.0	44.7	82.2	17.8	78.1	21.9
2.3	0.4	0.6	0.0	43.9	79.2	20.8	75.1	24.9
2.4	0.4	0.6	0.0	43.1	81.9	18.1	77.8	22.2
2.5	0.4	0.5	0.0	43.8	76.1	23.9	72.0	28.0
2.5	0.4	0.5	0.0	43.7	79.7	20.3	75.6	24.4
2.7	0.4	0.6	0.0	43.2	77.5	22.5	73.4	26.6
2.9	0.5	0.6	0.0	42.3	78.9	21.1	74.8	25.2
3.1	0.5	0.6	0.0	43.7	74.5	25.5	70.4	29.6
3.1	0.5	0.7	0.0	43.8	68.2	31.8	64.1	35.9
3.3	0.5	0.8	0.0	43.3	68.8	31.2	64.7	35.3
2.6	0.4	0.9	0.0					
2.7	0.4	0.9	0.0					
3.4	0.4	0.8	0.0					
4.3	0.5	1.1	0.0					
4.0	0.6	1.2	0.0					
7.8	0.8	2.0	0.9		69.9	30.1	65.8	34.2
13.3	1.6	2.8	1.8	41.9	70.3	29.7	66.2	33.8
13.9	1.7	3.3	0.6	41.4	72.1	27.9	68.0	32.0
15.5	1.7	1.7	2.0	43.4	70.1	29.9	66.0	34.0
17.2	1.6	1.7	1.5	44.9	69.7	30.3	65.6	34.4
20.1	1.9	2.3	1.5	43.8	69.4	30.6	65.3	34.7
22.5	2.0	2.4	1.1	44.9	69.0	31.0	64.9	35.1
33.3	3.5	3.4	0.7	46.5	68.1	31.9	64.0	36.0
37.4	4.9	3.2	1.0	45.8	68.1	31.9	64.0	36.0
40.1	5.0	3.5	1.2	46.0	68.9	31.1	64.8	35.2
45.0	4.9	4.3	1.4	43.8	69.8	30.2	65.7	34.3
42.6	5.2	5.6	1.4	38.8	71.6	28.4	67.5	32.5
42.2	4.7	5.5	0.6	35.8	72.7	27.3	68.6	31.4
38.4	6.0	5.3	0.0	36.1	76.4	23.6	72.3	27.7
37.7	4.9	5.4	0.3	35.7	74.1	25.9	70.0	30.0

(continued)

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TABLE G-3  
(continued)

	(1) PIBE	(2) MSE	(3) PSE	(4) CSE	(5) EBE	(6) IDVE	(7) RBEI	(8) RBM
1934	264.7	96.6	3.2	2.9	26.1	8.6	72.6	20.4
1935	256.5	90.0	3.4	3.0	25.7	8.3	73.6	19.6
1936	286.0	100.5	3.1	2.7	25.8	9.8	93.7	18.9
1937	348.6	123.3	4.2	3.7	36.1	10.9	116.6	19.6
1938	396.9	137.0	5.3	4.7	41.0	14.0	128.0	22.0
1939		140.0	5.3	4.8	43.1	14.1	147.8	
1940		127.6	4.6	3.5	37.7	14.1	122.1	
1941		148.3	5.2	4.8	41.3	14.0	137.0	
1942		181.0	6.1	7.6	47.1	14.0	160.8	
1943		216.4	7.0	8.7	49.5	12.2	179.2	
1944		367.9	11.5	10.4	28.5	12.4	195.6	
1945		619.8	18.6	31.0	74.2	10.9	377.8	
1946		835.7	24.1	110.2	265.3	20.4	842.2	
1947		1278	35.2	201.6	386.0	38.1	1266	
1948		2061	54.3	344.1	751.1	52.2	2302	
1949a		2249	56.4	464.1	979.1	87.2	2866	

*Explanation:* In 1949, the labor share of business value-added was 68.1 percent, and the capital share was 31.9 percent.

*Sources:* (1) = Villa's PIBE series = nominal gross domestic production (in billions of current francs) calculated by income; see Villa (1994, 142) for the 1920–1938 series and Villa (1997, 207) for 1900–1913.

(2) = Villa's MSE series = nominal wage bill paid by firms (in billions of current francs); see Villa (1994, 139) for 1919–1949 and Vila (1997, 206) for 1900–1913.

(3) = Villa's PSE series = nominal social benefits paid by firms (in billions of current francs); see Villa (1994, 146) for 1919–1949 and Villa (1997, 206) for 1900–1913.

(4) = Villa's CSE series = nominal social-insurance contributions paid by firms (in billions of current francs); see Villa (1994, 114) for 1919–1949 and Villa (1997, 206) for 1900–1913.

(5) = Villa's EBE series = nominal gross business savings (in billions of current francs); see Villa (1994, 123).

(6) = Villa's IDVE series = nominal interest and dividends paid by firms (in billions of current francs); see Villa (1994, 129) for 1919–1938 and Villa (1997, 206) for 1900–1913; for the years 1939–1949, we filled out Villa's series by starting from the 1938 value and using Malissen's 1939–1949 series on distributed profits as an indicator of change (Table G-15, column [2]); since Malissen's series does not cover the years 1940–1941, we assumed a linear evolution between 1939 and 1942.

(7) = Villa's RBEI series = nominal gross operating income of individual enterprises (in billions of current francs); see Villa (1994, 147).

(8) = Villa's RBM series = gross operating income of households (dwellings and family gardens); see Villa (1994, 147).

(9) = Villa's TAXE series = nominal taxes paid by firms (in billions of current francs); see Villa (1994, 149) for the 1919–1938 series, Villa (1997, 206) for 1913, and [www.cepii.fr](http://www.cepii.fr) for 1914–1918.

(10) = Villa's TAXIM series = nominal indirect taxes paid by households (in billions of current francs); see Villa (1994, 150) for the 1919–1938 series, Villa (1997, 206) for 1913, and [www.cepii.fr](http://www.cepii.fr) for 1914–1918.

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(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
TAXE	TAXIM	SUBE	DOME	% EI	% Tr.	% K	% Tr.	% K
34.9	5.1	5.7	0.0	34.6	74.7	25.3	70.6	29.4
34.5	4.9	6.4	0.1	36.1	73.9	26.1	69.8	30.2
33.4	4.9	6.8	0.1	39.8	74.9	25.1	70.8	29.2
37.2	5.3	8.4	0.1	39.6	73.6	26.4	69.5	30.5
46.0	7.0	8.0	0.1	38.8	72.8	27.2	68.7	31.3
				41.6	72.4	27.6	68.3	31.7
				39.4	72.4	27.6	68.3	31.7
				39.1	74.1	25.9	70.0	30.0
				38.6	76.1	23.9	72.0	28.0
				37.9	79.0	21.0	74.9	25.1
				31.2	90.5	9.5	86.4	13.6
				33.4	88.7	11.3	84.6	15.4
				40.1	77.2	22.8	73.1	26.9
				39.5	78.1	21.9	74.0	26.0
				41.4	75.4	24.6	71.3	28.7
				42.8	72.2	27.8	68.1	31.9

(11) = Villa's SUBE series = nominal subsidies received by firms (in billions of current francs); see Villa (1994, 149) for the 1919–1938 series, Villa (1997, 206) for 1913, and [www.cepii.fr](http://www.cepii.fr) for 1914–1918.

(12) = Villa's DOME series = nominal war damages received by firms (in billions of current francs); see Villa (1994, 122) (by definition, PIBE = MSE + PSE + CSE + EBE + IDVE + RBEI + RBM + TAXE + TAXIM — SUBE — DOME).

(13) = Individual enterprises' share of value-added; (13) = % (7) / [(2) + (3) + (4) + (5) + (6) + (7)].

(14) = Labor share of value-added of firms (excluding individual enterprises); (14) = % [(2) + (3) + (4)] / [(2) + (3) + (4) + (5) + (6)].

(15) = Capital share of value-added of firms (excluding individual enterprises); (15) = % [(5) + (6)] / [(2) + (3) + (4) + (5) + (6)].

(16) = Adjusted labor share; (16) = (14) — 4, 1.

(17) = Adjusted capital share; (17) = (15) + 4, 1.

TABLE G-4  
*Decomposition of value-added between labor and capital, 1949-1998*

	(1) RS	(2) EBE	(3) EBE-EI	(4) % EI	(5) % Labor	(6) % Capital		(7) % Labor	(8) % Capital
1949	2,717.4	1,102.4	2,477.1	39.3	71.1	28.9	1949	67.0	33.0
1950	2,995.0	1,297.6	3,002.3	41.2	69.8	30.2	1950	65.7	34.3
1951	3,808.6	1,658.7	3,668.8	40.2	69.7	30.3	1951	65.6	34.4
1952	4,561.4	1,833.7	4,124.2	39.2	71.3	28.7	1952	67.2	32.8
1953	4,760.0	1,917.9	3,826.4	36.4	71.3	28.7	1953	67.2	32.8
1954	5,171.1	2,052.3	4,170.5	36.6	71.6	28.4	1954	67.5	32.5
1955	5,674.4	2,198.6	4,450.4	36.1	72.1	27.9	1955	68.0	32.0
1956	6,349.3	2,455.9	4,712.7	34.9	72.1	27.9	1956	68.0	32.0
1957	7,128.8	2,745.0	5,290.8	34.9	72.2	27.8	1957	68.1	31.9
1958	8,163.1	3,157.8	6,142.7	35.2	72.1	27.9	1958	68.0	32.0
1959	8,922.0	3,569.4	6,219.7	33.2	71.4	28.6	1959	67.3	32.7
1960	98.3	41.1	70.2	33.5	70.5	29.5	1960	66.4	33.6
1961	110.1	44.6	72.5	31.9	71.2	28.8	1961	67.1	32.9
1962	124.2	47.3	81.8	32.3	72.4	27.6	1962	68.3	31.7
1963	142.2	52.8	87.5	31.0	72.9	27.1	1963	68.8	31.2
1964	159.5	60.6	92.5	29.6	72.5	27.5	1964	68.4	31.6
1965	173.0	66.1	97.8	29.0	72.4	27.6	1965	68.3	31.7
1966	187.5	72.6	104.0	28.6	72.1	27.9	1966	68.0	32.0
1967	201.9	80.5	112.4	28.5	71.5	28.5	1967	67.4	32.6



1968	223.1	87.0	117.5	27.5	72.0	28.0	1968	67.9	32.1
1969	256.1	102.6	125.8	26.0	71.4	28.6	1969	67.3	32.7
1970a	290.6	116.0	138.9	25.5	71.5	28.5	1970	67.4	32.6
1970b	249.0	120.5	136.7	27.0	67.4	32.6			
1971	281.1	137.5	146.1	25.9	67.2	32.8	1971	67.2	32.8
1972	315.5	149.7	164.9	26.2	67.8	32.2	1972	67.8	32.2
1973	366.1	179.0	180.1	24.8	67.2	32.8	1973	67.2	32.8
1974	438.3	201.8	197.7	23.6	68.5	31.5	1974	68.5	31.5
1975	511.9	204.9	212.4	22.9	71.4	28.6	1975	71.4	28.6
1976	594.5	236.5	231.6	21.8	71.5	28.5	1976	71.5	28.5
1977	672.1	275.6	259.8	21.5	70.9	29.1	1977	70.9	29.1
1978	754.3	306.7	298.3	21.9	71.1	28.9	1978	71.1	28.9
1979	855.4	350.6	328.5	21.4	70.9	29.1	1979	70.9	29.1
1980	991.8	374.3	357.2	20.7	72.6	27.4	1980	72.6	27.4
1981	1,125.9	423.0	388.6	20.1	72.7	27.3	1981	72.7	27.3
1982	1,276.7	475.3	449.4	20.4	72.9	27.1	1982	72.9	27.1
1983	1,400.9	537.4	486.5	20.1	72.3	27.7	1983	72.3	27.7
1984	1,494.5	616.7	510.2	19.5	70.8	29.2	1984	70.8	29.2
1985	1,586.6	692.3	542.2	19.2	69.6	30.4	1985	69.6	30.4
1986	1,660.9	821.5	585.6	19.1	66.9	33.1	1986	66.9	33.1
1987	1,743.7	897.1	591.8	18.3	66.0	34.0	1987	66.0	34.0
1988	1,853.2	1,022.9	613.4	17.6	64.4	35.6	1988	64.4	35.6
1989	1,980.2	1,111.0	689.5	18.2	64.1	35.9	1989	64.1	35.9
1990	2,127.4	1,143.4	728.0	18.2	65.0	35.0	1990	65.0	35.0
1991	2,229.7	1,207.0	725.8	17.4	64.9	35.1	1991	64.9	35.1

(continued)

TABLE G-4  
(continued)

	(1) RS	(2) EBE	(3) EBE-EI	(4) % EI	(5) % Labor	(6) % Capital		(7) % Labor	(8) % Capital
1992	2,304.0	1,224.1	732.8	17.2	65.3	34.7	1992	65.3	34.7
1993	2,313.2	1,228.5	706.0	16.6	65.3	34.7	1993	65.3	34.7
1994	2,362.0	1,266.9	715.7	16.5	65.1	34.9	1994	65.1	34.9
1995	2,456.4	1,320.7	731.8	16.2	65.0	35.0	1995	65.0	35.0
1996	2,531.7	1,333.2	736.6	16.0	65.5	34.5	1996	65.5	34.5
1997	2,598.0	1,407.6	748.2	15.7	64.9	35.1	1997	64.9	35.1
1998	2,670.8	1,472.3	775.8	15.8	64.5	35.5	1998	64.5	35.5

*Explanation:* In 1998, the labor share of value-added was 64.5 percent and the capital share was 35.5 percent.

*Sources:* (1) RS = Rémunération des salariés = total compensation paid to workers by firms.

(2) EBE = Excédent brut d'exploitation = gross operating surplus of firms (excluding individual enterprises).

(3) EBE-EI = Excédent brut d'exploitation—entreprises individuelles = Gross operating surplus of individual enterprises (in billions of current francs); 1949b–1970a: INSEE estimates in base 1971 (the “Chaillie” base) (1) = Chaillie’s COUTSE variable (total wage costs paid by firms); (2) = difference between Chaillie’s EBEE and EBEEI variables (EBEE = total gross operating surplus; EBEEI = gross operating surplus of individual enterprises); (3) = Chaillie’s EBEEI variable; 1970b–1997: INSEE estimates in base 1980 (published in “Comptes et indicateurs économiques—Rapport sur les comptes de la nation 1997,” *INSEE-Résultats* no. 607–608–609 [“Economie générale” series no. 165–166–167], June 1998) (1) = rémunération des salariés versée par les SQS (p. 143); (2) = EBE des SQS (p. 143); (3) = EBE des EI (p. 163); 1998: figures obtained from INSEE estimates in base 1995 (published in “Comptes et indicateurs économiques—Rapport sur les comptes de la nation 1998,” *INSEE-Résultats* no. 664 [Economie générale series n 182], July 1999) using a 1998 / 197 growth rate of 2.8 percent for (1) (p. 64:  $[2035 + 629 + 70 + 45] / [1954 + 636 + 69 + 44] = 1.028$ ), 4.6 percent for (2) (p. 64:  $1411 / 1349 = 1.046$ ), and 3.7 percent for (3) (p. 77:  $707 / 682 = 1.037$ ).

(4) = Individual enterprises’ share of value-added; (4) =  $\% (3) / [(1) + (2) + (3)]$ .

(5) = Labor share of value-added of firms (excluding individual enterprises); (5) =  $\% (1) / [(1) + (2)]$ .

(6) = Capital share of value-added of firms (excluding individual enterprises); (6) =  $\% (2) / [(1) + (2)]$ .

(7) = Adjusted labor share; (7) = (5) – 4.1 for 1949–1969, and (7) = (5) for 1970–1998.

(8) = Adjusted labor share; (8) = (6) + 4.1 for 1949–1969, and (8) = (6) for 1970–1998.

these additional terms are of no use to us in carrying out the decompositions of value-added that we need, we have not reproduced them in Table G-4, and an interested reader can easily find them by referring to the complete series of the “official” national accounts from which the three main items reproduced here are derived.<sup>29</sup> From these “official” series for 1949–1998, we thus calculated, in the same way as for the 1900–1949 period, the IE share of value-added (see column [4] of Table G-4), and the division of business value-added (excluding IEs) between labor and capital (columns [5] and [6] of Table G-4). It may be noted that the estimates obtained in this way for 1949, based on the “official” series, are very close to the estimates for 1949 that can be obtained by extending Villa’s series, both for the IE share and for the business value-added split (excluding IE), suggesting that the method we used to extend Villa’s series is relatively consistent.

To obtain a decomposition of business value-added that may be regarded as generally consistent over time, however, it is necessary to adjust the estimates shown in columns (14) and (15) of Table G-3 and (5) and (6) of Table G-4. An initial problem, inherent in any attempt to decompose value-added between labor and capital, concerns how to split the mixed incomes of individual enterprises. By definition, the mixed incomes of individual enterprises as measured in the national accounts (that is, the GOS of IEs) include both returns to the labor supplied by self-employed workers and returns to the capital invested by the latter in their enterprise, though it is not possible to distinguish these two items. Given this difficulty, two solutions have generally been used. The first solution is to assume that the labor-capital split of IEs’ GOS is the same as the labor-capital split of business value-added (excluding IEs): by construction, the total value-added split between labor and capital that results from this solution is strictly identical to the business value-added split (excluding IEs). The second solution is to attribute to self-employed workers the same average labor income as that received by wage earners. Since the IE share of value-added stood at a similar level (to a first approximation) to the self-employed share of total employment throughout the twentieth century, from 45–50 percent at the beginning of the century to 10–15 percent at the end of the century (see columns [13] of Table G-3 and [4] of Table G-4), this second solution would give results very close to those implied by the first solution.<sup>30</sup>

The second problem, more serious than the first, concerns the wages paid by IEs. In the national accounts, IEs include all firms lacking a legal personality

TABLE G-5

*Decomposition of household income in the national accounting sense, 1900-1938*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	RBM	IDVM	RBA	RBI	MSM	PSM	DOMM	% RBM	% IDVM	% RBA
1900	3.2	3.4	6.5	6.4	13.9	0.4	0.0	9.4	10.1	19.3
1901	3.0	3.3	6.1	6.0	13.8	0.5	0.0	9.1	10.2	18.6
1902	2.8	3.2	5.5	6.0	13.5	0.5	0.0	9.0	10.0	17.5
1903	3.0	3.2	6.2	6.1	13.9	0.5	0.0	9.2	9.8	18.9
1904	3.2	3.3	6.8	6.1	13.8	0.4	0.0	9.5	9.8	20.2
1905	3.1	3.4	6.5	6.3	13.6	0.5	0.0	9.4	10.1	19.5
1906	3.0	3.7	5.9	6.5	14.1	0.5	0.0	9.0	10.9	17.4
1907	3.5	4.1	7.2	6.8	14.4	0.5	0.0	9.4	11.2	19.7
1908	3.4	4.1	7.3	6.6	15.0	0.6	0.0	9.2	11.0	19.7
1909	3.5	4.4	7.3	7.1	15.4	0.6	0.0	9.2	11.5	19.0
1910	3.4	4.7	6.9	7.1	15.8	0.7	0.0	8.9	12.0	17.9
1911	3.9	4.9	8.4	7.6	16.2	0.7	0.0	9.4	11.8	20.0
1912	4.3	5.4	9.3	8.3	16.3	0.7	0.0	9.7	12.2	21.0
1913	4.2	5.4	8.8	8.3	16.3	0.7	0.0	9.6	12.4	20.1
1920	5.5	17.2	26.5	35.0	64.8	6.3	10.2	3.3	10.4	16.0
1921	6.6	18.7	26.6	33.1	66.8	6.7	3.1	4.1	11.6	16.5
1922	9.2	17.5	25.9	39.9	65.8	7.1	11.1	5.2	9.9	14.7
1923	9.6	20.6	29.9	46.7	71.2	6.7	8.6	5.0	10.7	15.5
1924	11.0	23.8	33.6	52.8	82.4	7.3	8.7	5.0	10.8	15.3
1925	12.3	24.3	41.8	55.8	88.6	7.9	6.2	5.2	10.3	17.6
1926	14.1	29.8	56.5	67.1	103.9	7.4	4.1	5.0	10.5	20.0
1927	15.7	29.1	57.1	66.0	107.0	11.1	5.9	5.4	10.0	19.6
1928	17.3	30.0	61.7	71.1	115.7	19.4	6.8	5.4	9.3	19.2
1929	18.9	35.4	64.1	70.7	129.9	15.9	7.8	5.5	10.3	18.7
1930	20.9	31.4	50.4	66.0	138.8	20.9	7.8	6.2	9.3	15.0
1931	22.0	26.7	43.9	54.7	135.1	24.4	3.4	7.1	8.6	14.2
1932	22.0	20.8	37.9	48.4	123.5	25.2	0.1	7.9	7.5	13.6
1933	21.2	21.0	37.2	46.3	117.3	27.1	1.7	7.8	7.7	13.7
1934	20.4	22.9	29.3	43.3	108.8	27.0	0.2	8.1	9.1	11.6
1935	19.6	24.4	26.5	47.1	101.5	27.3	0.3	8.0	9.9	10.7
1936	18.9	28.3	41.5	52.2	113.2	28.3	0.3	6.7	10.0	14.7
1937	19.6	32.4	55.1	61.5	139.7	29.7	0.4	5.8	9.6	16.3
1938	22.0	39.0	60.1	67.9	159.0	36.1	0.3	5.7	10.1	15.6

Sources: (1) to (7): The different components of household income in the national accounting sense, expressed in billions of current francs, estimated by Villa; see Villa (1994, 147, 129, 147, 139, 146 and 122) for 1920-1938 and Villa (1997, 206-207) for 1900-1913. RBM = revenu brut d'exploitation des ménages (logements et jardins familiaux) = gross operating income of households (dwellings and family gardens); IDVM = intérêts et dividendes reçus par les ménages = interest and dividends received by households; RBA = revenu brut d'exploitation des entrepreneurs individuels (secteur agricole) = gross operating income of individual entrepreneurs (farm sector); RBI = revenu brut d'exploitation des entrepreneurs individuels (secteurs non agricoles) = gross operating income of individual entrepreneurs (nonfarm sectors) (by definition, RBEI = RBA + RBI); MSM = masse salariale reçue par les ménages = total wages received by households; PSM = prestations sociales reçues par les ménages = social benefits received by households; DOMM = dommages de guerre reçus par les ménages = war damages received by households; the sum of columns (1) to (7) does not exactly equal gross household disposable income (RDM) (see column [7] of Table G-3), since we have not reproduced several other items that go into the calculation of RDM (notably taxes and social contributions).

(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
% RBI	% MSM	% PSM	% Cap.	% Mix.	% Trav.	% Mix.	% Trav.	% MSE	% MSG	% PSM
18.9	41.2	1.1	19.5	38.2	42.3	47.4	52.6	95.0	5.0	2.7
18.5	42.2	1.5	19.3	37.0	43.7	45.9	54.1	94.9	5.1	3.4
19.0	42.9	1.5	19.0	36.5	44.5	45.1	54.9	94.8	5.2	3.5
18.6	42.1	1.5	19.0	37.5	43.6	46.2	53.8	95.0	5.0	3.4
18.3	41.1	1.1	19.2	38.6	42.2	47.7	52.3	94.9	5.1	2.7
18.9	40.7	1.5	19.5	38.4	42.1	47.7	52.3	94.8	5.2	3.4
19.3	41.9	1.4	19.9	36.7	43.4	45.9	54.1	94.3	5.7	3.3
18.7	39.5	1.3	20.7	38.4	40.9	48.5	51.5	94.5	5.5	3.3
17.9	40.5	1.6	20.2	37.6	42.1	47.2	52.8	94.7	5.3	3.8
18.5	40.3	1.6	20.7	37.5	41.9	47.2	52.8	94.2	5.8	3.7
18.3	41.0	1.8	20.9	36.2	42.8	45.8	54.2	94.3	5.7	4.2
18.3	38.8	1.7	21.2	38.3	40.5	48.6	51.4	93.8	6.2	4.1
18.7	36.7	1.6	22.0	39.7	38.3	50.9	49.1	93.9	6.1	4.1
19.0	37.3	1.6	22.0	39.1	38.9	50.1	49.9	93.9	6.1	4.1
21.2	39.2	10.0	13.7	37.1	49.1	43.1	56.9	91.2	8.8	20.3
20.5	41.3	6.1	15.7	36.9	47.4	43.8	56.2	90.6	9.4	12.8
22.6	37.3	10.3	15.1	37.3	47.6	43.9	56.1	90.7	9.3	21.7
24.1	36.8	7.9	15.6	39.6	44.8	46.9	53.1	91.0	9.0	17.7
24.1	37.5	7.3	15.8	39.4	44.8	46.8	53.2	92.5	7.5	16.3
23.6	37.4	5.9	15.4	41.2	43.4	48.7	51.3	92.4	7.6	13.7
23.7	36.7	4.1	15.5	43.7	40.8	51.7	48.3	92.2	7.8	10.0
22.6	36.7	5.8	15.4	42.2	42.5	49.8	50.2	91.6	8.4	13.7
22.1	35.9	8.1	14.7	41.2	44.1	48.3	51.7	91.6	8.4	18.4
20.6	37.9	6.9	15.8	39.3	44.8	46.7	53.3	91.6	8.4	15.4
19.6	41.3	8.5	15.6	34.6	49.8	41.0	59.0	91.8	8.2	17.1
17.6	43.5	9.0	15.7	31.8	52.5	37.7	62.3	90.3	9.7	17.1
17.4	44.4	9.1	15.4	31.1	53.5	36.7	63.3	89.6	10.4	17.0
17.0	43.2	10.6	15.5	30.7	53.8	36.4	63.6	90.0	10.0	19.7
17.2	43.2	10.8	17.2	28.8	54.0	34.8	65.2	88.8	11.2	20.0
19.1	41.1	11.2	17.8	29.8	52.3	36.3	63.7	88.7	11.3	21.4
18.5	40.0	10.1	16.7	33.1	50.2	39.8	60.2	88.8	11.2	20.2
18.2	41.3	8.9	15.4	34.5	50.2	40.7	59.3	88.3	11.7	17.7
17.7	41.4	9.5	15.9	33.3	50.8	39.6	60.4	86.2	13.8	18.6

(8) to (13): Columns (1) to (7) expressed as a percentage of the total; (8) = % (1) / [(1) + (2) + ... + (7)], (9) = % (2) / [(1) + (2) + ... + (7)], etc. (war damages have been included in social benefits).

(14) to (16): Capital income, mixed income, and labor income as shares of household income in the national accounting sense; (14) = (8) + (9); (15) = (10) + (11); (16) = (12) + (13).

(17) to (18): Mixed income and labor income as shares of the earned income of households; (17) = % (15) / [(15) + (16)]; (18) = % (16) / [(15) + (16)].

(19) to (20): Wages paid by firms (MSE) and wages paid by public administrations (MSG) as a share of total wages received by households; (19) = % MSE / (5); (20) = % MSG / (5) (the MSE and MSG variables are from Villa [1994, 139; 1997, 206]; by definition, MSM = MSE + MSG).

(21) = Social benefits (including war damages) as a share of labor income (21) = % (13) / [(12) + (13)].

## APPENDIX G

TABLE G-6

*Decomposition of household income in the national accounting sense, 1949-1998*

	(1) EBM	(2) Pté	(3) RBEI	(4) Sal.N.	(5) Pr.Soc.	(6) % EBM	(7) % Pté	(8) % RBEI	(9) % Sa.N.
1949	306.8	375.6	2560.6	2710.4	1106.3	4.3	5.3	36.3	38.4
1950	362.4	431.1	3019.9	2988.5	1308.4	4.5	5.3	37.2	36.8
1951	374.3	529.7	3401.3	3788.4	1648.9	3.8	5.4	34.9	38.9
1952	418.1	620.0	3808.9	4499.2	1926.4	3.7	5.5	33.8	39.9
1953	446.7	645.5	3789.2	4675.0	2087.0	3.8	5.5	32.5	40.2
1954	534.4	704.0	3947.5	5096.3	2258.6	4.3	5.6	31.5	40.6
1955	564.0	735.0	4206.6	5577.7	2484.4	4.2	5.4	31.0	41.1
1956	607.3	806.0	4635.7	6196.7	2750.7	4.0	5.4	30.9	41.3
1957	662.4	870.5	5088.8	6955.7	3094.0	4.0	5.2	30.5	41.7
1958	745.4	923.4	6001.5	7930.6	3464.9	3.9	4.8	31.5	41.6
1959a	812.4	974.8	6214.5	8616.1	3808.6	4.0	4.8	30.4	42.2
1959b	994.1	1136.2	6016.2	8984.1	3606.9	4.8	5.5	29.0	43.3
1960	11.5	12.8	67.7	98.1	39.7	5.0	5.6	29.5	42.7
1961	13.4	13.7	68.9	108.0	44.5	5.4	5.5	27.7	43.5
1962	15.5	15.9	79.4	121.5	52.9	5.4	5.6	27.8	42.6
1963	18.2	16.9	83.4	137.9	62.6	5.7	5.3	26.2	43.2
1964	20.3	17.7	87.7	153.1	70.5	5.8	5.1	25.1	43.8
1965	23.2	19.4	92.7	164.2	77.6	6.2	5.1	24.6	43.6
1966	26.3	20.9	99.1	177.1	84.5	6.4	5.1	24.3	43.4
1967	30.1	23.8	106.3	189.8	92.3	6.8	5.4	24.0	42.9
1968	34.1	26.4	109.2	212.9	103.6	7.0	5.4	22.5	43.8
1969	39.1	30.2	116.9	241.9	117.6	7.2	5.5	21.4	44.3
1970	44.2	34.2	127.7	276.1	129.3	7.2	5.6	20.9	45.2
1971	48.2	40.3	136.3	311.4	144.0	7.1	5.9	20.0	45.8
1972	53.3	46.5	154.2	346.3	162.7	7.0	6.1	20.2	45.4
1973	61.9	51.4	168.0	398.6	187.8	7.1	5.9	19.4	45.9
1974	69.5	69.1	183.8	476.7	222.0	6.8	6.8	18.0	46.7
1975	77.2	78.2	198.4	552.1	279.0	6.5	6.6	16.7	46.6
1976	89.2	86.8	216.1	633.8	321.4	6.6	6.4	16.0	47.0
1977	101.6	101.6	242.5	713.3	369.9	6.6	6.6	15.9	46.7
1978	114.9	110.7	278.6	806.4	437.7	6.6	6.3	15.9	46.1
1979	132.9	131.2	306.1	893.9	500.8	6.8	6.7	15.6	45.5
1980	151.3	166.6	332.6	1021.1	582.6	6.7	7.4	14.8	45.3

APPENDIX G

(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
% P.S.	% Cap.	% Mix.	% Tra.	% Mix.	% Tra.	RS	% Mix.	% Tra.	% P.S.	% P.S.
15.7	9.7	36.3	54.1	40.2	59.8				29.0	
16.1	9.8	37.2	53.0	41.3	58.7				30.4	
16.9	9.3	34.9	55.8	38.5	61.5				30.3	
17.1	9.2	33.8	57.0	37.2	62.8				30.0	
17.9	9.4	32.5	58.1	35.9	64.1				30.9	
18.0	9.9	31.5	58.6	34.9	65.1				30.7	
18.3	9.6	31.0	59.4	34.3	65.7				30.8	
18.3	9.4	30.9	59.7	34.1	65.9				30.7	
18.6	9.2	30.5	60.3	33.6	66.4				30.8	
18.2	8.8	31.5	59.8	34.5	65.5				30.4	
18.6	8.7	30.4	60.8	33.3	66.7				30.7	
17.4	10.3	29.0	60.7	32.3	67.7	0.96	33.2	66.8	28.6	25.8
17.3	10.6	29.5	60.0	33.0	67.0	0.96	33.9	66.1	28.8	25.8
17.9	10.9	27.7	61.4	31.1	68.9	0.97	31.8	68.2	29.2	26.9
18.5	11.0	27.8	61.2	31.3	68.7	0.96	32.2	67.8	30.3	27.4
19.6	11.0	26.2	62.8	29.4	70.6	0.95	30.4	69.6	31.2	28.0
20.2	10.9	25.1	64.0	28.2	71.8	0.95	29.1	70.9	31.5	28.2
20.6	11.3	24.6	64.1	27.7	72.3	0.95	28.7	71.3	32.1	28.7
20.7	11.6	24.3	64.1	27.5	72.5	0.95	28.5	71.5	32.3	28.7
20.9	12.2	24.0	63.8	27.4	72.6	0.95	28.4	71.6	32.7	29.4
21.3	12.4	22.5	65.1	25.6	74.4	0.95	26.6	73.4	32.7	29.5
21.5	12.7	21.4	65.9	24.5	75.5	0.96	25.3	74.7	32.7	29.9
21.1	12.8	20.9	66.3	23.9	76.1	0.97	24.6	75.4	31.9	29.5
21.2	13.0	20.0	66.9	23.0	77.0	0.97	23.6	76.4	31.6	29.5
21.3	13.1	20.2	66.7	23.3	76.7	0.97	23.8	76.2	32.0	29.8
21.6	13.1	19.4	67.6	22.3	77.7	0.97	22.9	77.1	32.0	29.7
21.7	13.6	18.0	68.4	20.8	79.2	0.97	21.3	78.7	31.8	29.8
23.5	13.1	16.7	70.1	19.3	80.7	0.96	19.8	80.2	33.6	31.1
23.9	13.1	16.0	70.9	18.4	81.6	0.98	18.8	81.2	33.6	32.0
24.2	13.3	15.9	70.8	18.3	81.7	0.98	18.6	81.4	34.1	32.8
25.0	12.9	15.9	71.2	18.3	81.7	0.97	18.8	81.2	35.2	32.9
25.5	13.4	15.6	71.0	18.0	82.0	0.98	18.4	81.6	35.9	34.4
25.8	14.1	14.8	71.1	17.2	82.8	0.98	17.4	82.6	36.3	35.1

(continued)

APPENDIX G

TABLE G-6  
(continued)

	(1) EBM	(2) Pté	(3) RBEI	(4) Sal.N.	(5) Pr.Soc.	(6) % EBM	(7) % Pté	(8) % RBEI	(9) % Sa.N.
1981	179.0	209.5	361.4	1168.8	693.2	6.9	8.0	13.8	44.7
1982	204.7	230.5	420.2	1320.1	828.2	6.8	7.7	14.0	43.9
1983	234.5	256.6	452.4	1427.4	928.5	7.1	7.8	13.7	43.3
1984	266.9	273.4	473.2	1504.7	1022.6	7.5	7.7	13.4	42.5
1985	295.6	302.8	498.1	1,586.2	1,117.5	7.8	8.0	13.1	41.7
1986	319.8	304.6	543.4	1,653.7	1,197.2	8.0	7.6	13.5	41.1
1987	350.4	328.4	555.1	1,702.6	1,241.8	8.4	7.9	13.3	40.7
1988	386.0	347.3	572.2	1,790.1	1,325.7	8.7	7.9	12.9	40.5
1989	420.8	420.7	643.0	1,883.2	1,401.8	8.8	8.8	13.5	39.5
1990	449.4	458.8	680.3	2,012.8	1,491.7	8.8	9.0	13.4	39.5
1991	485.0	530.2	678.7	2,117.9	1,588.9	9.0	9.8	12.6	39.2
1992	524.0	550.3	686.0	2,183.6	1,689.0	9.3	9.8	12.2	38.8
1993	560.2	550.9	661.1	2,217.3	1,796.2	9.7	9.5	11.4	38.3
1994	594.4	528.6	673.4	2,268.5	1,848.9	10.1	8.9	11.4	38.4
1995	633.0	574.4	689.1	2,352.9	1,912.8	10.3	9.3	11.2	38.2
1996	663.0	574.8	693.8	2,413.1	1,983.7	10.5	9.1	11.0	38.1
1997	690.1	614.4	707.8	2,515.2	2,049.0	10.5	9.3	10.8	38.2
1998	715.7	650.0	734.0	2,613.3	2,100.2	10.5	9.5	10.8	38.4

Sources: (1) EBM = excédent brut d'exploitation des ménages (hors EI) = gross operating surplus of households (excluding IEs), (2) Pté = revenus bruts de la propriété des ménages (hors EI) = household gross property income (excluding IEs), (3) RBEI = excédent brut d'exploitation des EI = gross operating surplus of IEs, (4) Sal. N = salaires nets reçus par les ménages = net wages received by households, and (5) Pr.Soc = prestations sociales reçues par les ménages = social benefits received by households (in billions of current francs). 1949-1959a: INSEE estimates in base 1962 (published in "Les comptes de la nation, base 1962: les comptes des années 1949-1959," Les Collections de l'INSEE no. 55 (series C [Comptes et planification] no. 13, April 1972) (1) = sum of résultat brut d'exploitation des ménages (item 8e, pp. 20-21) and intérêts versés par les ménages (item 72, emplois, exploitation, pp. 24-45); (2) = intérêts, dividendes et fermages (item 72, pp. 20-21); (3) = revenu brut des entrepreneurs individuels (item 78, pp. 20-21); (4) = salaires nets (item 7011, pp. 20-21); (5) = sum of prestations sociales (item 71, pp. 20-21) and transferts (item 74, pp. 20-21); 1959b-1997: INSEE estimates in base 1980 (Nouba base) (1) = item N2, ménages hors EI; (2) = sum of items R41 (ménages hors EI), R42, R43, R44, et R46; (3) = item N2 (EI), minus items R41 and R43 paid by IEs, plus item R41 received by IEs; (4) = item R11, minus item R622; (5) = item R64; 1998: figures obtained from INSEE estimates in base 1995 (published in "Comptes et indicateurs économiques—Rapport sur les comptes de la nation 1998," INSEE-Résultats no. 664 [Economie générale series no. 182], July 1999) applying a 1998/1997 growth rate of 3.7 percent for (1) (p. 77:  $680 / 656 = 1.037$ ), 5.8 percent for (2) (p. 77:  $[264 + 140 + 72 + 202 + 12] / [268 + 114 + 72 + 187 + 11] = 1.058$ ), 3.7 percent for (3) (p. 77:  $707 / 682 = 1.037$ ), 3.9 percent for (4) (p. 77:  $3208 / 3088 = 1.039$ ), and 2.5 percent for (5) (p. 77:  $[1251 + 102 + 241 + 162 + 148 + 52] / [1217 + 97 + 234 + 161 + 151 + 48] = 1.025$ ). (6) to (10): columns (1) to (5) expressed as a percentage of the total; (6) = % (1) / [(1) + (2) + ... + (5)]; (7) = % (2) / [(1) + (2) + ... + (5)]; etc.



APPENDIX G

(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
% P.S.	% Cap.	% Mix.	% Tra.	% Mix.	% Tra.	RS	% Mix.	% Tra.	% P.S.	% P.S.
26.5	14.9	13.8	71.3	16.3	83.7	0.96	16.8	83.2	37.2	34.7
27.6	14.5	14.0	71.5	16.4	83.6	0.96	17.0	83.0	38.6	35.7
28.1	14.9	13.7	71.4	16.1	83.9	0.96	16.7	83.3	39.4	36.7
28.9	15.3	13.4	71.4	15.8	84.2	0.96	16.4	83.6	40.5	37.8
29.4	15.7	13.1	71.1	15.6	84.4	0.95	16.2	83.8	41.3	38.4
29.8	15.5	13.5	70.9	16.0	84.0	0.95	16.8	83.2	42.0	38.8
29.7	16.2	13.3	70.5	15.9	84.1	0.96	16.5	83.5	42.2	39.6
30.0	16.6	12.9	70.5	15.5	84.5	0.95	16.1	83.9	42.5	39.8
29.4	17.6	13.5	68.9	16.4	83.6	0.96	16.9	83.1	42.7	40.4
29.3	17.8	13.4	68.8	16.3	83.7	0.96	16.8	83.2	42.6	40.3
29.4	18.8	12.6	68.6	15.5	84.5	0.95	16.1	83.9	42.9	40.0
30.0	19.1	12.2	68.7	15.0	85.0	0.95	15.8	84.2	43.6	40.4
31.0	19.2	11.4	69.4	14.1	85.9	0.93	15.0	85.0	44.8	40.7
31.3	19.0	11.4	69.6	14.1	85.9	0.93	15.0	85.0	44.9	40.7
31.0	19.6	11.2	69.2	13.9	86.1	0.93	14.7	85.3	44.8	40.9
31.3	19.6	11.0	69.5	13.6	86.4	0.94	14.4	85.6	45.1	41.4
31.2	19.8	10.8	69.4	13.4	86.6	0.93	14.3	85.7	44.9	40.6
30.8	20.0	10.8	69.2	13.5	86.5	0.93	14.3	85.7	44.6	40.5

(11) = Capital share of household income; (11) = (6) + (7) = % [(1) + (2)] / [(1) + (2) + (3) + (4) + (5)].

(12) = Mixed income share of household income; (12) = (8) = % (3) / [(1) + (2) + (3) + (4) + (5)].

(13) = Labor income share of household income; (13) = (9) + (10) = % [(4) + (5)] / [(1) + (2) + (3) + (4) + (5)].

(14) = Mixed income as a share of household earned income; (14) = % (3) / [(3) + (4) + (5)].

(15) = Labor income as a share of household earned income; (15) = % [(4) + (5)] / [(3) + (4) + (5)].

(16) = Ratio between total compensation received by wage earners and the sum of net wages and social benefits; the denominator is equal to (4) + (5); the numerator comes from the same sources as columns (1) to (6): sum of items R<sub>11</sub>, R<sub>12</sub>, and R<sub>13</sub> from the NOUBA base for the years 1959b-1997, and a 1998 / 1997 growth rate of 3.7 percent (p. 77: [3208 + 980 + 232] / [3088 + 947 + 226] = 1.037).

(17) = Adjusted mixed income share; (17) = % (3) / [(3) + (16) × ((4) + (5))].

(18) = Adjusted labor income share; (18) = % [(16) × ((4) + (5))] / [(3) + (16) × ((4) + (5))].

(19) = Social benefits as a share of labor income; (19) = % (5) / [(4) + (5)].

(20) = Adjusted social benefits share; (20) = % [(16) × ((4) + (5)) - (4)] / [(16) × ((4) + (5))].

separate from that of their operator, especially farm operators, artisans, and shopkeepers. These are therefore firms with very few wage earners that pay very little in wages. Yet the wage bill paid out by IEs is never strictly zero, and the series reproduced in Tables G-3 and G-4 show a discontinuity in 1970: the wage bill paid by firms (column [2] of Table G-3 and column [1] of Table G-4) includes compensation paid by IEs in 1900–1949 and 1949–1970, but it includes only compensation paid by businesses (excluding IEs) for the 1970–1998 period.<sup>31</sup> As a result, the labor share of business value-added estimated from these series is artificially overstated for the 1900–1949 and 1949–1970 periods (see column [4] of Table G-3 and column [5] of Table G-4). We smoothed over the discontinuity by making a connection at 1970: for years prior to 1970, the labor share of business value-added was reduced by 4.1 percentage points, and the capital share of business value-added was increased by 4.1 percentage points (see columns [16] and [17] of Table G-3, and columns [7] and [8] of Table G-4). However, it should be noted that, given the decline in the importance of IEs over time, this adjustment procedure is probably inadequate for the earliest periods: in particular, the very large estimated labor shares of value-added obtained for the beginning of the century (see column [16] of Table G-3) are probably slightly overstated.<sup>32</sup>

### 3. *Supplementary Series*

In the section we include a number of supplementary tables that were useful to us in compiling the series presented in sections 1 and 2, and which we refer to at various points in the book. All of the sources used, and the calculations made are given precisely in the tables. Tables G-5 to G-8 present decompositions of household income in the national accounting sense.<sup>33</sup> Tables G-9 to G-11 present decompositions of household fiscal income. Tables G-12 to G-14 present the estimates of interwar “private income” by Dugé de Bernonville. Table G-15 presents Malissen’s estimates of self-financing by French companies in the interwar era. Tables G-16 and G-17 show the evolution of the number of taxpayers and the amount of profits taxed under the schedular tax on industrial and commercial profits (BIC) in the interwar era. Tables G-18 and G-19 present estimates that we carried out based on the statistics by BIC bracket that the interwar tax administration compiled from BIC declarations. These estimates

## APPENDIX G

TABLE G-7

*Decomposition of property income (in the national accounting sense),  
1949-1959*

	(1) Interest	(2) Dividends	(3) Total	(4) % Interest	(5) % Dividends
1949	45.0	174.0	219.0	20.5	79.5
1950	56.0	205.0	261.0	21.5	78.5
1951	68.0	262.0	330.0	20.6	79.4
1952	80.0	316.0	396.0	20.2	79.8
1953	79.0	338.0	417.0	18.9	81.1
1954	96.0	360.0	456.0	21.1	78.9
1955	101.0	374.0	475.0	21.3	78.7
1956	120.0	408.0	528.0	22.7	77.3
1957	141.0	435.0	576.0	24.5	75.5
1958	170.0	435.0	605.0	28.1	71.9
1959	177.0	463.0	640.0	27.7	72.3

Sources: (1) to (3): INSEE estimates in base 1956, in billions of current francs (see "Les Comptes de la Nation 1949-1959," *E&C* no. 12 [December 1963], pp. 1214-1215).

(4) and (5): Percentages calculated from columns (1) to (3).

Note: Total property income shown here is less than the total given in Table G-6, column (2), because estimates in base 1956 were marked up in later bases (also, property income for the 1949-1959 period in Table G-6 includes land rents, not just interest and dividends).

were obtained by applying the same technique of approximation with a Pareto law that we used when analyzing the statistics from income tax returns (see Appendix B, section 1.1), wage declarations (see Appendix D, section 1), and bequest declarations (see Appendix J, section 2).<sup>34</sup> Finally, Tables G-20 to G-22 compare the main GDP series available for the 1913-1949 period.<sup>35</sup> We observe that the different series are very consistent overall. In particular, they all show the same cyclical profile in the interwar years: recession in 1921, rapid growth in 1922-1924, slowdown in 1925, growth in 1926, recession in 1927, rapid growth in 1928-1929, recession in 1930-1932, slight recovery in 1933, decline again in 1934-1935, stagnation then slight recovery in 1936-1937, and decline again in 1938.<sup>36</sup> The orders of magnitude for overall GDP growth are also very similar: all authors estimate real GDP growth of about 30-40 percent between 1913 and 1929, 10-20 percent between 1913 and 1938, and 30-40 percent between 1913

TABLE G-8

*Decomposition of property income (in the national accounting sense), 1959-1998*

	(1) Interest (excluding life insurance)	(2) Interest credited on life- insurance contracts	(3) Land incomes	(4) Dividends	(5) Income from profit- sharing	(6) % Interest	(7) % Int. AV	(8) % Rev. land	(9) % Dividendes	(10) % Particip.
1959	242.2	19.5	260.8	613.7	0.0	21.3	1.7	23.0	54.0	0.0
1960	2.6	0.3	2.9	7.0	0.0	20.2	2.2	22.6	54.9	0.0
1961	2.8	0.3	3.1	7.5	0.0	20.8	2.4	22.3	54.5	0.0
1962	3.7	0.4	3.3	8.4	0.0	23.3	2.8	20.9	52.9	0.0
1963	3.8	0.6	3.6	9.0	0.0	22.7	3.3	21.0	53.0	0.0
1964	4.1	0.7	3.7	9.2	0.0	23.1	3.7	21.2	52.0	0.0
1965	5.0	0.8	3.8	9.8	0.0	25.7	4.0	19.9	50.4	0.0
1966	5.6	0.9	4.1	10.4	0.0	26.9	4.2	19.4	49.5	0.0
1967	7.0	1.1	4.3	11.4	0.0	29.5	4.4	18.1	48.0	0.0
1968	8.9	1.2	4.7	11.5	0.0	33.8	4.7	17.8	43.6	0.0
1969	10.7	1.4	5.1	12.3	0.8	35.3	4.7	16.8	40.7	2.5
1970	12.4	1.7	5.4	13.6	1.1	36.2	4.9	15.9	39.9	3.1
1971	16.0	2.0	5.8	15.1	1.4	39.8	4.9	14.3	37.5	3.5
1972	19.1	2.2	6.0	17.5	1.6	41.1	4.8	13.0	37.6	3.5
1973	23.0	2.7	6.7	16.8	2.2	44.8	5.2	13.0	32.8	4.3
1974	33.6	3.1	7.3	22.7	2.4	48.6	4.5	10.6	32.8	3.4

1975	41.3	3.7	7.7	23.1	2.4	52.8	4.7	9.9	29.5	3.1
1976	47.9	4.3	7.8	24.0	2.7	55.2	5.0	9.0	27.7	3.1
1977	58.2	4.9	8.3	26.8	3.4	57.3	4.8	8.1	26.4	3.4
1978	63.6	5.8	8.9	28.6	3.8	57.5	5.2	8.0	25.8	3.5
1979	75.5	6.7	10.1	34.4	4.4	57.5	5.1	7.7	26.2	3.4
1980	102.9	8.7	10.8	39.0	5.1	61.8	5.2	6.5	23.4	3.1
1981	131.0	11.3	11.2	50.0	5.9	62.6	5.4	5.4	23.9	2.8
1982	150.8	14.5	11.6	47.1	6.4	65.4	6.3	5.1	20.4	2.8
1983	159.1	18.2	12.8	59.8	6.7	62.0	7.1	5.0	23.3	2.6
1984	164.4	21.0	15.2	65.6	7.1	60.1	7.7	5.6	24.0	2.6
1985	174.5	25.2	16.8	77.8	8.5	57.6	8.3	5.5	25.7	2.8
1986	157.4	28.9	16.6	90.7	11.0	51.7	9.5	5.4	29.8	3.6
1987	148.9	32.6	13.2	120.7	13.0	45.4	9.9	4.0	36.7	3.9
1988	154.2	40.0	17.2	120.0	16.0	44.4	11.5	4.9	34.6	4.6
1989	166.2	51.1	18.3	165.8	19.4	39.5	12.1	4.3	39.4	4.6
1990	180.5	62.4	18.3	178.2	19.4	39.3	13.6	4.0	38.8	4.2
1991	199.0	75.8	17.9	218.8	18.6	37.5	14.3	3.4	41.3	3.5
1992	180.9	91.3	18.3	240.2	19.6	32.9	16.6	3.3	43.7	3.6
1993	205.3	105.0	17.8	202.5	20.3	37.3	19.1	3.2	36.8	3.7
1994	181.3	112.6	18.6	193.8	22.3	34.3	21.3	3.5	36.7	4.2
1995	208.3	127.3	19.2	195.1	24.4	36.3	22.2	3.3	34.0	4.3
1996	196.7	143.2	20.1	185.5	29.2	34.2	24.9	3.5	32.3	5.1
1997	191.2	158.6	21.4	212.4	30.8	31.1	25.8	3.5	34.6	5.0

Sources: (1) to (5): INSEE estimates in base 1980 (base TK), in billions of current francs (old francs in 1959, new francs starting from 1960); (1) = interest (excluding life insurance); (2) = interest credited on life-insurance contracts; (3) = land incomes; (4) = dividends; (5) = income arising from profit-sharing schemes for wage earners. (6) to (10): Percentages calculated from columns (1) to (5).

TABLE G-9  
*Decomposition of fiscal income, 1913-1943*

	(1) % RF	(2) % RCM	(3) % BA	(4) % BIC	(5) % BNC	(6) % TSP	(7) % Capital	(8) % Mixed	(9) % Labor	(10) % Mixed	(11) % Labor
1913	7.6	12.2	8.2	11.7	2.3	58.0	19.8	22.2	58.0	27.6	72.4
1920	3.2	10.0	5.6	13.2	2.3	65.8	13.1	21.1	65.8	24.3	75.7
1921	3.7	12.0	5.4	11.9	2.3	64.8	15.6	19.6	64.8	23.2	76.8
1922	4.4	12.4	5.1	14.0	2.5	61.7	16.8	21.5	61.7	25.8	74.2
1923	4.6	12.9	5.2	14.8	2.4	60.0	17.5	22.4	60.0	27.2	72.8
1924	4.5	12.9	5.1	14.5	2.2	60.7	17.5	21.8	60.7	26.4	73.6
1925	4.6	13.4	5.8	13.9	2.3	59.9	18.0	22.0	59.9	26.9	73.1
1926	4.5	13.2	6.6	14.2	2.3	59.2	17.7	23.1	59.2	28.1	71.9
1927	5.0	12.2	6.6	13.7	2.4	60.0	17.2	22.7	60.0	27.5	72.5
1928	5.1	11.6	6.7	13.7	2.5	60.5	16.7	22.8	60.5	27.4	72.6
1929	5.1	11.3	6.4	12.4	2.4	62.4	16.4	21.2	62.4	25.3	74.7
1930	5.5	11.1	4.8	12.5	2.4	63.7	16.5	19.7	63.7	23.6	76.4
1931	6.1	11.3	4.5	10.7	2.5	64.9	17.4	17.7	64.9	21.4	78.6
1932	6.8	10.3	4.3	10.2	2.8	65.5	17.1	17.4	65.5	20.9	79.1
1933	6.9	10.6	4.4	10.3	2.7	65.2	17.5	17.4	65.2	21.1	78.9
1934	7.1	11.7	3.7	10.2	2.8	64.4	18.8	16.8	64.4	20.7	79.3

1935	7.1	11.4	3.5	11.9	2.9	63.1	18.6	18.3	63.1	22.5	77.5
1936	6.1	11.4	4.9	11.9	2.7	63.0	17.5	19.5	63.0	23.7	76.3
1937	5.3	10.7	5.4	11.8	2.5	64.3	16.0	19.8	64.3	23.5	76.5
1938	5.3	10.7	5.3	11.7	2.5	64.4	16.0	19.6	64.4	23.3	76.7
1943	2.5	6.8	9.3	23.5	2.8	55.1	9.3	35.6	55.1	39.2	60.8

*Explanation:* (1) to (6) show the following income categories as shares of fiscal income (in %):

(1): RF = revenu foncier = real estate income.

(2): RCM = revenu du capital mobilier = investment income.

(3): BA = bénéfices agricoles = farm profit.

(4): BIC = bénéfices industriels et commerciaux = industrial and commercial profit.

(5): BNC = bénéfices non-commerciaux = noncommercial profit.

(6): TSP = traitements, salaires, pensions de retraite et rentes viagères = fees, wages, retirement pensions, and annuities.

Composition of fiscal income obtained by applying the coefficients shown in Table G-2 to the estimates in Table G-12.

(7): Capital incomes as a share of fiscal income; (7) = (1) + (2).

(8): Mixed incomes as a share of fiscal income; (8) = (3) + (4) + (5).

(9): Labor incomes as a share of fiscal income; (9) = (6).

(10): Mixed incomes as a share of earned incomes; (10) = % (8) / [(8) + (9)].

(11): Labor incomes as a share of earned incomes; (11) = % (9) / [(8) + (9)].

TABLE G-10  
*Decomposition of fiscal income, 1956–1995*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	% RF	% RCM	% BA	% BIC	% BNC	% RGA	% TS	% PR	% Capital	% Mixed	% Labor	% Mixed	% Labor
RF1956	3.9	2.3	1.9	13.9	2.7	0.9	67.6	6.8	6.2	19.4	74.4	20.7	79.3
RF1962	2.6	2.7	2.1	12.4	3.1	0.4	67.5	9.2	5.3	18.0	76.7	19.0	81.0
RF1965	2.6	2.6	2.4	11.4	3.7	0.6	65.1	11.6	5.2	18.1	76.7	19.1	80.9
RF1970	2.8	2.1	2.3	8.9	2.9	0.2	67.2	13.6	4.9	14.3	80.8	15.0	85.0
RF 1975	2.7	1.9	1.9	7.6	2.5	0.1	68.5	14.7	4.6	12.2	83.3	12.8	87.2
RF 1979	2.1	2.0	2.2	6.9	2.8	0.1	66.5	17.4	4.2	12.0	83.8	12.5	87.5
RF 1984	2.6	2.4	1.9	5.1	3.3	0.1	64.7	19.9	5.0	10.5	84.5	11.0	89.0
RF 1990	2.1	2.3	1.9	5.0	3.4	0.1	64.8	20.4	4.4	10.4	85.2	10.9	89.1
EL 1988	2.1	3.2	1.4	5.0	3.5	0.1	64.5	20.3	5.2	9.9	84.8	10.5	89.5
EL 1989	2.4	3.3	1.5	4.8	3.7	0.1	63.6	20.7	5.6	10.0	84.3	10.6	89.4
EL 1990	2.4	3.1	1.5	4.6	3.6	0.1	64.1	20.5	5.5	9.9	84.6	10.5	89.5
EL 1991	2.5	2.7	1.3	4.1	3.6	0.1	64.2	21.4	5.2	9.2	85.6	9.7	90.3
EL 1992	2.5	2.7	1.2	3.9	3.5	0.2	64.8	21.1	5.3	8.8	85.9	9.3	90.7
EL 1993	2.4	2.5	1.1	3.8	3.4	0.2	64.4	22.2	4.9	8.5	86.6	8.9	91.1
EL 1994	2.6	2.7	1.2	3.6	3.6	0.2	62.8	23.3	5.4	8.6	86.1	9.1	90.9
EL 1995	2.5	2.8	1.2	3.4	3.3	0.3	63.1	23.4	5.3	8.1	86.5	8.6	91.4

*Sources:* (1): Real estate income as a share of fiscal income

(2): Investment income share (3): Farm profits share

(4): Industrial and commercial profits share (5): Noncommercial profit share

(6): Compensation of managers and associates share (7): Fees and wages share

(8): Retirement pensions and annuities share (9) Capital incomes as a share of fiscal income ((9) = (1) + (2))

(10) Mixed incomes as a share of fiscal income ((10) = (3) + (4) + (5) + (6)) (11) Labor incomes as a share of fiscal income ((11) = (7) + (8))

(12) Mixed incomes as a share of earned incomes ((12) = (10) / [(10) + (11)]) (13) Labor incomes as a share of earned incomes ((13) = (11) / [(10) + (11)])

RF1956–RF1990: Estimates derived from the *Revenus fiscaux* studies carried out by INSEE, 1956: Fourgeaud and Nataf (1963, 443); 1962: Ruault (1965, 43); 1965: Banderier (1970, 54); 1970–1975–1979–1984–1990: Piketty (1998, 148–152); EL1988–EL1995: Estimates derived from DGI light tax-return samples (see Piketty 1998, 31, and 138–144).



## APPENDIX G

TABLE G-11

*(Fiscal income) / (income in the national accounting sense) ratios, 1956–1995*

	(1) % EBM	(2) % Pté	(3) % RBEI	(4) % Sal. N.	(5) % Pr. Soc.	(6) % RPB
RF 1956	56.5	25.1	36.8	95.9	21.7	60.1
RF 1962	28.5	28.9	38.5	94.3	29.5	61.9
RF 1965	25.3	30.4	44.2	89.7	33.8	62.8
RF 1970	23.8	23.4	42.6	92.7	40.1	64.3
RF 1975	25.3	17.7	44.7	90.5	38.5	64.5
RF 1979	20.1	19.6	49.4	93.7	43.7	66.7
RF 1984	22.3	19.5	49.9	97.0	43.9	67.9
RF 1990	15.2	16.2	49.2	103.5	43.9	68.0
EL 1988	15.3	25.8	49.1	102.2	43.5	69.1
EL 1989	16.9	23.3	47.1	101.9	44.6	67.9
EL 1990	17.3	21.5	46.7	102.5	44.2	68.0
EL 1991	17.7	17.1	45.4	102.2	45.3	67.5
EL 1992	16.7	17.3	44.8	103.2	43.5	67.2
EL 1993	15.2	16.4	45.7	103.3	43.9	67.4
EL 1994	16.1	18.7	46.3	100.5	45.8	66.9
EL 1995	14.7	18.5	44.3	100.7	45.9	65.9

Sources: (1): (real estate income) / (gross operating surplus of households [excluding IEs]) ratio,

(2): (investment income) / (property income) ratio,

(3): (BA-BIC-BNC-RGA) / (Gross operating income of IEs) ratio,

(4): (fees and wages) / (net wages) ratio, and

(5): (pensions and annuities) / (social benefits) ratio

Ratios calculated from columns (1) to (8) of Table G-10, column (4) of Table G-2, and columns (1) to (5) of Table G-7.

(6) = (Fiscal income) / (GPI) ratio (column [3] of Table G-2); by construction, (6) can also be obtained by taking the product of columns (1) to (5) from this table and columns (1) to (5) of Table B-6, then dividing the result by GPI (column [6] of Table G-1).

and 1949.<sup>37</sup> These are extremely small discrepancies: for example, a 10 percent difference over a period of thirty-six years (1913–1949) represents a difference in annual average growth rates of about 0.3 percent.<sup>38</sup> Such margins of error are totally negligible compared to the magnitude of change observed at the level of income inequality.

TABLE G-12

*Dugé de Bernonville's estimates of "private incomes," 1913-1943*

	(1) Wages and fees	(2) Investment securities	(3) Built property	(4) Farm income	(5) Industry and commerce	(6) Liberal professions	(7) Pensions	(8) Total	(9) % (1)	(10) % (2)	(11) % (3)	(12) % (4)	(13) % (5)	(14) % (6)	(15) % (7)
1913	15.7	4.5	2.6	8.4	4.0	0.6	0.5	36.3	43.3	12.4	7.2	23.1	11.0	1.7	1.4
1920	57.4	11.8	3.5	18.5	14.6	1.9	2.9	110.6	51.9	10.7	3.2	16.7	13.2	1.7	2.6
1921	58.7	14.7	4.2	18.6	13.6	2.0	3.2	115.0	51.0	12.8	3.7	16.2	11.8	1.7	2.8
1922	58.0	15.8	5.2	18.1	16.6	2.2	3.3	119.2	48.7	13.3	4.4	15.2	13.9	1.8	2.8
1923	62.9	18.4	6.1	20.9	19.6	2.4	3.5	133.8	47.0	13.8	4.6	15.6	14.6	1.8	2.6
1924	74.0	21.4	7.0	23.5	22.3	2.6	3.9	154.7	47.8	13.8	4.5	15.2	14.4	1.7	2.5
1925	79.5	24.1	7.8	29.2	23.4	2.9	5.6	172.5	46.1	14.0	4.5	16.9	13.6	1.7	3.2
1926	92.7	28.0	9.0	39.5	28.2	3.4	7.5	208.3	44.5	13.4	4.3	19.0	13.5	1.6	3.6
1927	95.1	26.3	10.0	39.9	27.5	3.6	7.8	210.2	45.2	12.5	4.8	19.0	13.1	1.7	3.7
1928	103.0	26.8	11.0	43.1	29.5	4.0	9.3	226.7	45.4	11.8	4.9	19.0	13.0	1.8	4.1
1929	115.6	28.3	12.0	44.8	29.0	4.3	11.2	245.2	47.1	11.5	4.9	18.3	11.8	1.8	4.6
1930	122.2	28.8	13.3	35.2	26.7	4.4	12.2	242.8	50.3	11.9	5.5	14.5	11.0	1.8	5.0
1931	116.8	27.5	14.0	30.7	21.5	4.3	14.0	228.8	51.0	12.0	6.1	13.4	9.4	1.9	6.1
1932	105.9	22.6	14.0	26.5	18.5	4.3	14.0	205.8	51.5	11.0	6.8	12.9	9.0	2.1	6.8

1933	101.1	22.3	13.5	26.0	17.8	4.0	14.5	199.2	50.8	11.2	6.8	13.1	8.9	2.0	7.3
1934	92.8	22.8	13.0	20.5	16.5	3.9	14.4	183.9	50.5	12.4	7.1	11.1	9.0	2.1	7.8
1935	87.4	21.5	12.5	18.5	18.4	3.8	13.4	175.5	49.8	12.3	7.1	10.5	10.5	2.2	7.6
1936	97.6	24.0	12.0	29.0	20.6	4.0	13.3	200.5	48.7	12.0	6.0	14.5	10.3	2.0	6.6
1937	119.7	27.0	12.5	38.5	24.5	4.5	15.1	241.8	49.5	11.2	5.2	15.9	10.1	1.9	6.2
1938	133.0	30.0	14.0	42.0	27.0	5.0	15.8	266.8	49.9	11.2	5.2	15.7	10.1	1.9	5.9
1943	210.0	35.0	12.0	135.0	100.0	10.0	25.0	527.0	39.8	6.6	2.3	25.6	19.0	1.9	4.7

*Sources:* (1) to (8): Dugé de Bernonville's estimates, in billions of current francs. For 1913 and 1920–1934, see Dugé de Bernonville (1937, 549); for 1935–1938, see Dugé de Bernonville (1939, 959); for 1943, see Mitzakis (1944, 25); (1) = Salaires et traitements; (2) = Revenus de valeurs mobilières; (3) = Revenus de la propriété bâtie; (4) = Revenus de l'agriculture; (5) = Revenus de l'industrie et du commerce; (6) = Revenus des professions libérales; (7) = Pensions et retraites.

(9) to (15) = Percentages calculated from columns (1) to (8); (9) = % (1) / (8), (10) = % (2) / (8), etc.

*Note:* Here we give Dugé de Bernonville's definitive estimates. Other estimates were published in Dugé de Bernonville (1931, 1933, 1935, 1936, 1938), but were slightly corrected in Dugé de Bernonville (1937, 1939). In particular, Dugé de Bernonville's estimates published by INSEE in 1966 (see *Annuaire Statistique de la France—Résumé Rétrospectif 1966* [INSEE, 1966], p. 556), besides omitting the years 1933–1934, are not the definitive estimates for 1931–1932 (INSEE also wrongly indicates that land and sharecropping rents are not included in farm incomes, whereas Dugé de Bernonville explicitly makes clear that they are; on the other hand, dividends are indeed subtracted from industrial and commercial income and counted in investment income).

TABLE G-13

*Dugé de Bernonville's assessment of industrial and commercial income, 1920-1938*

	(1) BIC fiscaux	(2) Dugé (divid.)	(3) Dugé (ind. com.)	(4) Dugé (av. div.)	(5) % (4) / (1)	(6) % (2) / (4)	(7) % (3) / (1)	(8) Malissen	(9) % (8) / (3)
1920	15,280	3,200	14,600	17,800	116.5	18.0	95.5		
1921	15,024	4,000	13,600	17,600	117.1	22.7	90.5	3,903	97.6
1922	18,130	3,900	16,600	20,500	113.1	19.0	91.6	3,742	95.9
1923	21,080	4,400	19,600	24,000	113.8	18.3	93.0	4,323	98.3
1924	23,919	5,500	22,300	27,800	116.2	19.8	93.2	5,957	108.3
1925	25,217	6,800	23,400	30,200	119.8	22.5	92.8	7,288	107.2
1926	30,140	7,800	28,200	36,000	119.4	21.7	93.6	8,589	110.1
1927	27,696	9,000	27,500	36,500	131.8	24.7	99.3	9,168	101.9
1928	31,213	9,000	29,500	38,500	123.3	23.4	94.5	10,292	114.4
1929	29,895	10,000	29,000	39,000	130.5	25.6	97.0	11,823	118.2
1930	26,601	9,000	26,700	35,700	134.2	25.2	100.4	11,441	127.1
1931	21,152	7,800	21,500	29,300	138.5	26.6	101.6	9,121	116.9

1932	18,385	6,000	18,500	24,500	133.3	24.5	100.6	5,335	88.9
1933	17,531	5,500	17,800	23,300	132.9	23.6	101.5	6,000	109.1
1934	18,361	6,300	16,500	22,800	124.2	27.6	89.9	6,884	109.3
1935	17,793	5,500	18,400	23,900	134.3	23.0	103.4	6,305	114.6
1936	20,257	6,520	20,600	27,120	133.9	24.0	101.7	7,507	115.1
1937	24,169	7,250	24,500	31,750	131.4	22.8	101.4	8,300	114.5
1938	26,826	8,000	27,000	35,000	130.5	22.9	100.6	11,650	145.6

*Sources:* (1): Declared BIC income = column (2) of Table G-16; in millions of current francs, like columns (1) to (4) and (8).

(2): Dugé de Bernonville's estimate of dividends paid by French corporations; see Dugé de Bernonville (1931, 954; 1935, 606; 1937, 547, and 549; 1939, 983, 988, and 990).

(3): Dugé de Bernonville's estimate of income from industry and commerce = column (5) from Table G-12.

(4) = Dugé de Bernonville's estimates of income from industry and commerce, before deducting dividends paid by French corporations; (4) = (3) - (2).

(5) = % (4) / (1).

(6) = % (2) / (4).

(7) = % (3) / (1).

(8) = Malissen's estimate of profit distributed by French corporations = column (2) of Table G-15.

(9) = % (8) / (2).

## APPENDIX G

TABLE G-14

*Dugé de Bernonville's assessment of investment income, 1920-1938*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	VEF	IRVM	Total	% VEF	TotDugé	% Adjustment	Dividends	% Div / IRVM
1913	800	3,900	4,700	17.0	4,200	10.6		
1920	6,500	6,900	13,400	48.5	11,800	11.9	3,200	46.4
1921	8,400	8,200	16,600	50.6	14,700	11.4	4,000	48.8
1922	9,800	8,000	17,800	55.1	15,800	11.2	3,900	48.8
1923	11,400	9,500	20,900	54.5	18,400	12.0	4,400	46.3
1924	12,000	11,200	23,200	51.7	20,800	10.3	5,500	49.1
1925	12,400	13,400	25,800	48.1	23,400	9.3	6,800	50.7
1926	13,100	17,000	30,100	43.5	27,200	9.6	7,800	45.9
1927	12,300	16,300	28,600	43.0	25,600	10.5	9,000	55.2
1928a	11,900	16,000	27,900	42.7	25,300	9.3	9,000	56.3
1928b	11,900	17,800	29,700	40.1	26,800	9.8	9,000	50.6
1929	11,100	20,200	31,300	35.5	28,300	9.6	10,000	49.5
1930	11,000	20,800	31,800	34.6	28,800	9.4	9,000	43.3
1931	10,700	20,000	30,700	34.9	27,500	10.4	7,800	39.0
1932	10,300	15,000	25,300	40.7	22,600	10.7	6,000	40.0
1933	10,200	14,895	25,095	40.6	22,300	11.1	5,500	36.9
1934	11,000	14,600	25,600	43.0	22,800	10.9	6,300	43.2
1935					21,500		5,500	
1936	11,200	15,200	26,400	42.4	24,000	9.1	6,520	42.9
1937	12,500	17,500	30,000	41.7	27,000	10.0	7,250	41.4
1938	12,800	20,300	33,100	38.7	30,000	9.4	8,000	39.4

Sources: (1): Dugé de Bernonville's estimate of income from French government securities; in millions of current francs, along with columns (1) to (3), (5), and (7). For 1913 and 1920-1928a: see Dugé de Bernonville (1931, 918-1919); for 1928b-1938, see Dugé de Bernonville (1933, 649; 1935, 597-598; 1939, 952-953).

(2): Dugé de Bernonville's estimates of total investment income subject to the IRVM; same references as for column (1); (3) = (1) + (2).

(4) = Income from French government securities as a share of the total; (4) = % (1) / (3).

(5): Dugé de Bernonville's estimates of total private income from investment securities = column (2) of Table G-12; for 1913 and 1920-1928a, we have given the nondefinitive estimates published in Dugé de Bernonville (1931, 922) since the definitive estimates were published without any decomposition.

(6) = Adjustment made by Dugé de Bernonville to account for investment incomes received by corporations or public establishments; (6) = % [(3) - (5)] / (3).

(7): Dugé de Bernonville's estimate of dividends paid by French corporations = column (2) of Table G-13.

(8) = Dividends paid by French corporations as a share of total investment income subject to the IRVM; (8) = % (7) / (2).

TABLE G-15

*Malissen's estimates of the self-financing of French corporations, 1921-1949*

	(1) Profits earned	(2) Profits distributed	(3) Undistributed profits	(4) Retention rate	(5) Fiscal BIC income	(6) Tax receipts	(7) Fiscal BIC income	(8) % (1) / (7)	(9) % (5) / (7)
1921	7,800	3,903	3,897	50.0			15,024	51.9	
1922	9,600	3,742	5,858	61.0			18,130	53.0	
1923	10,700	4,323	6,377	59.6			21,080	50.8	
1924	12,500	5,957	6,543	52.3			23,919	52.3	
1925	12,500	7,288	5,212	41.7			25,217	49.6	
1926	16,000	8,589	7,411	46.3			30,140	53.1	
1927	15,500	9,168	6,332	40.9			27,696	56.0	
1928	17,700	10,292	7,408	41.9			31,213	56.7	
1929	18,000	11,823	6,177	34.3			29,895	60.2	
1930	15,600	11,441	4,159	26.7			26,601	58.6	
1931	12,800	9,121	3,679	28.7			21,152	60.5	
1932	10,100	5,335	4,765	47.2			18,385	54.9	
1933	9,500	6,000	3,500	36.8			17,531	54.2	
1934	8,800	6,884	1,916	21.8			18,361	47.9	
1935	8,300	6,305	1,995	24.0			17,793	46.6	
1936	9,900	7,507	2,393	24.2			20,257	48.9	
1937	13,700	8,300	5,400	39.4			24,169	56.7	
1938	15,500	11,650	3,850	24.8			26,826	57.8	

(continued)

TABLE G-15  
(continued)

	(1) Profits earned	(2) Profits distributed	(3) Undistributed profits	(4) Retention rate	(5) Fiscal BIC income	(6) Tax receipts	(7) Fiscal BIC income	(8) % (1) / (7)	(9) % (5) / (7)
1939	16,300	11,757	4,543	27.9			25,440	64.1	
1942	12,667	11,652	1,015	8.0	16,230	3,563	41,782	30.3	38.8
1943	12,666	10,127	2,539	20.0	16,961	4,295	45,885	27.6	37.0
1944	4,111	10,330	-6,219	-151.3	8,609	4,498	37,750	10.9	22.8
1945	19,586	9,091	10,495	53.6	25,054	5,468	94,966	20.6	26.4
1946	91,237	16,986	74,251	81.4	118,416	26,369			
1947	87,844	31,690	56,154	63.9	123,754	35,910			
1948	366,756	43,428	323,328	88.2	431,944	65,238			
1949	272,824	72,576	200,248	73.4	397,434	124,610			

Sources: (1) and (2): Malissen's estimates of realized profits and distributed profits of French corporations. For 1921-1939, see Malissen (1953, table I, 41, and table II, 48); for 1942-1949, see Malissen (1953, table XI, 85, and table XII, 88).

(3): Malissen's estimates of undistributed profits of French corporations; by definition, (3) = (1) - (2).

(4): Malissen's estimates of the retention rate for French corporations; by definition, (4) = % (3) / (1).

(5) and (6): Fiscal BIC income of corporations and tax receipts corresponding to the previous year's BIC income. See Malissen (1953, table III, 85); by definition, (1) = (5) - (6); (5) = column (6) of Table G-17.

(7): Total fiscal BIC income = column (2) of Table G-16.

(8) = % (1) / (7).

(9) = % (5) / (7).



TABLE G-16

*BIC income subject to the schedular tax on BIC (all regimes combined), 1919-1945 profit income*

	1	2	3	(4)	5	6	7	8	9	(10)
	N	BIC	Tax	% (3)/(2)	Simple liability	Penal.	Red.	20% Red.	Contrib.	% (3)/(5)
1919	1,260	11,933	755	6.3	774	12	31	0	0	97.5
1920	1,369	15,280	996	6.5	1,011	23	38	0	0	98.5
1921	1,475	15,024	942	6.3	976	5	39	0	0	96.5
1922	1,604	18,130	1,170	6.5	1,211	4	45	0	0	96.7
1923	1,589	21,080	1,660	7.9	1,729	4	74	0	0	96.0
1924	1,596	23,919	1,924	8.0	2,003	4	83	0	0	96.1
1925	1,599	25,217	2,066	8.2	2,145	4	83	0	0	96.3
1926	1,545	30,140	4,115	13.7	4,185	11	129	0	48	98.3
1927	1,508	27,696	3,839	13.9	3,842	29	122	0	91	99.9
1928	1,192	31,213	4,377	14.0	4,347	24	121	0	128	100.7
1929	818	29,895	4,029	13.5	4,121	18	169	40	99	97.8
1930	803	26,601	3,565	13.4	3,686	14	167	48	80	96.7
1931	769	21,152	2,746	13.0	2,900	11	152	51	37	94.7
1932	741	18,385	2,357	12.8	2,488	7	138	54	54	94.7
1933	737	17,531	2,224	12.7	2,359	8	130	56	44	94.3
1934	1,303	18,361	1,800	9.8	1,919	4	123	0	0	93.8
1935	1,343	17,793	1,721	9.7	1,835	5	120	0	0	93.8
1936	1,356	20,257	2,007	9.9	2,131	6	130	0	0	94.2

(continued)

TABLE G-16  
(continued)

	1	2	3	(4)	5	6	7	8	9	(10)
	N	BIC	Tax	% (3) / (2)	Simple liability	Penal.	Red.	20% Red.	Contrib.	% (3) / (5)
1937	1,331	24,169	2,850	11.8	3,041	6	168	29	0	93.7
1938	1,321	26,826	3,672	13.7	3,918	8	218	36	0	93.7
1939	1,012	25,440	3,486	13.7	3,669	4	161	26	0	95.0
1940	1,032	21,716	2,946	13.6	3,144	8	181	27	0	93.7
1941	1,028	31,151	4,490	14.4	4,730	16	230	25	0	94.9
1942	880	41,782	8,740	20.9	9,146	50	456	0	0	95.6
1943	811	45,885	9,225	20.1	9,679	38	493	0	0	95.3
1944	798	37,750	7,240	19.2	7,728	35	523	0	0	93.7
1945	982	94,966	20,145	21.2	21,130	76	1,060	0	0	95.3

Sources: Statistics published by the tax administration.

(1) = Number of taxpayers subject to the schedular tax on BIC income (in thousands).

(2) = Amount of BIC income subject to the schedular tax on BIC income (in millions of current francs).

(3) = Corresponding amount of tax issued (in millions of current francs).

(4) = % (3) / (2).

(5) = Corresponding amount of simple liability (in millions of current francs).

(6) to (9) = Amount of penalties, tax reductions, 20 percent tax reductions, and social contributions owed in cases of the sale or shutdown of firms (in millions of current francs); by definition, (3) = (5) + (6) - (7) - (8) - (9); (10) = % (3) / (5).

## APPENDIX G

TABLE G-17

*Decomposition of the normal regime and the special regime, 1929-1945 profits*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Special regime				Normal regime			
	N	BIC	Tax	% (3) / (2)	N	BIC	Tax	% (3) / (2)
1929	233	1,641	97	5.9	584	27,912	3,765	13.5
1930	236	1,666	97	5.8	566	24,591	3,319	13.5
1931	244	1,715	101	5.9	525	19,099	2,540	13.3
1932	249	1,753	99	5.7	491	16,282	2,134	13.1
1933	256	1,797	102	5.7	480	15,464	2,024	13.1
1934	907	3,941	176	4.5	339	13,843	1,564	11.3
1935	942	4,057	181	4.5	327	12,960	1,459	11.3
1936	936	4,088	183	4.5	343	15,205	1,719	11.3
1937	953	4,150	207	5.0	378	20,019	2,643	13.2
1938	892	4,009	232	5.8	429	22,816	3,440	15.1
1939	694	3,098	179	5.8	318	22,342	3,307	14.8
1940	684	3,121	181	5.8	348	18,595	2,765	14.9
1941	578	2,739	162	5.9	450	28,411	4,329	15.2
1942	835	25,551	4,845	19.0	44	16,230	3,895	24.0
1943	763	28,924	5,154	17.8	48	16,961	4,071	24.0
1944	760	29,141	5,174	17.8	38	8,610	2,066	24.0
1945	931	69,912	14,133	20.2	51	25,054	6,013	24.0

*Sources:* Statistics published by the tax administration. In principle, (1) + (5) = column (1) of Table G-16, (2) + (6) = column (2) of Table G-16, and (3) + (7) = column (3) of Table G-16; in fact, the sums may be (very) slightly lower, because in this table we did not include the small special regimes (insurance companies and individual tax lists).

TABLE G-18  
*Fiscal BIC over the economic cycle, 1919–1938 (I)*

	(1) BIC	(2) Top 500,000	(3) Top 100,000	(4) Top 10,000	(5) Top 1,000	(6) %(2)	(7) %(3)	(8) %(4)	(9) %(5)
1919	11,933	21,628	79,829			90.6	66.9		
1920	15,280	27,379	99,814			89.6	65.3		
1921	15,024	26,278	93,045			87.5	61.9		
1922	18,130	31,634	112,392			87.2	62.0		
1923	21,080	36,991	130,050			87.7	61.7		
1924	23,919	42,423	148,312			88.7	62.0		
1925	25,217	44,877	154,888			89.0	61.4		
1926	30,140	53,833	199,304			89.3	66.1		
1927	27,696	49,428	183,792			89.2	66.4		
1928	31,213	55,936	212,295			89.6	68.0		
1929	29,895	55,249	209,789			92.4	70.2		
1930	26,601	48,876	180,244			91.9	67.8		
1931	21,152	38,591	135,823	860,950	5,052,422	91.2	64.2	40.7	23.9
1932	18,385	33,488	115,823	746,653	4,550,582	91.1	63.0	40.6	24.8
1933	17,531	32,037	110,405	715,846	4,414,768	91.4	63.0	40.8	25.2
1934	18,361	30,497	103,359	679,799	4,405,803	83.0	56.3	37.0	24.0
1935	17,793	28,891	97,094	626,468	4,041,918	81.2	54.6	35.2	22.7
1936	20,257	33,161	115,634	734,107	4,458,055	81.8	57.1	36.2	22.0
1937	24,169	42,269	154,591	965,637	5,506,109	87.4	64.0	40.0	22.8
1938	26,826	47,044	170,637	1,071,669	6,103,051	87.7	63.6	39.9	22.8

Sources: (1) = Total BIC declared = column (2) of Table G-16 (in millions of current francs).

(2) to (5) = Results of estimates obtained by an extrapolation with a Pareto law based on the BIC tables by bracket published by the tax administration (in francs); (2) = average BIC of the 500,000 largest payers of the schedular tax on industrial and commercial profits; (3) = average BIC of the 100,000 largest taxpayers; (4) = average BIC of the 10,000 largest taxpayers; (5) = average BIC of the 1,000 largest taxpayers.

(6) = The 500,000 largest taxpayers as a share of total BIC declared.

(7) = The 100,000 largest taxpayers as a share of total BIC declared.

(8) = The 10,000 largest taxpayers as a share of total BIC declared.

(9) = The 1,000 largest taxpayers as a share of total BIC declared.

TABLE G-19  
*Fiscal BIC over the economic cycle, 1919–1938 (II)*

	(1) g(BIC)	(2) g(500,000)	(3) g(100,000)	(4) g(10,000)	(5) gn(1,000)	(6) g(500,000– 100,000)	(7) g(100,000– 10,000)	(8) g(10,000– 1,000)	(9) g(1,000+)
1920	28.0	26.6	25.0			31.0	25.0		
1921	-1.7	-4.0	-6.8			3.4	-6.8		
1922	20.7	20.4	20.8			19.4	20.8		
1923	16.3	16.9	15.7			19.9	15.7		
1924	13.5	14.7	14.0			16.2	14.0		
1925	5.4	5.8	4.4			8.9	4.4		
1926	19.5	20.0	28.7			0.5	28.7		
1927	-8.1	-8.1	-7.8			-8.8	-7.8		
1928	12.7	13.2	15.5			6.4	15.5		
1929	-4.2	-1.2	-1.2			-1.4	-1.2		
1930	-11.0	-11.5	-14.1			-3.5	-14.1		
1931	-20.5	-21.0	-24.6			-10.9	-24.6		
1932	-13.1	-13.2	-14.7	-13.3	-9.9	-9.7	-17.2	-18.0	-9.9
1933	-4.6	-4.3	-4.7	-4.1	-3.0	-3.6	-5.7	-5.9	-3.0
1934	4.7	-4.8	-6.4	-5.0	-0.2	-1.3	-8.9	-12.8	-0.2
1935	-3.1	-5.3	-6.1	-7.8	-8.3	-3.6	-2.6	-7.1	-8.3
1936	13.8	14.8	19.1	17.2	10.3	5.9	22.6	29.7	10.3
1937	19.3	27.5	33.7	31.5	23.5	13.1	37.4	44.0	23.5
1938	11.0	11.3	10.4	11.0	10.8	13.8	9.4	11.2	10.8

*Sources:* Annual growth rates calculated from the estimates in Table G-18  
(1) to (5) = Annual growth rates from columns (1) to (5) of Table G-18  
(6) = Annual growth rate of the average profit of fractile 500,000–100,000  
(7) = Annual growth rate of the average profit of fractile 100,000–10,000  
(8) = Annual growth rate of the average profit of fractile 10,000–1,000  
(9) = Annual growth rate of the average profit of the 1,000 largest taxpayers

## APPENDIX G

TABLE G-20

*The GDP series for the 1913-1949 period published by Sauvy, Vincent, Carré-Dubois-Malinvaud, Toutain, and Maddison*

	(1) Sauvy	(2) Sauvy	(3) Sauvy	(4) Vincent	(5) CDM	(6) Toutain
1913	328.0	41.8	100.0	100.0	76.0	49.6
1914						
1915						
1916						
1917						
1918						
1919						
1920	270.0	132.0	392.5	81.0	65.0	175.5
1921	250.0	104.3	336.5	80.5	64.0	133.9
1922	304.0	118.2	312.5	93.6	74.0	156.0
1923	329.0	147.5	360.5	98.3	78.0	189.5
1924	381.0	188.0	400.2	109.1	86.0	218.1
1925	384.0	209.5	443.5	110.0	87.0	248.9
1926	401.0	278.0	567.0	111.2	88.0	325.2
1927	387.0	272.5	575.0	109.8	87.0	305.9
1928	410.0	285.5	575.0	116.2	92.0	331.9
1929	453.0	334.0	601.0	126.0	100.0	348.3
1930	447.0	332.0	599.0	122.1	97.0	335.9
1931	428.0	308.0	577.0	117.0	93.0	300.2
1932	398.0	277.0	537.0	111.7	89.0	267.3
1933	400.0	259.5	510.0	116.6	93.0	249.7
1934	392.0	237.0	491.0	116.0	93.0	230.9
1935	375.0	221.0	454.0	111.9	90.0	205.2
1936	371.0	239.0	477.0	113.0	91.0	247.2
1937	384.0	304.0	606.0	117.4	96.0	348.1
1938	380.0	340.0	678.0	117.1	96.0	415.3
1939	407.0				100.0	
1940	336.0					
1941	266.0					
1942	238.0					
1943	226.0					
1944	191.0					

APPENDIX G

(7) Toutain	(8) Toutain	(9) Toutain	(10) Toutain	(11) Toutain	(12) Maddison	(13) ProdInd
108.0	49.6	108.0	49.6	108.0	100.0	109.0
					92.9	
					91.0	
					95.6	
					81.0	
					63.9	
					75.3	62.0
428.0	172.1	457.0	162.5	429.0	87.1	67.0
338.0	126.2	345.0	128.0	348.0	83.5	60.0
331.0	142.5	334.0	149.0	349.0	98.5	85.0
380.0	185.8	413.0	183.9	410.0	103.6	96.0
386.0	240.6	476.0	215.6	428.0	116.6	118.0
439.0	277.6	543.0	246.6	484.0	117.1	117.0
557.0	362.0	690.0	316.2	604.0	120.2	137.0
534.0	323.3	624.0	315.7	611.0	117.7	120.0
539.0	353.5	636.0	347.8	627.0	125.9	121.0
528.0	376.1	632.0	368.8	622.0	134.4	133.0
523.0	323.8	558.0	362.7	628.0	130.5	133.0
498.0	268.7	496.0	318.7	589.0	122.7	115.0
475.0	230.1	455.0	266.3	528.0	114.7	98.0
415.0	232.5	434.0	259.6	486.0	122.9	107.0
388.0	222.8	423.0	236.0	449.0	121.7	100.0
354.0	210.2	412.0	208.5	410.0	118.6	96.0
411.0	238.7	461.0	247.3	479.0	123.1	103.0
546.0	328.6	615.0	334.4	628.0	130.2	109.0
655.0	382.5	724.0	394.0	746.0	129.7	100.0
					139.0	
					114.7	
					90.7	
					81.3	61.0
					77.2	54.0
					65.2	38.0

(continued)

## APPENDIX G

TABLE G-20  
(continued)

	(1) Sauvy	(2) Sauvy	(3) Sauvy	(4) Vincent	(5) CDM	(6) Toutain
1945	207.0					
1946	315.0				80.0	
1947	341.0				87.0	
1948	366.0				100.0	
1949	414.0				107.0	

Sources: (1) = National income in billions of 1938 francs estimated by Sauvy (1954, 391); series also reproduced in *Annuaire Statistique de la France—Résumé rétrospectif 1966* (INSEE, 1966), p. 556.

(2) and (3) = National income in billions of current francs and price index in base 100 = 1913 revised by Sauvy (1984, 2:297) and Sauvy (1965-1975, 1:277, and 2:576).

(4) = Gross domestic production index in quantity terms, base 100 = 1913 estimated by Vincent (1972, 340).

(5) = Gross domestic production index in quantity terms, base 100 = 1929 estimated by Carré, Dubois, and Malinvaud (1972, 35).

(6) to (7) = Gross domestic product in billions of current francs and price index estimated by Toutain (1997, 57-58).

(8) to (9) = Toutain's "variant 1"; see Toutain (1997, 61).

(10) to (11) = Toutain's "variant 2"; see Toutain (1997, 62).

(12) = Maddison's gross domestic product index in quantity terms, base 100 = 1913; see Maddison (1995, 148-149).

(13) = Industrial production index, base 100 = 1913 published by INSEE; see *Annuaire Statistique de la France—Résumé rétrospectif 1966* (INSEE, 1966), p. 561.



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(7) Toutain	(8) Toutain	(9) Toutain	(10) Toutain	(11) Toutain	(12) Maddison	(13) ProdInd
					70.7	50.0
					107.5	84.0
					116.5	99.0
					125.0	113.0
					142.0	122.0

## APPENDIX G

TABLE G-21

*GDP series for the 1913-1949 period expressed in base 100 = 1913  
and as annual growth rates*

Quantity indexes in base 100 = 1913								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Sauvy	Sauvy	Vincent	CDM	Toutain	Toutain	Toutain	Maddison
1913	100	100	100	100	100	100	100	100
1914								93
1915								91
1916								96
1917								81
1918								64
1919								75
1920	82	80	81	86	89	82	82	87
1921	76	74	81	84	86	80	80	84
1922	93	90	94	97	103	93	93	99
1923	100	98	98	103	109	98	98	104
1924	116	112	109	113	123	110	110	117
1925	117	113	110	114	123	111	111	117
1926	122	117	111	116	127	114	114	120
1927	118	113	110	114	125	113	112	118
1928	125	119	116	121	134	121	121	126
1929	138	133	126	132	144	129	129	134
1930	136	133	122	128	140	126	126	131
1931	130	128	117	122	131	118	118	123
1932	121	123	112	117	122	110	110	115
1933	122	122	117	122	131	117	116	123
1934	120	115	116	122	129	115	114	122
1935	114	116	112	118	126	111	111	119
1936	113	120	113	120	131	113	112	123
1937	117	120	117	126	139	116	116	130
1938	116	120	117	126	138	115	115	130
1939	124			132				139
1940	102							115
1941	81							91
1942	73							81

APPENDIX G

Annual real growth rates

(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
ProdInd	Sauvy	Sauvy	Vincent	CDM	Toutain	Toutain	Toutain	Maddison	ProdInd
100								-7.1	
								-2.0	
								5.1	
								-15.3	
								-21.1	
57								17.8	
61								15.7	8.1
55	-7.4	-7.8	-0.6	-1.5	-3.4	-2.9	-2.9	-4.1	-10.4
78	21.6	22.0	16.3	15.6	18.9	16.6	16.1	18.0	41.7
88	8.2	8.2	5.0	5.4	5.8	5.4	5.1	5.2	12.9
108	15.8	14.8	11.0	10.3	13.3	12.4	12.3	12.5	22.9
107	0.8	0.6	0.8	1.2	0.3	1.1	1.1	0.4	-0.8
126	4.4	3.8	1.1	1.1	3.0	2.6	2.7	2.6	17.1
110	-3.5	-3.3	-1.3	-1.1	-1.9	-1.2	-1.3	-2.1	-12.4
111	5.9	4.8	5.8	5.7	7.5	7.3	7.4	7.0	0.8
122	10.5	11.9	8.4	8.7	7.1	7.1	6.9	6.8	9.9
122	-1.3	-0.3	-3.1	-3.0	-2.6	-2.5	-2.6	-2.9	0.0
106	-4.3	-3.7	-4.2	-4.1	-6.1	-6.6	-6.3	-6.0	-13.5
90	-7.0	-3.4	-4.5	-4.3	-6.7	-6.6	-6.8	-6.5	-14.8
98	0.5	-1.4	4.4	4.5	7.0	5.9	5.9	7.1	9.2
92	-2.0	-5.1	-0.5	0.0	-1.1	-1.7	-1.6	-1.0	-6.5
88	-4.3	0.8	-3.5	-3.2	-2.6	-3.1	-3.2	-2.5	-4.0
94	-1.1	2.9	1.0	1.1	3.8	1.5	1.5	3.8	7.3
100	3.5	0.1	3.9	5.5	6.0	3.2	3.1	5.8	5.8
92	-1.0	0.0	-0.3	0.0	-0.5	-1.1	-0.8	-0.4	-8.3
	7.1			4.2				7.2	
	-17.4							-17.5	
	-20.8							-20.9	
56	-10.5							-10.4	

(continued)

## APPENDIX G

TABLE G-21  
(continued)

Quantity indexes in base 100 = 1913							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sauvy	Sauvy	Vincent	CDM	Toutain	Toutain	Toutain	Maddison
1943	69						77
1944	58						65
1945	63						71
1946	96		105				108
1947	104		114				117
1948	112		132				125
1949	126		141				142

Sources: Calculations from the raw series published by the various authors and reproduced in Table G-21.

(1) = Sauvy series, column (1) of Table G-16, expressed in base 100 = 1913.

(2) = Revised Sauvy series, columns (2) and (3) of Table G-16, expressed in base 100 = 1913.

(3) = Vincent series, column (4) of Table G-16, expressed in base 100 = 1913.

(4) = Carré-Dubois-Malinvaud series, column (5) of Table G-16, expressed in base 100 = 1913.

(5) = Toutain series, columns (6) and (7) of Table G-16, expressed in base 100 = 1913.

(6) = Toutain's "variant 1," columns (8) and (9) of Table G-16, expressed in base 100 = 1913.

(7) = Toutain's "variant 2," columns (10) and (11) of Table G-16, expressed in base 100 = 1913.

(8) = Maddison series, column (12) of Table G-16, expressed in base 100 = 1913.

(9) = Industrial production index, column (13) of Table G-16, expressed in base 100 = 1913.

(10) to (18) = Annual growth rate calculated from columns (1) to (9).

APPENDIX G

Annual real growth rates

(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
ProdInd	Sauvy	Sauvy	Vincent	CDM	Toutain	Toutain	Toutain	Maddison	ProdInd
50	-5.0							-5.0	-11.5
35	-15.5							-15.5	-29.6
46	8.4							8.4	31.6
77	52.2							52.1	68.0
91	8.3			8.8				8.4	17.9
104	7.3			14.9				7.3	14.1
112	13.1			7.0				13.6	8.0

TABLE G-22  
*Villa's GDP series for the 1913-1949 period*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	GDP calculated by production				GDP calculated by demand					GDP calculated by income				
1913	50.8	368.4	0.138	100		49.4	347.7	0.142	100		46.7	328.8	100	
1914	45.1	309.0	0.146	84	-16.1	47.5	316.0		91	-9.1				
1915	45.1	264.5	0.170	72	-14.4	47.4	272.1		78	-13.9				
1916	59.6	299.2	0.199	81	13.1	52.0	270.1		78	-0.8				
1917	70.7	291.8	0.242	79	-2.5	57.1	258.7		74	-4.2				
1918	78.2	244.5	0.320	66	-16.2	72.2	250.4		72	-3.2				
1919	105.0	270.5	0.388	73	10.7	94.3	279.2	0.338	80	11.5				
1920	159.5	291.0	0.548	79	7.6	141.5	296.0	0.478	85	6.0	162.6	339.9	103	
1921	128.6	278.2	0.462	76	-4.4	144.1	302.1	0.477	87	2.1	162.6	340.8	104	0.3
1922	159.9	334.6	0.478	91	20.3	168.5	343.5	0.490	99	13.7	174.4	355.6	108	4.3
1923	189.8	354.0	0.536	96	5.8	171.5	335.5	0.511	96	-2.3	195.7	382.9	116	7.7
1924	241.8	396.4	0.610	108	12.0	212.5	364.0	0.584	105	8.5	226.3	387.6	118	1.2
1925	265.8	401.8	0.662	109	1.4	227.0	374.8	0.606	108	3.0	250.6	413.8	126	6.8
1926	330.6	417.8	0.791	113	4.0	283.0	381.2	0.743	110	1.7	312.5	420.9	128	1.7
1927	342.5	409.6	0.836	111	-2.0	311.3	392.3	0.793	113	2.9	322.4	406.4	124	-3.5
1928	356.1	434.6	0.819	118	6.1	320.9	411.3	0.780	118	4.9	346.4	444.1	135	9.3
1929	400.2	473.1	0.846	128	8.9	352.1	429.7	0.820	124	4.5	371.0	452.7	138	1.9
1930	392.2	460.8	0.851	125	-2.6	376.5	435.9	0.864	125	1.5	361.7	418.8	127	-7.5
1931	365.6	442.9	0.825	120	-3.9	347.0	406.4	0.854	117	-6.8	338.6	396.5	121	-5.3
1932	316.5	403.8	0.784	110	-8.8	306.3	383.0	0.800	110	-5.7	300.1	375.3	114	-5.3
1933	312.8	415.8	0.752	113	3.0	300.3	390.8	0.768	112	2.0	292.0	380.0	116	1.3
1934	297.3	401.7	0.740	109	-3.4	276.2	378.0	0.731	109	-3.3	264.7	362.2	110	-4.7
1935	280.1	391.5	0.715	106	-2.5	257.0	380.3	0.676	109	0.6	256.5	379.6	115	4.8
1936	281.3	396.6	0.709	108	1.3	260.6	370.2	0.704	106	-2.7	286.0	406.2	124	7.0

1937	349.3	405.8	0.861	110	2.3	335.5	380.2	0.882	109	2.7	348.6	395.1	120	-2.7
1938	395.8	395.8	1.000	107	-2.5	388.5	388.5	1.000	112	2.2	396.9	396.9	121	0.5
1939	453.3	411.5	1.101	112	4.0	417.7	395.2	1.057	114	1.7				
1940	371.1	315.8	1.175	86	-23.3									
1941	413.0	294.6	1.402	80	-6.7									
1942	480.9	295.1	1.630	80	0.1									
1943	531.4	291.3	1.825	79	-1.3									
1944	575.4	222.2	2.589	60	-23.7									
1945	1,102.3	277.9	3.967	75	25.0									
1946	2,437.5	375.1	6.499	102	35.0									
1947	3,635.4	398.7	9.119	108	6.3									
1948	6,556.1	451.2	14.531	122	13.2									
1949	8,100.6	479.4	16.899	130	6.2									

(1) = Villa's PIBQ series = nominal gross domestic production (in billions of current francs) calculated by production; see Villa (1994, 166).

(2) = Villa's PIBZQ series = gross domestic production in quantity terms (in billions of 1938 francs) calculated by production; see Villa (1994, 166).

(3) = Villa's PPIBQ series = GDP prices calculated by production (in base 1 = 1938) (by construction,  $PIBQ = PPIBQ \times PIBZQ$ ); see Villa (1994, 166).

(4) = PIBZQ series expressed in base 100 = 1913, calculated from column (2).

(5) = Annual growth rate of PIBZQ, calculated from column (2).

(6) = Villa's PIBVAL series = nominal gross domestic production (in billions of current francs) calculated by demand; see Villa (1994, 142) (for the years 1914–1918, PIBVAL was calculated as the sum  $CM + CG + IM + IG + IE + EXPORT - IMPORT + SUS$ ).

(7) = Villa's PIBVOL series = gross domestic production in quantity terms (in billions of 1938 francs) calculated by demand; see Villa (1994, 143) (for the years 1914–1918, PIBVOL was calculated as the sum  $CZM + CZG + IZM + IZG + IZE + EXPOZT - IMPOZT$ ).

(8) = Villa's PPIBV series = GDP price calculated by demand (in base 1 = 1938) (by construction,  $PPIBV = PIBVAL / PIBVOL$ ).

(9) = PIBVOL series expressed in base 100 = 1913, calculated from column (7).

(10) = Annual growth rate of PIBVOL, calculated from column (7).

(11) = Villa's PIBE series = nominal gross domestic production (in billions of current francs) calculated by income; see Villa (1994, 142) for the 1920–1938 series, and Villa (1997, 207) for the 1900–1913 series.

(12) = Villa's PIBZE series = gross domestic production in quantity terms (in billions of 1938 francs) calculated by income, using GDP prices calculated by demand (by definition,  $PIBZE = PIBE / PPIBV$ ); see Villa (1994, 143).

(13) = PIBZE series expressed in base 100 = 1913, calculated from column (12).

(14) = Annual growth rate of PIBZE, calculated from column (12).

## Population, Households, and Socioprofessional Structure, 1900–1998

This appendix brings together certain sociodemographic statistics that were useful to us at various points in the book, including, on the one hand, series dealing with population and the number of households, which were especially useful for estimating the evolution of the total number of tax units (taxable and nontaxable) (section 1), and, on the other hand, series dealing with the socio-professional structure of the active population (section 2).

### *1. Population, Number of Households, and Number of Tax Units, 1900–1998*

The sources and methods mobilized in compiling the 1900–1998 annual series for total population and numbers of households and tax units that we used in this book are described in Table H-1, and here we will merely clarify certain points.

For the total metropolitan population, we have simply reproduced in Table H-1 the retrospective series published by INSEE. However, the series provided in INSEE's latest retrospective publication on population stops at the year 1993 (see Daguet 1995), so for 1994–1997 we have supplemented it with the estimates of total metropolitan population published in the latest *Rapports sur les Comptes de la Nation*,<sup>1</sup> and for the year 1998 we assumed a population growth rate of 0.4 percent between 1997 and 1998 (see Table H-1). Therefore, the figures reproduced in Table H-1 for the 1990s are subject to being slightly revised by INSEE in the years to come. In particular, when this book originally went to press, the definitive results of the March 1999 population census were not yet available, and we have not sought to use the provisional results released by INSEE (thus, the estimates reproduced in Table H-1 and used in this book are



“pre-RP99” figures). However, according to the provisional results of the 1999 census, the coming revisions should be relatively small. According to the results released by INSEE in July 1999, the metropolitan population in March 1999 is 58.417 million inhabitants, a few hundred thousand less than foreseen by the “pre-RP99” estimates, giving an average annual population growth rate of 0.38 percent between the 1990 and 1999 censuses (versus 0.55 percent between the 1982 and 1990 censuses).<sup>2</sup> If these provisional results are confirmed, that would mean that the figures reproduced in Table H-1 for the late 1990s are (very) slightly overstated: for example, the “real” metropolitan population in 1998 would probably be around 58.2 million rather than 58.7 million, a discrepancy of less than 1 percent. Such margins of error are quite negligible when examining the long-term evolution of average income per person.

For the total number of households over the long run, we only have the estimates carried out in the various population censuses since 1901 (INSEE does not seem to have systematically carried long-term annual estimates of the number of households). To obtain an annual series, we have therefore assumed that the average household size evolved linearly during the intercensal periods (see Table H-1).<sup>3</sup> Given the relatively slow pace of change in the average household size, the margins of error involved in such an assumption can only be extremely small.<sup>4</sup> For the years 1991–1998, we have used the estimates of the total number of households from the *Emploi* studies carried out each year by INSEE (see Table H-1). As was the case for total population, these estimates do not take into account the results of the 1999 census, so the figures reproduced in Table H-1 for the late 1990s are likely to be revised (very) slightly downward in the years to come.

For the total number of tax units, the uncertainty is even greater than for the population and the number of households. Like the SGF, INSEE has never tried to use the census to estimate the total number of tax units. In addition, it is only starting from the 1985 tax year that the statistical tables compiled by the tax administration based on tax-return tabulations have included both taxable and nontaxable tax units (before that, no statistical information about tax returns filed by nontaxable tax units was preserved, not even the number of them). Thus it is only starting from 1985 that the estimates of the total number of tax units reproduced in Table H-1 come from the statistical tables compiled by the tax administration.<sup>5</sup> For years prior to 1985, tax statistics tell us only the number of tax units subject to the progressive income tax; to know the total

## APPENDIX H

TABLE H-1

*Population, household, and tax units in thousands, 1900-1998*

	(1) Total population	(2) Population 0-19 years	(3) Population 20-59 years	(4) Population 60 years and +	(5) Census population
1900	38,486				
1901	38,486	13,185	20,416	4,885	38,962
1902	38,564	13,194	20,460	4,910	
1903	38,657	13,204	20,519	4,934	
1904	38,737	13,196	20,588	4,953	
1905	38,800	13,173	20,658	4,969	
1906	38,836	13,146	20,706	4,984	39,252
1907	38,893	13,128	20,778	4,987	
1908	38,925	13,114	20,859	4,952	
1909	39,024	13,130	20,929	4,965	
1910	39,089	13,126	20,983	4,980	
1911	39,228	13,189	21,019	5,020	39,605
1912	39,229	13,119	21,075	5,035	
1913	39,337	13,134	21,127	5,076	
1914	39,431	13,107	21,225	5,099	
1915	39,256				
1916	39,082				
1917	38,907				
1918	38,732				
1919	38,558				
1920	38,383	11,999	21,074	5,310	
1921	38,773	12,144	21,241	5,388	39,210
1922	38,978	12,168	21,363	5,447	
1923	39,248	12,196	21,570	5,482	
1924	39,611	12,228	21,832	5,551	
1925	39,981	12,275	22,109	5,597	
1926	40,217	12,335	22,251	5,631	40,744
1927	40,404	12,317	22,404	5,683	
1928	40,556	12,322	22,502	5,732	
1929	40,741	12,324	22,639	5,778	
1930	40,912	12,335	22,784	5,793	
1931	41,257	12,398	22,989	5,870	41,835
1932	41,261	12,381	23,017	5,863	
1933	41,276	12,325	23,006	5,945	
1934	41,249	12,248	23,001	6,000	
1935	41,249	12,191	22,979	6,079	

APPENDIX H

(6) Households (census)	(7) Ratio (Pop)/(Hous)	(8) Households	(9) Ratio (TU)/(Hous)	(10) Tax units	(11) Ratio (Pop)/(TU)	
10,940	3.56	10,806	1.31	14,119	2.73	
	3.56	10,806	1.31	14,119	2.73	
	3.55	10,858	1.31	14,187	2.72	
	3.54	10,915	1.31	14,261	2.71	
	3.53	10,968	1.31	14,331	2.70	
	3.52	11,017	1.31	14,394	2.70	
	3.51	11,058	1.31	14,448	2.69	
	3.50	11,106	1.31	14,510	2.68	
	3.49	11,146	1.31	14,563	2.67	
	3.48	11,206	1.31	14,642	2.67	
	3.47	11,257	1.31	14,708	2.66	
	11,438	3.46	11,329	1.31	14,802	2.65
		3.43	11,433	1.31	14,938	2.63
3.40		11,570	1.31	15,117	2.60	
3.37		11,705	1.31	15,294	2.58	
3.37		11,671	1.31	15,249	2.57	
3.36		11,637	1.31	15,205	2.57	
3.36		11,603	1.31	15,160	2.57	
3.35		11,569	1.31	15,116	2.56	
3.35		11,535	1.31	15,071	2.56	
3.34		11,501	1.31	15,027	2.55	
11,860		3.31	11,728	1.31	15,323	2.53
		3.30	11,827	1.31	15,453	2.52
		3.29	11,946	1.31	15,609	2.51
	3.28	12,095	1.31	15,803	2.51	
	3.26	12,247	1.31	16,001	2.50	
	12,520	3.25	12,358	1.31	16,147	2.49
3.25		12,440	1.31	16,254	2.49	
3.24		12,511	1.31	16,347	2.48	
3.24		12,593	1.31	16,454	2.48	
3.23		12,671	1.31	16,556	2.47	
12,983		3.22	12,804	1.31	16,729	2.47
	3.22	12,833	1.31	16,767	2.46	
	3.21	12,866	1.31	16,810	2.46	
	3.20	12,886	1.31	16,837	2.45	
	3.19	12,915	1.31	16,874	2.44	

(continued)

## APPENDIX H

TABLE H-1  
(continued)

	(1) Total population	(2) Population 0-19 years	(3) Population 20-59 years	(4) Population 60 years and +	(5) Census population
1936	41,194	12,336	22,714	6,144	41,907
1937	41,198	12,541	22,430	6,227	
1938	41,216	12,722	22,189	6,305	
1939	39,385	12,227	20,989	6,169	
1940	39,503	12,396	20,821	6,286	
1941	37,388	12,083	19,166	6,139	
1942	37,378	11,832	19,408	6,138	
1943	37,127	11,618	19,371	6,138	
1944	36,651	11,333	19,200	6,118	
1945	36,753	11,318	19,303	6,132	
1946	40,125	11,839	21,489	6,797	40,503
1947	40,448	11,958	21,970	6,520	
1948	40,911	12,178	22,114	6,619	
1949	41,313	12,366	22,231	6,716	
1950	41,647	12,556	22,328	6,763	
1951	42,010	12,710	22,483	6,817	
1952	42,301	12,854	22,592	6,855	
1953	42,618	13,000	22,703	6,915	
1954	42,885	13,165	22,757	6,963	42,777
1955	43,228	13,343	22,845	7,040	
1956	43,627	13,571	22,951	7,105	
1957	44,059	13,826	23,031	7,202	
1958	44,563	14,121	23,123	7,319	
1959	45,015	14,387	23,173	7,455	
1960	45,465	14,665	23,196	7,604	
1961	45,904	14,991	23,166	7,747	
1962	46,422	15,382	23,109	7,931	46,243
1963	47,573	15,904	23,500	8,169	
1964	48,134	16,211	23,547	8,376	
1965	48,562	16,511	23,585	8,466	
1966	48,954	16,759	23,593	8,242	
1967	49,374	16,814	23,807	8,753	
1968	49,723	16,789	24,057	8,877	
1969	50,108	16,757	24,345	9,006	
1970	50,528	16,748	24,670	9,110	

APPENDIX H

(6) Households (census)	(7) Ratio (Pop)/(Hous)	(8) Households	(9) Ratio (TU)/(Hous)	(10) Tax units	(11) Ratio (Pop)/(TU)
13,150	3.19	12,926	1.31	16,889	2.44
	3.19	12,934	1.31	16,899	2.44
	3.18	12,947	1.31	16,915	2.44
	3.18	12,378	1.31	16,172	2.44
	3.18	12,421	1.31	16,229	2.43
	3.18	11,762	1.31	15,368	2.43
	3.18	11,765	1.31	15,372	2.43
	3.18	11,692	1.31	15,277	2.43
	3.17	11,548	1.31	15,089	2.43
	3.17	11,586	1.31	15,138	2.43
12,931	3.17	12,656	1.31	16,536	2.43
	3.17	12,742	1.31	16,648	2.43
	3.18	12,872	1.31	16,818	2.43
	3.18	12,982	1.31	16,962	2.44
	3.19	13,070	1.31	17,077	2.44
	3.19	13,168	1.31	17,205	2.44
	3.19	13,243	1.31	17,302	2.44
	3.20	13,325	1.31	17,410	2.45
	3.20	13,392	1.31	17,497	2.45
	3.20	13,507	1.31	17,647	2.45
13,418	3.20	13,639	1.31	17,820	2.45
	3.20	13,782	1.31	18,007	2.45
	3.20	13,947	1.31	18,223	2.45
	3.19	14,097	1.31	18,418	2.44
	3.19	14,246	1.31	18,613	2.44
	3.19	14,391	1.31	18,803	2.44
	3.19	14,562	1.31	19,026	2.44
	3.18	14,952	1.31	19,535	2.44
	3.18	15,157	1.31	19,804	2.43
	3.17	15,321	1.31	20,018	2.43
14,610	3.16	15,474	1.30	20,166	2.43
	3.16	15,637	1.30	20,324	2.43
	3.15	15,778	1.30	20,454	2.43
	3.12	16,036	1.29	20,734	2.42
15,778	3.10	16,310	1.29	21,033	2.40

(continued)

## APPENDIX H

TABLE H-1  
(continued)

	(1) Total population	(2) Population 0-19 years	(3) Population 20-59 years	(4) Population 60 years and +	(5) Census population
1971	51,016	16,772	25,002	9,242	
1972	51,486	16,851	25,302	9,333	
1973	51,916	16,902	25,551	9,463	
1974	52,321	16,942	25,808	9,571	
1975	52,600	16,888	26,040	9,672	
1976	52,798	16,809	26,405	9,584	
1977	53,019	16,704	26,892	9,423	
1978	53,271	16,613	27,359	9,299	
1979	53,481	16,511	27,766	9,204	
1980	53,731	16,419	28,155	9,157	
1981	54,029	16,380	28,299	9,350	
1982	54,335	16,327	28,487	9,521	
1983	54,650	16,303	28,668	9,679	
1984	54,895	16,199	28,878	9,818	
1985	55,157	16,092	29,099	9,966	
1986	55,411	15,999	29,296	10,116	
1987	55,682	15,920	29,496	10,266	
1988	55,966	15,853	29,685	10,428	
1989	56,270	15,793	29,875	10,602	
1990	56,577	15,720	30,094	10,763	
1991	56,893	15,632	30,308	10,953	
1992	57,217	15,523	30,566	11,128	
1993	57,530	15,397	30,827	11,306	
1994	57,779			11,447	
1995	58,020			11,604	
1996	58,256			11,727	
1997	58,489			11,848	
1998	58,723				

*Explanation:* In 1998, the total metropolitan population of France was 58.723 million inhabitants, the number of households was 23.959 million (2.45 inhabitants per household), and the number of tax units was 31.801 million (1.33 per household and 1.85 per tax unit).

*Sources:* (1) = Total metropolitan population on January 1; see Daguet (1995, 36-37) for the 1901-1993 series; see "Comptes et indicateurs économiques—Rapport sur les Comptes de la Nation 1997," *INSEE-Résultats* no. 607-608-609 (série Economie générale no. 165-166-167), June 1998, p. 39, for the 1994-1997 series; for 1998, the total population was obtained assuming a 1998 / 1997 growth rate equal to 0.4 percent (see Appendix H, section 1).

## APPENDIX H

(6) Households (census)	(7) Ratio (Pop)/(Hous)	(8) Households	(9) Ratio (TU)/(Hous)	(10) Tax units	(11) Ratio (Pop)/(TU)
	3.07	16,611	1.29	21,355	2.39
	3.04	16,911	1.28	21,653	2.38
	3.02	17,204	1.27	21,921	2.37
	2.99	17,493	1.27	22,161	2.36
17,445	2.96	17,745	1.26	22,364	2.35
	2.94	17,977	1.25	22,497	2.35
	2.91	18,221	1.25	22,709	2.33
	2.88	18,480	1.24	22,939	2.32
	2.86	18,730	1.24	23,186	2.31
	2.83	18,998	1.23	23,457	2.29
	2.80	19,289	1.23	23,750	2.27
19,589	2.77	19,589	1.23	24,043	2.26
	2.76	19,834	1.22	24,283	2.25
	2.74	20,057	1.23	24,572	2.23
	2.72	20,290	1.24	25,144	2.19
	2.70	20,522	1.24	25,534	2.17
	2.68	20,764	1.27	26,341	2.11
	2.66	21,015	1.27	26,791	2.09
	2.64	21,276	1.29	27,360	2.06
21,542	2.63	21,542	1.30	28,029	2.02
	2.59	21,984	1.30	28,607	1.99
	2.57	22,297	1.30	29,052	1.97
	2.55	22,532	1.31	29,558	1.95
	2.53	22,840	1.32	30,038	1.92
	2.51	23,156	1.32	30,585	1.90
	2.48	23,451	1.33	31,134	1.87
	2.46	23,728	1.33	31,538	1.85
	2.45	23,959	1.33	32,251	1.82

(2) to (4) = Breakdown by age group of the total metropolitan population on January 1; (2) = population under twenty years of age on January 1; (3) = population aged twenty to fifty-nine on January 1; (4) = population sixty and over on January 1. By definition, (1) = (2) + (3) + (4); same sources as (1).

(5) to (6) = Metropolitan population and number of households estimated in the censuses of 1901, 1911, 1921, 1926, 1931, 1936, 1946, 1954, and 1962; see *Annuaire Statistique de la France, Résumé rétrospectif 1966* (INSEE, 1966), p. 22; for 1968, 1975, 1982, and 1990, see "Structure des ménages par région et département (Recensement de la population de 1990, Résultats du sondage au quart)," *INSEE-Résultats* no. 336 (série Démographie-Société no. 35), septembre 1994, p. 22.

(continued)

## APPENDIX H

TABLE H-1  
(continued)

(7) = Ratios between the population and the number of households; for 1901, 1911, 1921, 1926, 1931, and 1936,  $(7) = (5) / (6)$ ; for 1946, 1954, and 1962, the number of households in (8) is equal to the number of households on January 1 estimated by INSEE (see *Annuaire Statistique de la France 1989* [INSEE], p. 51), and  $(7) = (1) / (8)$ ; for 1968, 1975, 1982, and 1990, the number of households in (8) is equal to the number of households estimated in the censuses:  $(8) = (6)$ , and  $(7) = (1) / (8)$ ; for 1991–1998, the number of households in (8) is equal to the number of households estimated in the *Emploi* studies (tabulations by the author carried out on the basis of files from the 1991–1998 *Emploi* studies; estimates are identical to those published by INSEE each year in the volumes devoted to the *Emploi* studies; see, for example, “Enquête sur l’emploi de 1998—Résultats détaillés,” INSEE-Résultats no. 617–618 [*Emploi-Revenus* series no. 141–142], September 1998, pp. 114–115), and  $(7) = (1) / (8)$ ; for intercensal years (1902–1910, 1912–1914, and 1920, 1922–1925, 1927–1930, 1932–1935, 1937–1945, 1947–1953, 1955–1961, 1963–1967, 1969–1974, 1976–1981, and 1983–1989), (7) was estimated by linear extrapolation (assuming that the ratio between the population and the number of households evolved linearly during the intercensal years).

(8) = Number of households estimated from column (1) and column (7); by construction,  $(8) = (1) / (7)$ .

(9) = Ratios between the number of tax units and the number of households (see Piketty 1998, table 2-2, 21) for the 1970–1995 series; for the years 1965–1970, we assume the ratio declined at a pace in line with what was observed in the *Revenus fiscaux* studies; for 1900–1964, we assumed a constant ratio equal to the 1965 value; for 1996–1997, the number of tax units in (10) is equal to the total number of tax units (taxable and nontaxable) given in l’Etat 1921 for  $12 / 31 / n + 2$ , and  $(9) = (10) / (8)$ ; for 1998, the number of tax units given in (10) is equal to the total number of tax units (taxable and nontaxable) given in l’Etat 1921 for  $12 / 31 / n + 1$ , marked up by 1 percent to take into account the releases from the year  $n + 2$  (see Appendix A, sections 1.3 and 1.5), and  $(9) = (10) / (8)$ .

(10) = Number of tax units estimated from column (8) and column (9); by construction,  $(10) = (8) \times (9)$ .

*Note:* The series cover France’s current territory for 1920–1938 and 1946–1998, and the territory of eighty-seven departments (current territory, less the Moselle, Bas-Rhin, and Haut-Rhin) for 1901–1918 and 1939–1945 (also, the metropolitan population figures for 1941–1945 exclude prisoners of war held outside France). For 1915–1919, no statistics on population (and thus none on households) are available (the series published in Daguët [1995] stops in 1914 and resumes in 1920); given the closeness of the 1914 and 1920 figures (losses due to war are roughly balanced out by the return to the current national territory), we have simply filled in the 1915–1919 figures for total population, total number of households, and number of tax units by assuming a linear evolution between 1914 and 1920. For 1900, we adopted the same figures as for 1901.

number of tax units (those subject to tax and those not subject to tax), we are thus forced to make hypotheses about the evolution of the number of tax units per household over the twentieth century.

Fortunately, for the period prior to 1956, we have the *Revenus fiscaux* studies, carried out by INSEE every five–six years based on representative samples of households, for which the DGI transmitted to INSEE all of the tax returns corresponding to all of the tax units within these households (including the nontaxable tax units). Using these studies, as well as estimates of the total number of tax units that were carried out at the time by the Finance Ministry based on the structure of households, we estimated in a previous study the evo-



lution of the average number of tax units per household and the total number of tax units over the 1970–1985 period (see Piketty 1998, appendix C, section 1, 89–93), and we have used this series (without any adjustments) in Table H-1. What emerges from these estimates is that the average number of tax units per household overall was very stable over the 1970–1998 period (about 1.30 tax units per household in both the early 1970s and the 1990s), but with a slight dip (around 1.20–1.25) in the middle of the period (see Table H-1). The *Revenus fiscaux* studies prior to 1970 are more difficult to use: the corresponding files do not exist in a usable electronic format, so it is necessary to fall back on the articles and volumes of results published at the time by INSEE. However, the results reproduced in these publications are sufficient to observe the very high degree of stability in the average number of tax units per household since 1976: the number of tax units seems to have declined very slightly between 1965 and 1970 (from 1.31 to 1.29), after remaining practically stationary from 1956 to 1965 (around 1.30–1.31).<sup>6</sup>

For the period prior to 1956, the only data from which the evolution of the average number of tax units per household can be estimated is the information provided by the censuses on the structure of households (percentage of married couples, complex households, divorced individuals, etc.).<sup>7</sup> According to that information, it would seem that the forces that led to a very high degree of stability in the average number of tax units per household since 1956 (a downward trend in the number of households made up of several nuclear families, but an upward trend in the number of unmarried couples) were also at work in the first half of the twentieth century (at least to a first approximation), so we have assumed that the ratio (number of tax units) / (number of households) was also very stable before 1956 (see Table H-1).<sup>8</sup> It goes without saying that this simplifying assumption cannot provide a perfectly precise estimate of the total number of tax units: for example, it is possible that the number of tax units per household experienced the same type of short-term fluctuations over the first half of the twentieth century as those we observed over the 1970–1995 period, or even a slight downward trend.<sup>9</sup> However, it must be emphasized that any such estimation errors do not seem capable of being greater than 5 or 10 percent, and that such errors are negligible compared to the massive changes observed in the share of total income going to the wealthy fractiles of tax units.<sup>10</sup>

TABLE H-2  
*The distribution of the active population in employment  
 by socioprofessional category, 1901-1936*

	1901		1906	
	(thousands)	(%)	(thousands)	(%)
<i>Chefs d'établissement</i> (agriculture, forestry, fisheries)	3,470	17.9	4,795	23.4
<i>Employés</i> (agriculture, forestry, fisheries)	7	0.0	6	0.0
<i>Ouvriers</i> (agriculture, forestry, fisheries)	2,912	15.0	2,685	13.1
<i>Travailleurs isolés</i> (agriculture, forestry, fisheries)	1,804	9.3	1,356	6.6
<i>Chefs d'établissement</i> (other sectors)	1,396	7.2	1,492	7.3
in sector "professions libérales"	45	0.2	55	0.3
<i>Employés</i> (other sectors)	2,403	12.4	2,111	10.3
in sector "services publics"	1,135	5.9	925	4.5
<i>Ouvriers</i> (other sectors)	4,763	24.6	5,222	25.5
in sector "domestiques"	939	4.8	913	4.5
in sector "industrie"	3,325	17.1	3,439	16.8
<i>Travailleurs isolés</i> (other sectors)	2,601	13.4	2,816	13.7
<i>Chefs d'établissement</i> (all sectors)	4,866	25.1	6,287	30.7
<i>Employés</i> (all sectors)	2,410	12.4	2,117	10.3
<i>Ouvriers</i> (all sectors)	7,675	39.6	7,907	38.6
<i>Travailleurs isolés</i> (all sectors)	4,405	22.7	4,172	20.4
Total employment	19,401	100.0	20,482	100.0
<i>Salariés</i> (not counting <i>travailleurs isolés</i> )	10,085	52.0	10,024	48.9
<i>Non-salariés</i> (including <i>travailleurs isolés</i> )	9,271	47.8	10,459	51.1
<i>Salariés</i> (including <i>travailleurs isolés</i> )	14,490	74.9	14,196	69.3
<i>Non-salariés</i> (not counting <i>travailleurs isolés</i> )	4,866	25.1	6,287	30.7
<i>Chefs d'établissement</i> (agr., for., fish.) (0 wage earners)	2,129	11.0	3,459	16.9
<i>Chefs d'établissement</i> (agr., for., fish.) (1 wage earner)	674	3.5	715	3.5

1921		1926		1931		1936	
(thousands)	(%)	(thousands)	(%)	(thousands)	(%)	(thousands)	(%)
5,017	23.7	4,839	22.9	4,679	22.1	4,429	22.8
6	0.0	6	0.0	6	0.0	5	0.0
2,834	13.4	2,375	11.2	2,141	10.1	1,893	9.8
1,142	5.4	962	4.5	853	4.0	831	4.3
1,395	6.6	1,437	6.8	1,557	7.4	1,493	7.7
47	0.2	48	0.2	52	0.2	53	0.3
2,693	12.7	2,727	12.9	3,019	14.3	2,972	15.3
894	4.2	785	3.7	886	4.2	984	5.1
5,928	28.0	6,899	32.6	7,003	33.1	5,827	30.0
769	3.6	767	3.6	746	3.5	694	3.6
3,917	18.5	4,823	22.8	4,829	22.8	3,946	20.3
2,169	10.2	1,906	9.0	1,901	9.0	1,946	10.0
6,412	30.3	6,276	29.7	6,236	29.5	5,922	30.5
2,699	12.7	2,733	12.9	3,025	14.3	2,977	15.3
8,762	41.4	9,274	43.8	9,144	43.2	7,720	39.8
3,311	15.6	2,868	13.6	2,754	13.0	2,777	14.3
21,183	100.0	21,151	100.0	21,159	100.0	19,396	100.0
11,461	54.1047066	12,007	56.8	12,169	57.5	10,697	55.2
9,723	45.9000142	9,144	43.2	8,990	42.5	8,699	44.8
14,772	69.7	14,875	70.3	14,923	70.5	13,474	69.5
6,412	30.3	6,276	29.7	6,236	29.5	5,922	30.5
3,632	17.1	3,643	17.2	3,590	17.0	3,416	17.6
698	3.3	641	3.0	596	2.8	579	3.0

(continued)

TABLE H-2  
(continued)

	1901		1906	
	(thousands)	(%)	(thousands)	(%)
<i>Chefs d'établissement</i> (agr., for., fish.) (2 wage earners)	340	1.8	323	1.6
<i>Chefs d'établissement</i> (agr., for., fish.) (3-5 wage earners)	274	1.4	252	1.2
<i>Chefs d'établissement</i> (agr., for., fish.) (6-10 wage earners)	43	0.2	37	0.2
<i>Chefs d'établissement</i> (agr., for., fish.) (11-50 wage earners)	10	0.05	9	0.04
<i>Chefs d'établissement</i> (agr., for., fish.) (51-500 wage earners)	0.2	0.001	0.2	0.001
<i>Chefs d'établissement</i> (agr., for., fish.) (501+ wage earners)	0.000	0.000	0.000	0.000
<i>Chefs d'établissement</i> (other sectors) (0 wage earners)	492	2.5	520	2.5
<i>Chefs d'établissement</i> (other sectors) (1 wage earner)	472	2.4	503	2.5
<i>Chefs d'établissement</i> (other sectors) (2 wage earners)	186	1.0	202	1.0
<i>Chefs d'établissement</i> (other sectors) (3-5 wage earners)	146	0.8	160	0.8
<i>Chefs d'établissement</i> (other sectors) (6-10 wage earners)	49	0.3	54	0.3
<i>Chefs d'établissement</i> (other sectors) (11-50 wage earners)	42	0.2	43	0.2
<i>Chefs d'établissement</i> (other sectors) (51-500 wage earners)	9	0.05	10	0.05
<i>Chefs d'établissement</i> (other sectors) (501+ wage earners)	0.6	0.003	0.7	0.003

*Explanation:* In 1901, France had 4.866 million *chefs d'établissement* (heads of establishment) (all sectors included) (25.1 percent of total employment), including 3.470 million in the sector agriculture, forestry, fisheries (17.9 percent of total employment) and 1.396 million in the other sectors (7.2 percent of total employment); out of the 3.470 million *chefs d'établissement* in the agriculture, forestry, fisheries sector, there were 2.129 million *chefs d'établissement* employing no wage earners (11.0 percent of total employment), 0.674 million *chefs d'établissement* employing one wage earner (3.5 percent of total employment quote), etc.

*Sources:* 1901 and 1906: *Résultats statistiques du recensement effectué le 4 mars 1906*, 2e partie (Total population, active population, and establishments), pp. 182-183 (SGF, Imprimerie Nationale, 1911) (we use the 1901 census results that were published with the results of the 1906 census, since they were revised slightly from what had been published earlier).

1921: *Résultats statistiques du recensement effectué le 6 mars 1921*, Tome I, 3e partie (Active population, establishments), pp. 83-84 (SGF, Imprimerie Nationale, 1927).

1921		1926		1931		1936	
(thousands)	(%)	(thousands)	(%)	(thousands)	(%)	(thousands)	(%)
361	1.7	300	1.4	272	1.3	251	1.3
282	1.3	219	1.0	189	0.9	158	0.8
35	0.2	28	0.1	24	0.1	19	0.1
9	0.04	8	0.04	8	0.04	6	0.03
0.4	0.002	0.2	0.001	0.3	0.001	0.2	0.001
0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000
506	2.4	466	2.2	661	3.1	644	3.3
433	2.0	457	2.2	382	1.8	378	1.9
173	0.8	187	0.9	180	0.9	174	0.9
152	0.7	171	0.8	167	0.8	158	0.8
59	0.3	70	0.3	75	0.4	63	0.3
57	0.3	68	0.3	73	0.3	60	0.3
15	0.1	17	0.1	18	0.1	15	0.1
0.8	0.004	1.2	0.006	1.3	0.006	1.0	0.005

1926: *Résultats statistiques du recensement effectué le 7 mars 1926*, Tome I, 3e partie (Active population, establishments), pp. 88–90 (SGF, Imprimerie Nationale, 1931).

1931: *Résultats statistiques du recensement effectué le 8 mars 1931*, Tome I, 3e partie (Active population, establishments), pp. 94–96 (SGF, Imprimerie Nationale, 1935).

1936: *Résultats statistiques du recensement effectué le 8 mars 1936*, Tome I, 3e partie (Active population, establishments), pp. 94–96 (SNS, Imprimerie Nationale, 1943).

*Note:* The four *situations professionnelles* in the 1901–1936 censuses (*chefs d'établissements*, *employés*, *ouvriers*, and *travailleurs isolés*) were broken down by sector (agriculture = sectors 1 and 2 [agriculture, forestry, fisheries], nonagriculture = sectors 3 to 9). We have also broken out the *chefs d'établissement* of the *professions libérales* sector (sector 7), the *employés* of the *services publics* sector (sector 9), the *ouvriers* of the *domestiques* [secteur 8B] and the *ouvriers* of industry (sectors 3 and 4).

TABLE H-3

*The distribution of the active population in employment by socioprofessional categories, 1954-1982*

	1954		1962		1968		1975		1982	
	(thousands)	(%)	(thousands)	(%)	(thousands)	(%)	(thousands)	(%)	(thousands)	(%)
0: Agriculteurs exploitants	3,984	21.2	3,012	15.9	2,460	12.3	1,652	7.9	1,448	6.7
1: Salariés agricoles	1,137	6.0	821	4.3	579	2.9	362	1.7	273	1.3
2: Patrons de l'industrie et du commerce	2,296	12.2	1,997	10.5	1,962	9.8	1,712	8.2	1,738	8.1
<i>dt 21: Industriels</i>	85	0.5	79	0.4	79	0.4	60	0.3	71	0.3
<i>22: Artisans</i>	734	3.9	611	3.2	623	3.1	531	2.5	573	2.7
<i>23: Patrons pêcheurs</i>	24	0.1	19	0.1	18	0.1	15	0.1	13	0.1
<i>26: Gros commerçants</i>	183	1.0	170	0.9	214	1.1	190	0.9	210	1.0
<i>27: Petits commerçants</i>	1,269	6.7	1,118	5.9	1,028	5.1	915	4.4	869	4.0
3: Professions libérales et cadres supérieurs	550	2.9	757	4.0	983	4.9	1,423	6.8	1,765	8.2
<i>dt 30: Professions libérales</i>	120	0.6	124	0.7	142	0.7	171	0.8	220	1.0
<i>32: Professeurs, professions littéraires et scientifiques</i>	80	0.4	125	0.7	206	1.0	361	1.7	465	2.2
<i>33: Ingénieurs</i>	79	0.4	138	0.7	187	0.9	247	1.2	336	1.6

34: Cadres administratifs supérieurs	271	1.4	370	2.0	447	2.2	644	3.1	744	3.5
dt salariés des services publics, de l'Etat et des coll.locales	156	0.8	159	0.8	172	0.9	238	1.1		
4: Cadres moyens	1,124	6.0	1,478	7.8	1,981	9.9	2,690	12.8	3,109	14.5
dt 41: Instituteurs et professions intellectuelles diverses	395	2.1	417	2.2	557	2.8	715	3.4	799	3.7
42: Services médicaux et sociaux			110		173	0.9	296	1.4	420	2.0
43: Techniciens	190	1.0	349	1.8	525	2.6	734	3.5	881	4.1
44: Cadres administratifs moyens	539	2.9	604	3.2	726	3.6	945	4.5	1,009	4.7
dt salariés des services publics, de l'Etat et des coll.locales	212	1.1	186	1.0	222	1.1	316	1.5		
5: Employés	2,021	10.7	2,373	12.5	2,941	14.7	3,620	17.3	4,199	19.6
dt 51: Employés de bureau	1,596	8.5	1,883	9.9	2,345	11.7	2,934	14.0	3,394	15.8
dt salariés des services publics, de l'Etat et des coll.locales	787	4.2	812	4.3	1,019	5.1	1,229	5.9		

(continued)

TABLE H-3  
(continued)

	1954		1962		1968		1975		1982	
	(thousands)	(%)	(thousands)	(%)	(thousands)	(%)	(thousands)	(%)	(thousands)	(%)
<i>53: Employés de commerce</i>	425	2.3	490	2.6	596	3.0	686	3.3	806	3.8
6: Ouvriers	6,266	33.3	6,914	36.5	7,451	37.3	7,786	37.2	7,065	32.9
<i>dt 60: Contremaîtres</i>	140	0.7	303	1.6	358	1.8	435	2.1	453	2.1
<i>61: Ouvriers qualifiés</i>	2,761	14.7	2,299	12.1	2,506	12.5	2,819	13.5	2,862	13.3
<i>63: Ouvriers spécialisés</i>	1,816	9.6	2,437	12.9	2,651	13.3	2,849	13.6	2,403	11.2
<i>65: Mineurs</i>	235	1.2	190	1.0	142	0.7	74	0.4	48	0.2
<i>66: Marins et pêcheurs</i>	49	0.3	50	0.3	43	0.2	37	0.2	30	0.1
<i>67: Apprentis ouvriers</i>	209	1.1	263	1.4	263	1.3	107	0.5	124	0.6
<i>68: Manœuvres</i>	1,057	5.6	1,372	7.2	1,489	7.4	1,465	7.0	1,145	5.3
7: Personnels de services	951	5.1	1,016	5.4	1,125	5.6	1,178	5.6	1,383	6.4
<i>dt 70: Gens de maison</i>	324	1.7	309	1.6	275	1.4	222	1.1	189	0.9
<i>71: Femmes de ménage</i>	204	1.1	206	1.1	221	1.1	144	0.7	98	0.5
<i>72: Autres personnes de service (serveurs, etc . . .)</i>	424	2.3	500	2.6	629	3.1	812	3.9	1,096	5.1
8: Other categories	495	2.6	590	3.1	520	2.6	518	2.5	485	2.3
<i>dt 80: Artistes</i>	42	0.2	41	0.2	49	0.2	54	0.3	63	0.3
<i>81: Clergé</i>	155	0.8	158	0.8	132	0.7	116	0.6	61	0.3
<i>82: Armée et police</i>	298	1.6	391	2.1	339	1.7	348	1.7	361	1.7



Total employment	18,824	100.0	18,956	100.0	20,002	100.0	20,940	100.0	21,466	100.0
Salariés	12,382	65.8	13,784	72.7	15,388	76.9	17,352	82.9	17,996	83.8
Non-salariés	6,442	34.2	5,174	27.3	4,613	23.1	3,589	17.1	3,469	16.2

*Explanation:* In 1954, France had 3,984 million *agriculteurs exploitant* (21.2 percent of total employment); 1.137 million *salariés agricoles* (6.0 percent of total employment); 2.296 million *patrons de l'industrie et du commerce* (12.2 percent of total employment), including 0.085 million *industriels* (0.5 percent of total employment), 0.734 million *artisans* (3.9 percent of total employment), etc.

*Sources:* 1954: "Recensement général de la population de mai 1954—Population active," pp. 58–59 (INSEE, 1958); for the 1954 census, lines 41 and 42 were combined into a single line (counted here in line 41), and there was a line 62 (*ouvriers qualifiés et contremaîtres du secteur public*), counted here in line 61.

1962: "Recensement général de la population de 1962—Population active," pp. 66–67 (INSEE, 1964).

1968: "Résultats préliminaires du recensement de 1968—Démographie générale, population active, ménages, logements," *Les Collections de l'INSEE* n. 12 (série D [Démographie-emploi] n. 3), pp. 38–40 (INSEE, 1969).

1975: "Recensement général de la population de 1975—Population active," *Les Collections de l'INSEE* n. 328 (série D [Démographie-emploi] n. 67), pp. 98–100 (INSEE, October 1979).

1982: "De l'ancien code à la nouvelle nomenclature des nomenclatures professionnelles," *Archives et documents* n. 156, p. 140 (INSEE, March 1986).

*Note:* In the 1954 nomenclature, *industriels* (line 21) included all industrial or artisanal *chefs d'entreprises* employing six or more workers, and *artisans* (line 22) included all industrial or artisanal *chefs d'entreprises* employing five or more workers; *gros commerçants* (line 26) included all *commerçants* employing three or more workers, and *petits commerçants* (line 27) included all *commerçants* employing two or more workers.

## APPENDIX H

TABLE H-4

*The distribution of the employed active population by socioprofessional category, 1982-1998*

	1982		1990		1998	
	(thousands)	(%)	(thousands)	(%)	(thousands)	(%)
1: Agriculteurs exploitants	1,466	6.8	1,005	4.5	682	3.0
2: Artisans, commerçants, chefs d'entreprise	1,815	8.5	1,752	7.9	1,595	7.1
<i>dt 21: Artisans</i>	896	4.2	827	3.7	768	3.4
<i>22: Commerçants</i>	788	3.7	756	3.4	699	3.1
<i>23: Chefs d'entreprise (10+ wage earners)</i>	132	0.6	169	0.8	128	0.6
<i>dt 2310: Chefs de grande entreprise (500+ wage earners)</i>	5.3	0.02	6.7	0.03		
<i>2320: Chefs de moyenne entreprise (50-499 wage earners)</i>	29	0.1	24	0.1		
<i>2331-2334: Chefs d'entreprise (10-49 wage earners)</i>	98	0.5	139	0.6		
3: Cadres et professions intellectuelles supérieures	1,860	8.7	2,603	11.7	3,008	13.4
<i>dt 31: Professions libérales</i>	236	1.1	308	1.4	342	1.5
<i>33: Cadres de la fonction publique</i>	241	1.1	286	1.3	297	1.3
<i>34: Professeurs, professions scientifiques</i>	352	1.6	553	2.5	703	3.1
<i>35: Professions de l'information, des arts et des spectacles</i>	103	0.5	152	0.7	187	0.8
<i>37: Cadres administratifs et commerciaux d'entreprises</i>	560	2.6	720	3.2	834	3.7
<i>dt 3710: Cadres d'état-major administratifs, financiers, commerciaux des grandes entreprises</i>	8.4	0.04	12.7	0.06		

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	1982		1990		1998	
	(thousands)	(%)	(thousands)	(%)	(thousands)	(%)
<i>38: Ingénieurs et cadres techniques d'entreprise</i>	369	1.7	584	2.6	647	2.9
<i>dt 3810: Directeurs techniques des grandes entreprises</i>	5.2	0.02	6.2	0.03		
4: Professions intermédiaires	3,784	17.6	4,464	20.0	4,759	21.1
<i>dt 42: Instituteurs et assimilés</i>	761	3.5	736	3.3	764	3.4
<i>43: Professions intermédiaires de la santé et du travail social</i>	590	2.7	738	3.3	905	4.0
<i>44: Clergé, Religieux</i>	60	0.3	48	0.2	17	0.1
<i>45: Professions intermédiaires administratives de la fonction publique</i>	278	1.3	394	1.8	391	1.7
<i>46-48: Professions intermédiaires administratives et commerciales des entreprises, Techniciens (sauf techniciens tertiaires), Contremaîtres, agents de maîtrise (sauf maîtrise administrative)</i>	2,097	9.8	2,548	11.4	2,682	11.9
5: Employés	5,502	25.6	5,899	26.5	6,512	28.9
<i>dt 52-53: Employés civils et agents de services de la fonction publique, Policiers et militaires</i>	2,039	9.5	2,310	10.4	2,403	10.7
<i>54: Employés administratifs d'entreprise</i>	2,061	9.6	1,921	8.6	1,963	8.7
<i>55: Employés de commerce</i>	622	2.9	732	3.3	799	3.5
<i>56: Personnels des services directs aux particuliers</i>	781	3.6	937	4.2	1,347	6.0

(continued)

## APPENDIX H

TABLE H-4  
(continued)

	1982		1990		1998	
	(thousands)	(%)	(thousands)	(%)	(thousands)	(%)
<i>dt 5632: Employés de maison et femmes de ménages chez des particuliers</i>	200	0.9	178	0.8		
6: Ouvriers	7,044	32.8	6,546	29.4	5,972	26.5
<i>dt 62-65: Ouvriers qualifiés de type industriel et artisanal ou de la manutention, Chauffeurs</i>	3,686	17.2	3,725	16.7	3,913	17.4
<i>67-68: Ouvriers non qualifiés de type industriel ou artisanal</i>	3,089	14.4	2,585	11.6	1,831	8.1
<i>69: Ouvriers agricoles</i>	269	1.3	236	1.1	229	1.0
Total employment	21,472	100.0	22,270	100.0	22,527	100.0
Wage-earning workers	17,954	83.6	19,204	86.2	19,909	88.4
Self-employed workers	3,517	16.4	3,065	13.8	2,619	11.6

*Explanation:* In 1982, France had 1.466 million *agriculteurs exploitants* (6.8 percent of total employment); 1.815 million *artisans, commerçants et chefs d'entreprise* (8.5 percent of total employment), including 0.896 million *artisans* (4.2 percent of total employment), 0.788 million *commerçants* (3.7 percent of total employment), etc.

*Sources:* 1982: "Recensement général de la population de 1982—Population active," *Les Collections de l'INSEE* n. 472 (série D [Démographie-emploi] n. 100), pp. 132-133 (INSEE, September 1984) (we have taken account of some very slight revisions published with the results of the 1990 census); 1990: "Recensement de la population de 1990—Population active," *INSEE-Résultats* n. 243 (série Démographie-société n. 25), pp. 28-39 (INSEE, June 1993); 1998: "Enquête sur l'emploi de mars 1998—Résultats détaillés," *INSEE-Résultats* n. 617-618 (série Emploi-revenus n. 141-142), pp. 54-55 (INSEE, September 1998).

*Note:* In the 1982 nomenclature, all *chefs d'entreprises artisanales, industrielles ou commerciales* employing ten or more workers are classified as *chefs d'entreprise de 10 salariés ou plus* (line 23), and all other *chefs d'entreprises artisanales, industrielles ou commerciales* are classified as *artisans* (line 21) or as *commerçants* (line 22).

TABLE H-5  
*The number of wage-earning and self-employed workers from 1901 to 1998*

	(1) Total employment	(2) Wage-earning employment	(3) Self- employed employment	(4) Of which agricultural	(5) Of which nonagricultural	(6) % Wage- earning	(7) % Self- employed	(8) % Agricultural	(9) % Non agricultural
1901	19,401,000	10,085,000	9,271,000	5,274,000	3,997,000	52.0	47.8	27.2	20.6
1906	20,482,000	10,024,000	10,459,000	6,151,000	4,308,000	48.9	51.1	30.0	21.0
1921	21,183,000	11,461,000	9,723,000	6,159,000	3,564,000	54.1	45.9	29.1	16.8
1926	21,151,000	12,007,000	9,144,000	5,801,000	3,343,000	56.8	43.2	27.4	15.8
1931	21,159,000	12,169,000	8,990,000	5,532,000	3,458,000	57.5	42.5	26.1	16.3
1936	19,396,000	10,697,000	8,699,000	5,260,000	3,439,000	55.2	44.8	27.1	17.7
1946	20,520,000	13,392,000	7,129,000	3,952,000	3,177,000	65.3	34.7	19.3	15.5
1954	18,824,000	12,382,000	6,442,000	3,984,000	2,458,000	65.8	34.2	21.2	13.1
1962	18,956,000	13,784,000	5,174,000	3,012,000	2,162,000	72.7	27.3	15.9	11.4
1968	20,002,000	15,388,000	4,613,000	2,460,000	2,153,000	76.9	23.1	12.3	10.8
1975	20,940,000	17,352,000	3,589,000	1,652,000	1,937,000	82.9	17.1	7.9	9.3
1982	21,472,000	17,954,000	3,517,000	1,466,000	2,051,000	83.6	16.4	6.8	9.6
1990	22,270,000	19,204,000	3,065,000	1,005,000	2,060,000	86.2	13.8	4.5	9.3
1998	22,527,000	19,909,000	2,619,000	682,000	1,937,000	88.4	11.6	3.0	8.6

*Explanation:* In 1901, France had 19.401 million employed workers, of which 10.085 million were wage-earning workers (52.0 percent of total employment), 9.271 million were self-employed workers (47.8 percent of total employment), 5.274 million were self-employed agricultural workers (27.2 percent of total employment), and 3.997 million were self-employed nonagricultural workers (20.6 percent of total employment).

*Sources:* 1901–1936: See Table H-2.

1946: *Résultats statistiques du recensement général de la population effectué le 10 mars 1946*, volume III (Population active), Première partie (Ensemble de la population active), pp. 132–133 (INSEE, 1952); the 1946 census is not perfectly comparable with either prior or later censuses: (i) in contrast to what we did for all other years, the results presented here for 1946 cover the entire active population (not just the employed active population); (ii) we have counted as “self-employed” all *patrons et cadres supérieurs*, and as “wage-earning” all *employés, ouvriers et cadres inférieurs* (it is impossible to break out wage earners precisely within the first group).

1954–1975: See Table H-3.

1982–1998: See Table H-4.

## 2. *Socioprofessional Structure of the Active Population, 1900–1998*

Tables H-2, H-3, and H-4 describe the evolution of the socioprofessional structure of the active French population, as measured by the censuses carried out since 1901. In these tables we have merely reproduced the raw figures from the censuses, as published by the SGF and then by INSEE after each census, with no adjustment (exact references to the publications used are indicated in the tables).<sup>11</sup> The three tables reproduced here thus correspond to the three great periods in the history of the socioprofessional nomenclatures used in twentieth-century French censuses: the early twentieth century and interwar period, when censuses merely broke down the active population into four “professional situations” (*chefs d’établissement, employés, ouvriers, and travailleurs isolés*) (Table H-2); the period of the 1954 nomenclature, the first true socioprofessional nomenclature used in France, which was in effect for the 1954, 1962, 1968, and 1975 censuses (Table H-3); and finally, the period of the 1982 nomenclature, which has been in effect since the 1982 census (Table H-4).<sup>12</sup> We refer readers interested in a detailed presentation of these nomenclatures to SGF and INSEE publications, for which references are given in Tables H-2, H-3, and H-4.<sup>13</sup> Finally, Table H-5 presents those tables’ results concerning the distribution of the active population between wage earners and self-employed workers.

## Estimates of the Income Distribution in Twentieth-Century France

This appendix provides some additional information about the few income distribution estimates that were carried out in France over the course of the twentieth century. Section 1 describes the principal conclusions that can be drawn from the estimates carried out by INSEE since the Second World War in the framework of the *Revenus fiscaux* studies, and section 2 describes the rare estimates covering periods prior to the Second World War.

### *1. Estimates for Periods since the Second World War: The Revenus Fiscaux Studies Organized by INSEE (1956–1996)*

As explained in the Introduction, the *Revenus fiscaux* studies represent the core of the statistical apparatus established by INSEE since the Second World War to measure income inequality.<sup>1</sup> INSEE organized *Revenus fiscaux* studies examining incomes in 1956, 1962, 1965, 1970, 1975, 1979, 1984, 1990, and 1996, and the general methodology of these studies has remained unchanged since 1956: INSEE bases its analyses on samples of income tax returns transmitted to it by the tax administration, which INSEE supplements by adding certain nontaxable incomes that do not appear in the income tax returns (family allocations, social assistance payments, etc.) to the various households' incomes. Each *Revenus fiscaux* study since 1956 has been accompanied by INSEE publications presenting the methodology and results of the studies.<sup>2</sup>

In this book, we made almost no use of these studies, for several reasons. First, since the studies have existed only since 1956, they do not make it possible to study the evolution of inequality over the entire twentieth century. Second, the fact that the studies cover only a few isolated years poses formidable problems

when one is interested specifically in top incomes: top incomes are always subject to major short-term fluctuations, and only annual data make it possible to properly identify long-term trends and short-term changes. Most importantly, the *Revenus fiscaux* studies are based on samples of insufficient size (and with an approximately uniform survey sampling rate, that is, without overrepresentation of top incomes), so their estimates of the levels of the various top-income fractiles suffer from significant sampling error. We have systematically compared the estimates of the levels of the various top-income fractiles from the *Revenus fiscaux* studies carried out since 1970 (the computer files from the *Revenus fiscaux* studies have existed in an exploitable digital format only since the 1970 study) with the estimates from the annual tabulations carried out by the tax administration (which are based on all submitted tax returns, not on samples), as well as with the estimates from the tax-return samples used by the tax administration (which include almost all tax returns above a certain threshold). The conclusion from these comparisons is that the *Revenus fiscaux* studies result not only in significant errors concerning the level of this or that top-income fractile, but also in substantial errors concerning change over time: for example, the *Revenus fiscaux* studies can yield the conclusion that the P99–100 or P99.9–100 share of total income increased between two different studies, when in fact the opposite change actually took place.<sup>3</sup> Clearly, in these circumstances, we could not use this source to study top incomes.

In this book, therefore, we use the *Revenus fiscaux* studies only when discussing the evolution of inequality at the bottom of the distribution. Indeed, compared to the annual tax statistics, which cover only taxable tax units (at least through 1985), the advantage of the *Revenus fiscaux* studies is that they have always covered all households (taxable and nontaxable): our estimates taken from the annual tax statistics provide reliable series for the position of the P90 threshold or the P90–100 fractile (and higher thresholds and fractiles) vis-à-vis the average income, and the *Revenus fiscaux* studies can provide us with information about the evolution of disparities between the average income and the P50 threshold or between the P50 threshold and the P10 threshold. Thus we will begin by describing the income distribution estimates in terms of fractiles that can be drawn from the *Revenus fiscaux* studies (section 1.1) (these results are cited in Chapter 3, section 3.2). Then we will describe the estimates of average income by CSP (*catégorie socio-professionnelle*, or socioprofessional category) that can be drawn from the *Revenus fiscaux* studies (section 1.2) (we refer



to these results at various points in the book, notably in discussing the biases inherent in measures of inequality based on comparisons between CSPs; see Chapter 3, section 2.4).

### 1.1. Results Expressed in Terms of Fractiles

The *Revenus fiscaux* studies unfortunately do not yield homogeneous estimates of the income distribution in terms of fractiles over the entire 1956–1996 period. Indeed, not only do the studies not make it possible to correctly estimate levels for top-income fractiles, especially the topmost-income fractiles (see above), and not only has INSEE’s statistical treatment of low incomes gone through notable changes over time, which means that estimates of low-income fractile levels must be interpreted with caution (see below), but the only results available to us for the 1956, 1962, and 1965 studies are those that INSEE published in the 1960s and 1970s, which at that time were very rarely expressed in terms of fractiles (and much more often in terms of socioprofessional categories), and in any case, in different terms from those used later. Only since 1970 have the individual files from the *Revenus fiscaux* studies been preserved in an exploitable digital format, which has recently allowed INSEE to carry out consistent retrospective studies covering the 1970–1996 period, but which makes it very difficult to go back in time beyond 1970. That is why we have decided not to present homogeneous tables covering the entire period; instead, we will limit ourselves to verbal descriptions of the overall trends that can be inferred from the results presented in the INSEE publications, distinguishing between the 1956–1970 period, for which the findings that can be taken from the *Revenus fiscaux* studies are relatively fragile, and the 1970–1996 period, for which the findings are far more robust.

#### 1.1.1. The 1956–1970 Period

In the publication presenting the results of the 1956 *Revenus fiscaux* study (Fourgeaud and Nataf 1963), INSEE did not provide an estimate of the income distribution in terms of fractiles. The publication contained a table showing the number of households as a function of a certain number of total-income brackets (as well as a corresponding graph),<sup>4</sup> but it is extremely difficult to use this table to estimate thresholds for the various fractiles, particularly when it comes to the bottom of the distribution: in this initial study, no adjustments were made to the incomes of households for which the tax authorities could not locate a tax return,

so the table shows that more than 10 percent of households (2.4 million out of 18.2 million) had “zero income,” and the next bracket of the table itself contains nearly 20 percent of households (3.5 million out of 18.2 million).

In the publication presenting the results of the 1962 *Revenus fiscaux* study (Ruault 1965), INSEE used a table similar to that used in the previous study (though with the important difference that the “zero incomes” were adjusted) to estimate the levels of the P<sub>25</sub>, P<sub>50</sub>, and P<sub>75</sub> thresholds prevailing in 1962, which, according to these estimates stood, respectively, at 35 percent, 74 percent, and 127 percent of the average income estimated by the study.<sup>5</sup> The same publication also took up the results of the 1956 study and excluded “zero incomes” from the distribution table to estimate the P<sub>25</sub>, P<sub>50</sub>, and P<sub>75</sub> thresholds prevailing in 1956, which according to the estimates stood, respectively, at 38 percent, 77 percent, and 131 percent of the average income estimated by the 1956 study.<sup>6</sup> INSEE concluded that the 1956 and 1962 distribution curves strongly “mirrored” each other, while also noting that the  $(P_{75}-P_{25})/P_{50}$  ratio increased slightly, from 1.20 in 1956 to 1.24 in 1962.<sup>7</sup>

In the publication presenting the results of the 1965 *Revenus fiscaux* study (Banderier 1970), INSEE used the same method to estimate the P<sub>25</sub>, P<sub>50</sub>, and P<sub>75</sub> thresholds prevailing in 1965, which, according to those estimates stood, respectively, at 38 percent, 74 percent, and 125 percent of the average income estimated by the study.<sup>8</sup> INSEE noted that the  $(P_{75}-P_{25})/P_{50}$  ratio moved from 1.20 in 1956 to 1.24 in 1962 and 1.17 in 1965.<sup>9</sup>

In the publication presenting the results of the 1970 *Revenus fiscaux* study (Banderier and Ghigliazza 1974), INSEE for the first time estimated not only the P<sub>25</sub>, P<sub>50</sub>, and P<sub>75</sub> thresholds, but also the P<sub>10</sub> and P<sub>90</sub> thresholds prevailing in 1970. According to the estimates, these thresholds stood, respectively, at 42 percent, 76 percent, and 127 percent of the average income estimated by the study (for the P<sub>25</sub>, P<sub>50</sub>, and P<sub>75</sub> thresholds), and 19 percent and 193 percent of the average income estimated by the study (for the P<sub>10</sub> and P<sub>90</sub> thresholds),<sup>10</sup> giving a P<sub>90</sub>/P<sub>10</sub> ratio of 10 in 1970. INSEE noted that the  $(P_{75}-P_{25})/P_{50}$  ratio moved from 1.24 in 1962 to 1.17 in 1965 and 1.11 in 1970.<sup>11</sup> INSEE also clarified that the  $(P_{75}-P_{25})/P_{50}$  ratio of 1.20 estimated in the 1956 study and previously published had been biased by the exclusion of the “zero incomes” (the latter having been adjusted in all subsequent studies), and that the ratio should be raised to 1.26 (hence a continuous decline from 1956 to 1970), though without

specifying the adjusted levels for the P<sub>25</sub>, P<sub>50</sub>, and P<sub>75</sub> thresholds for 1956.<sup>12</sup> Several conclusions can be drawn from these results.

First, we may note the very high degree of stability in the position of the median income (the P<sub>50</sub> threshold always stands at around 75 percent of the average income, with no clear trend).

Second, the continuous decline in the  $(P_{75}-P_{25})/P_{50}$  ratio between the 1956 and the 1970 studies seems due to the compression of income gaps in the lower half of the distribution: the P<sub>75</sub> threshold always stood at around 125 percent of the average income, with no clear trend (125 percent in 1962, 127 percent in 1965, 125 percent in 1970), whereas the position of the P<sub>25</sub> threshold showed a clear upward trend (35 percent in 1962, 38 percent in 1965, 42 percent in 1970). INSEE did not publish an adjusted estimate for the P<sub>25</sub>, P<sub>50</sub>, and P<sub>75</sub> thresholds for 1956, but the fact that the adjusted estimate of the  $(P_{75}-P_{25})/P_{50}$  ratio shows a continuous decline from the 1956 study onward suggests that this trend toward declining income disparities in the bottom half of the distribution had begun before the 1962 study. It also seems legitimate to assume that this tightening trend corresponded to a decline in the P<sub>50</sub>/P<sub>10</sub> ratio, not just in the P<sub>50</sub>/P<sub>25</sub> ratio (since it was only with the 1970 study that INSEE first ventured below the P<sub>25</sub> threshold, it is impossible to rigorously confirm this hypothesis).

We may also note that in 1986 the CERC published estimates according to which the P<sub>90</sub>/P<sub>10</sub> ratio fell from 14.7 in 1962 to 11.7 in 1965 and 10.0 in 1970, mainly due to a decline in the P<sub>50</sub>/P<sub>10</sub> ratio.<sup>13</sup> These estimates tend to confirm the notion of a trend toward a narrowing income inequality within the bottom of the distribution, which could be inferred from the results published by INSEE. The problem, however, is that the CERC did not indicate how these estimates were obtained: the estimate for 1970 was clearly taken from the INSEE publication cited above, but no indication is given concerning the method used to obtain the estimates for 1962 and 1965 (all we know is that these were “CERC calculations” based on the results of the *Revenus fiscaux* studies). We have found no trace of these “CERC calculations” in the 110 “Documents of the CERC” published between 1969 and 1993: this was the first and the last time that the CERC gave estimates of the income distribution in terms of fractiles (with the exception of a 1989 publication in which the CERC took up the same results as in the 1986 publication, giving no further details).<sup>14</sup> Generally speaking, CERC publications

on inequality are mainly based on the national accounts, the socioprofessional categories, and wage inequality data (taken from INSEE's analyses of wage declarations), not on estimates of the income levels of the various fractiles of the income distribution (in particular, the CERC never used the statistical tables derived from tabulations of income tax returns and compiled each year by the tax administration since the 1915 tax year<sup>15</sup>). It might be assumed that these "CERC calculations" were based on the tables published by INSEE giving the number of taxpayers as a function of a certain number of brackets of total income, but the procedure used would have warranted a few clarifications: while the situation was improved relative to the 1956 study, it was still the case that the lowest bracket used in the published table that followed the 1962 study included nearly 20 percent of households,<sup>16</sup> and the lowest bracket used in the published table that followed the 1965 study included nearly 15 percent of households,<sup>17</sup> so that estimating the P<sub>10</sub> threshold from these tables is not easy. This explains, moreover, why INSEE did not venture to do so, as it was not until the 1970 study that the lowest bracket used by INSEE included less than 10 percent of households.<sup>18</sup>

Generally speaking, estimating the P<sub>10</sub> threshold on the basis of the *Revenus fiscaux* studies requires a great deal of caution and methodological precision, especially when it comes to the 1956–1970 period: in theory, the zero-income households were adjusted the same way starting from the 1962 study, but any variations (however slight) in the procedure used to impute nontaxable social benefits (and particularly the old-age minimum pension) can result in extremely large (and totally artificial) changes in the level of the P<sub>10</sub> threshold; moreover, it is not clear *a priori* that the downward trend in the share of tax units not filing a tax return did not bias these studies' estimates of the evolution of low incomes (even if the adjustment and imputation procedures were unchanged). Finally, independently of these difficulties arising from "zero incomes" and nontaxable social benefits, there can be no doubt that estimates of P<sub>10</sub> thresholds based on the raw tables from the *Revenus fiscaux* studies are seriously understated because of the underestimation of the income of small farmers (who are generally subject to the flat-rate agricultural tax regime, which INSEE does not attempt to adjust for), which also results in significant bias when it comes to the evolution of the P<sub>10</sub> threshold and ratios of the P<sub>90</sub> / P<sub>10</sub> and P<sub>50</sub> / P<sub>10</sub> type (the sharp decline in the number of farmers, particularly small farmers subject to the flat-rate regime, probably leads to a totally artificial

increase in the P<sub>10</sub> level and an equally artificial decline in the P<sub>90</sub>/P<sub>10</sub> and P<sub>50</sub>/P<sub>10</sub> ratios). All of these biases, which are explicitly mentioned by INSEE in its publications, help to explain why the INSEE publications prior to the 1970 study did not venture to estimate the level of the P<sub>10</sub> threshold, let alone study the evolution of a metric of inequality based on that threshold.<sup>19</sup>

For all these reasons, we feel it is impossible to adopt the CERC's estimates: it is likely that the P<sub>90</sub>/P<sub>10</sub> ratio, and above all the P<sub>50</sub>/P<sub>10</sub> ratio, did in fact decline between 1962 and 1970, but this decline was probably far more moderate than suggested by the estimates of the CERC, whose methodology (in the absence of further detail) probably overestimated the growth of the P<sub>10</sub> threshold. The hypothesis of a narrowing trend in income inequality at the bottom of the distribution between the 1956 and 1970 studies seems relatively reasonable, but with the data available it is not possible to put precise figures on this phenomenon.

### 1.1.2. The 1970–1996 Period

In the publication presenting the results of the 1975 and 1979 *Revenus fiscaux* studies (Canceill, Laferrère, and Mercier 1987), which appeared nearly fifteen years after the publication presenting the results of the 1970 study,<sup>20</sup> INSEE for the first time estimated the thresholds and average incomes of every decile (from the first to the tenth), as well as the thresholds of the intermediate half-deciles.<sup>21</sup> But unlike its predecessors, this publication made no comparison with the results of the previous studies (not even between the 1975 and 1979 studies).

The publications presenting the results of the 1984 and 1990 *Revenus fiscaux* studies (Campagne, Contencin, and Roineau 1996) were done in exactly the same way: INSEE provided estimates of the thresholds and average incomes of every decile and intermediate half-decile,<sup>22</sup> but it made no comparison with previous studies.

Since the mid-1990s, however, INSEE has published important retrospective analyses of income inequality, within the framework of the studies entitled “Revenus et patrimoine des ménages, édition 199–” published each year since 1995 in the brand new journal *Synthèses*.

In 1995, INSEE published new estimates of the evolution of income inequality, with calculations based on the 1975, 1979, 1984, and 1990 *Revenus fiscaux* studies: it reported that the P<sub>90</sub>/P<sub>10</sub> ratio went from 4.04 in 1975 to 3.65 in 1979, 3.67 in 1984, and 3.42 in 1990.<sup>23</sup> If we except the decline between

1984 and 1990, this trendline corresponds rather well to the changes indicated by our estimates of the top-income share of total income: namely, compression of inequality in the 1970s and stabilization in the 1980s–1990s. In addition, INSEE notes that the observed change between 1984 and 1990 is probably biased by the fact that the growth of low incomes was overstated following the creation of the RMI (the *Revenu minimum d'insertion*, or minimum income benefit) (and the resulting improvement in the accounting for transfers received at the P<sub>10</sub> level, which had previously taken more scattered forms and were thus less well imputed), and conversely by the fact that the growth of top incomes was underestimated (due to the growth of nontaxable capital incomes, which are not taken into account in the *Revenus fiscaux* studies).<sup>24</sup> We may also note that these P<sub>90</sub> / P<sub>10</sub> ratios are significantly lower than the previously published ratios (ten in 1970, and even more than ten in the 1960s, according to the “CERC calculations”). This can be explained on the one hand by the methodological problems already noted concerning measurement of the P<sub>10</sub> threshold, which resulted in underestimation of the P<sub>10</sub> threshold and thus overestimation of the P<sub>90</sub> / P<sub>10</sub> and P<sub>50</sub> / P<sub>10</sub> ratios in the older studies, and which tended to diminish over time (the share of tax units not filing a tax return declined sharply, the procedure for imputing nontaxable social benefits stabilized, and small farmers to a large extent disappeared); and on the other hand this can be explained by the fact that the estimates published in 1995 take household size into account: the P<sub>90</sub> / P<sub>10</sub> ratios were estimated in terms of income distribution by consumption unit (rather than by household), which always results in a smaller gap in living standards between the P<sub>10</sub> and P<sub>90</sub> (households at the P<sub>10</sub> level are often single individuals). This once again underscores the high degree of caution that is needed when estimating the level of low-income fractiles, and, by the same token, when studying the evolution of inequality from indicators based on those fractiles.

In 1996, INSEE published a study based on an analysis of the 1979, 1984, 1989, and 1994 “Budgets des familles” studies.<sup>25</sup> Compared to the *Revenus fiscaux* studies, a notable advantage of the “Budgets des familles” studies is that they are based on questionnaires in which households must, in principle, declare all their incomes, including social benefits and nontaxable capital incomes. These studies allowed INSEE to observe that the P<sub>90</sub> / P<sub>10</sub> ratio began moving upward in the 1980s–1990s: after a decline between 1979 and 1984 (from around 4.2–4.3 in 1979 to around 3.8–3.9 in 1984), the P<sub>90</sub> / P<sub>10</sub> ratio

rose to 3.9–4.0 in 1989 and then 4.0–4.1 in 1994 (these P<sub>90</sub> / P<sub>10</sub> ratios are always estimated by consumption unit, rather than by household).<sup>26</sup> Also, while the increase observed in the raw data “comes close to the margin of error,” INSEE carried out an adjustment of the raw data in which it multiplied the capital income declared by each household in the “Budgets des familles” studies by the ratio between total capital income as measured in the national accounts and total capital income as measured by the “Budgets des familles” studies.<sup>27</sup> The results speak volumes: the indicators calculated from the adjusted data begin rising far more markedly in the 1980s–1990s, with an adjusted P<sub>90</sub> / P<sub>10</sub> ratio rising from around 4.1 in 1984 to around 4.2 in 1989 and 4.4–4.5 in 1994.<sup>28</sup> We may also note that these adjustments, which we mentioned in Chapter 6 (section 1.2), have much larger effects in terms of changes than in terms of levels: in terms of levels, the effect of taking all capital income into account does not exceed 10 percent (in 1994, the P<sub>90</sub> / P<sub>10</sub> ratio changes from 4.0–4.1 before adjustment to 4.5 after adjustment). However, it is quite impossible to use this estimate to gauge the magnitude of undeclared capital income among very high-income earners, since the P<sub>90</sub> / P<sub>10</sub> ratio does not involve incomes above the P<sub>90</sub> threshold: like the *Revenus fiscaux* studies, the “Budgets des familles” studies are based on far too few observations to allow for proper study of the top decile, especially the upper fractiles of the top decile.<sup>29</sup>

Finally, in 1999, INSEE published a retrospective study based on a new analysis of the 1970, 1975, 1979, 1984, and 1990 *Revenus fiscaux* studies, as well as an initial analysis of the 1996 *Revenus fiscaux* study. These results confirm the previously published results: a large decline in the P<sub>90</sub> / P<sub>10</sub> ratio in the 1970s, then stabilization in the 1980s–1990s, though with a slight increase between the 1990 and 1996 studies.<sup>30</sup> However, INSEE did not attempt to take nontaxable capital incomes into account in this publication, which probably tended to limit the increase in inequality over the 1980s–1990s.<sup>31</sup> We may also note that this publication contains tables tracing the complete evolution of the income distribution in terms of average income by decile since the 1970 study,<sup>32</sup> showing the strides made since the publication of the results of the 1956 study. These data also show that the P<sub>50</sub> / P<sub>10</sub> ratio follow the same movements as the P<sub>90</sub> / P<sub>10</sub> ratio (decline in the 1970s, stabilization in the 1980s–1990s), and that the position of P<sub>50</sub> vis-à-vis the average income was little different in the 1990s than it had been in the first *Revenus fiscaux* studies (in both cases, P<sub>50</sub> stood at around 75–80 percent of the average income).<sup>33</sup>



Ultimately, the studies carried out by INSEE since 1956 allow us to draw the following conclusions about the evolution of income inequality at the bottom of the distribution (conclusions that we take up in Chapter 3, section 3.2): like the top-income share of total income, the position of the median income vis-à-vis the average income seems to be characterized by a very high degree of long-term stability; on the other hand, it appears that income inequality at the bottom of the distribution (as measured by a P<sub>50</sub>/P<sub>10</sub>-type ratio) experienced a narrowing trend from the 1950s to the 1980s (in a relatively uncertain way for the 1950s–1960s, and in a more robust way for the 1970s), before stabilizing in the 1980s–1990s.

### 1.2. Results Expressed in Terms of Socioprofessional Categories

Compared to inequality estimates expressed in terms of fractiles, which made their appearance in the publications of INSEE's *Revenus fiscaux* studies relatively recently, estimates expressed in terms of average income by socioprofessional category (CSP) have occupied an important place since the 1956 study. Moreover, income inequality estimates by CSP have played a key role for INSEE, because they have allowed it to compile “national accounts by CSP”: distributions by CSPs from the *Revenus fiscaux* studies have been used since the 1956 study to allocate aggregates from the national accounts among the various CSPs.<sup>34</sup> The use of the *Revenus fiscaux* studies for national accounting also explains why the CSP nomenclature used in the *Revenus fiscaux* analyses is not exactly the same as that of the censuses: the nomenclature used is the so-called accounts nomenclature, which completely separates wage earners from self-employed workers (national accounting concepts—wages, gross operating surplus, etc.—make a clear distinction between wage earners and self-employed workers). We have thus had to make a few slight adjustments to the estimates of average income by CSP published by INSEE to arrive at the series reproduced in Tables I-1 and I-2.<sup>35</sup> It can be seen that gaps in average income between the various CSPs experienced a very sharp decline over time (see, for example, the ratios between the average household income of *cadres supérieurs* [high-level managers] and that of *ouvriers* [blue-collar workers] shown in Tables I-1 and I-2). As we noted in Chapter 3 (section 2.4), this is a particularly clear illustration of how the CSPs offer an extremely biased way of looking at inequality and its evolution: income inequality measured in terms of fractiles has actually been



TABLE I-1  
*Average income by socioprofessional category in the Revenus fiscaux studies,  
 1956-1996 (average annual income, in current francs)*

<i>1954 nomenclature</i>	1956	1962	1965	1970	1975	1979
All	6,343	10,823	14,641	22,013	41,916	66,385
0. <i>Exploitants agricoles</i>	1,695	4,030	5,858	11,339	23,470	45,967
1. <i>Salariés agricoles</i>	3,077	5,796	7,454	12,706	27,902	42,201
2. <i>Patrons de l'industrie et du commerce</i>	8,148	17,066	21,757	34,376	59,253	104,439
3. <i>Cadres supérieurs et professions libérales</i>	21,139	35,654	46,334	61,201	101,548	146,578
4. <i>Cadres moyens</i>	11,752	20,145	24,694	35,182	57,951	85,946
5. <i>Employés</i>	6,820	11,914	15,130	23,716	40,912	62,453
6. <i>Ouvriers</i>	6,002	10,237	13,344	20,277	36,334	55,754
7. <i>Personnels de service</i>	4,587	7,526	10,031	15,391		
8. <i>Autres catégories</i>	6,705	12,377	16,156	23,356		
9. <i>Inactifs</i>	4,352	6,328	8,626	13,201	27,721	47,226
Ratio CadSup / Ouv (3 / 6)	3.52	3.48	3.47	3.02	2.79	2.63

(continued)

TABLE I-1  
(continued)

<i>1982 nomenclature</i>	1984	1990a	1990b	1990c	1996
All	114,661	148,000	147,754	172,400	174,700
1. <i>Agriculteurs exploitants</i>	88,141	138,500	138,497	162,100	159,100
2. <i>Artisans, commerçants et chefs d'entreprise</i>	165,826	242,400	237,283	248,100	234,400
3. <i>Cadres et professions intellectuelles supérieures</i>	244,871	306,464	307,907	329,547	313,712
4. <i>Professions intermédiaires</i>	148,049	176,700	178,056	203,500	201,100
5. <i>Employés</i>	103,387	119,100	119,109	141,700	137,000
6. <i>Ouvriers</i>	95,021	119,800	119,752	151,300	153,500
7-8. <i>Inactifs</i>	81,818	110,900	110,860	132,474	143,135
Ratio CadSup / Ouv (3 / 6)	2.58	2.56	2.57	2.18	2.04

Sources: 1956, 1962, 1965, and 1970: Banderier and Ghigliazza (1974, 119).

1975: Canceill et al. (1987, 164 and 196).

1979: Canceill et al. (1987, 49 and 148).

1984: Canceill (1989, 39 and p. 123).

1990a: "Revenus et patrimoine des ménages, édition 1995," *Synthèses* no. 1 (June 1995), p. 13.

1990b: Campagne et al. (1996, 36 and 107).

1990c and 1996: "Revenus et patrimoine des ménages, édition 1999," *Synthèses* no. 28 (September 1999), p. 21 (the 1990c estimate is expressed in 1996 francs).

Note: The 1990c and 1996 estimates are not consistent with the preceding estimates, as INSEE adopted a new method of treating income from wealth.

TABLE I-2  
*Average income by socioprofessional category in the Revenus fiscaux studies,  
 1956–1996 (average annual income, in 1998 francs)*

<i>1954 nomenclature</i>	1956	1962	1965	1970	1975	1979
All	65,888	79,690	97,056	118,172	147,244	160,892
0. <i>Exploitants agricoles</i>	17,607	29,673	38,833	60,871	82,446	111,407
1. <i>Salariés agricoles</i>	31,962	42,676	49,413	68,209	98,015	102,279
2. <i>Patrons de l'industrie et du commerce</i>	84,637	125,657	144,228	184,540	208,147	253,121
3. <i>Cadres supérieurs et professions libérales</i>	219,581	262,521	307,150	328,545	356,721	355,250
4. <i>Cadres moyens</i>	122,074	148,328	163,698	188,867	203,572	208,300
5. <i>Employés</i>	70,843	87,723	100,297	127,314	143,717	151,362
6. <i>Ouvriers</i>	62,346	75,375	88,458	108,853	127,635	135,126
9. <i>Inactifs</i>	45,206	46,593	57,182	70,867	97,379	114,458
Ratio CadSup / Ouvriers (3 / 6)	3.52	3.48	3.47	3.02	2.79	2.63

(continued)

TABLE I-2  
(continued)

<i>1982 nomenclature</i>	1984	1990a	1990b	1990c	1996
All	163,920	171,512	171,227	175,690	178,034
1. <i>Agriculteurs exploitants</i>	126,007	160,502	160,499	165,194	162,136
2. <i>Artisans, commerçants et chefs d'entreprise</i>	237,066	280,908	274,978	252,835	238,873
3. <i>Cadres et professions intellectuelles supérieures</i>	350,070	355,149	356,822	335,836	319,699
4. <i>Professions intermédiaires</i>	211,651	204,771	206,342	207,384	204,938
5. <i>Employés</i>	147,803	138,021	138,031	144,404	139,615
6. <i>Ouvriers</i>	135,843	138,832	138,776	154,187	156,429
7-8. <i>Inactifs</i>	116,968	128,518	128,471	135,002	145,867
Ratio CadSup / Ouvriers (3 / 6)	2.58	2.56	2.57	2.18	2.04

*Sources:* Calculations based on the estimates reproduced in Table I-1; incomes in current francs have been converted into 1998 francs using the conversion rates given in column (7) of Table F-1, Appendix F.

*Note:* The 1990c and 1996 estimates are not consistent with the preceding estimates, as INSEE adopted a new method of treating income from wealth.

stable overall over the second half of the twentieth century (this is true especially for the top-decile share of total income), and the sharp decline in the (average income of *cadres supérieurs* households) / (average income of *ouvriers* households) is explained simply by the fact that the number of *cadres supérieurs* households has increased sharply compared to the number of *ouvriers* households.

## 2. *Estimates for Periods Prior to the Second World War*

As for periods prior to the Second World War, the only estimates we are aware of are the Doumer-Caillaux-Colson estimates for the years 1900–1910 (section 2.1), the Sauvy estimate for the year 1929 (section 2.2), and the Brochier-Jankeliowitch estimates for the years 1938 and 1946 (section 2.3).<sup>36</sup>

### 2.1. The Doumer-Caillaux-Colson Estimates for the Years 1900–1910

In the context of legislative proposals concerning the creation of a general income tax, the staff of the Finance Ministry carried out estimates of the income distribution prevailing in France in the late nineteenth and early twentieth centuries. An initial estimate was presented by finance minister Paul Doumier for his 1896 bill. A slightly adjusted estimate was then presented by finance minister Joseph Caillaux for his 1907 Bill (the 1907 estimate merely involved a slight increase in the figures offered by the 1896 estimate). These two estimates are reproduced in Table I-3.<sup>37</sup>

The statistical basis of these estimates was described in detail in the preamble to the Doumier bill (1896).<sup>38</sup> Doumier's staff started with the number of households from the last census (around 10.7 million households), they adopted a relatively "low" estimate of total French income (22 billion francs), and then they attempted to allocate the 22 billion francs among 10.7 million households on the basis of the assessments of individual rental values from the personal property tax, available for the city of Paris, as well as the movable-property assessment carried out for all of France on a one-time basis in 1894, in the framework of the "extraparliamentary commission on the income tax."<sup>39</sup> Obtaining incomes from rental values was obviously relatively uncertain, since assumptions

TABLE I-3

*The income distribution estimates appearing in the Doumer (1896) and Caillaux (1907) parliamentary bills*

	1896			1907		
	Number of incomes	Amount of income	$b_i$	Number of incomes	Amount of income	$b_i$
0–2,500	9,186,267	12,431,554,480		9,509,800	12,342,000,000	
2,500–3,000	562,850	1,537,405,400	2.57	563,000	1,597,000,000	2.73
3,000–5,000	445,978	1,698,296,660	2.89	446,000	1,735,000,000	3.08
5,000–10,000	294,456	2,008,920,990	2.63	294,000	2,109,000,000	2.84
10,000–20,000	122,589	1,668,145,580	2.32	123,000	1,798,000,000	2.52
20,000–50,000	50,809	1,498,915,810	2.08	51,000	1,673,000,000	2.27
50,000–100,000	9,769	611,310,080	1.77	9,800	674,000,000	1.89
100,000+	3,321	545,451,000	1.64	3,400	572,000,000	1.68
Totals	10,676,039	22,000,000,000		11,000,000	22,500,000,000	

Sources: 1896: *BSLC*, vol. 39, February 1896, p. 186 (*exposé des motifs* [explanatory statement] submitted by Finance Minister Paul Doumer to the Chamber of Deputies, February 1, 1896).

1907: *BSLC*, vol. 61, March 1907, p. 273 (*exposé des motifs* [explanatory statement] submitted by Finance Minister Joseph Caillaux to the Chamber of Deputies, February 8, 1907). These figures were also reproduced in Colson (1903, 313) (for the 1896 estimate) and in Colson (1918, 420), Colson (1927, 419), and Levasseur (1907, 619) (for the 1907 estimate), with the difference that Colson combined certain income brackets initially used by Doumer and Caillaux, and that Levasseur slightly altered some figures (apparently inadvertently); it is thus preferable to refer to the original publications shown here.

*Explanation:* According to the estimate presented by Doumer, in 1896 there were 3,321 households in France with incomes greater than 100,000 francs and the total amount of their income was around 545 million francs (giving a Pareto coefficient of 1.64).

*Notes:* (i) Except for the Pareto coefficients  $b_i$  that we calculated from the figures provided by Doumer and Caillaux, the tables reproduced here are strictly identical to those published in the parliamentary bills (in particular, the latter did not include mentions of “very big incomes,” “average incomes,” etc., of the kind used by Colson; see Table I-4). (ii) The Pareto coefficients  $b_i$  give the ratios between the average income above a given threshold and the threshold in question (see Appendix B, Table B-1): for example, according to the 1896 estimate, the average income of households with incomes greater than 100,000 francs was 1.64 times 100,000 francs.

had to be made about the evolution of (rental value) / (income) ratios as a function of the level of income.

There is no doubt that this 1896 estimate, along with the 1907 estimate (which was practically identical), significantly underestimated the weight of very high incomes. Moreover, this underestimate was intentional, and it was described as such: Doumier's staff explicitly acknowledged that they stayed deliberately "below reality" for "large incomes," to make allowance for fraud and to arrive at revenue forecasts that no one could accuse of being excessively optimistic (opponents of the income tax often claimed that resistance to fiscal inquisitions would be so great that the new tax would not bring in much).<sup>40</sup> To show the extent to which they had underestimated the number and amount of very high incomes, Doumier's staff went so far as to explain that they had assessed the number of incomes greater than 50,000 francs at not much more than 13,000 (see Table I-3), even though Leroy-Beaulieu (whom few would suspect of trying to exaggerate the importance of large incomes) had estimated in 1881 that there were around 18,000–20,000 incomes greater than 50,000 francs in the France of his time.<sup>41</sup>

That these 1896 and 1907 estimates significantly underestimated the weight of very high incomes is also confirmed by examining Pareto coefficients, that is, ratios between the average income above a given threshold and the threshold in question (see Table I-3, column  $b_i$ ). According to the 1896 estimate, the ratio actually falls to 1.64 for incomes above 100,000 francs (the 1907 estimate gives a slightly higher ratio, around 1.68). It is entirely improbable that such ratios could have prevailed in France at the beginning of the century: these ratios are a rising function of income concentration (at least when they are observed for very high incomes), and our analysis of the statistics from tax returns showed that the ratios were greater than 2.5 in the very first years of the income tax, and that they remained above 2.1–2.2 throughout the 1920s (see Appendix B, Table B-1). Thus we may regard the amount of income above 100,000 francs given by the 1896 and 1907 estimates as having to be increased by at least 40 percent (and probably by a larger proportion),<sup>42</sup> even without taking into account the underestimate of the number of incomes in question. We may also point out that, despite this very large underestimate, the some 13,000 incomes greater than 50,000 francs in the 1896 estimate, or just over 0.1 percent of the roughly 11 million households, are nevertheless supposed to have received more than 1.1 billion out of 22 billion francs of total income (see Table I-3), or more than

5 percent of total income (by way of comparison, the P99.9–100 share of total income is barely 2 percent in the 1990s; see Appendix B, Table B-14).

The Doumer-Caillaux estimates were revised and adjusted by Colson, who also relied on rental value assessments for the city of Paris, but adopted different assumptions about (rental value) / (income) coefficients and the relationship between Paris and France as a whole. The results of the Colson estimate are shown in Table I-4, just as they were published by the author in 1903.<sup>43</sup> Colson's objective was to substantially increase the Doumer-Caillaux estimates of the weight of top incomes, so that no one could accuse him of trying to downplay their importance.<sup>44</sup> Colson's estimate is thus probably closer to reality than the Doumer-Caillaux estimates. However, it is difficult to analyze it directly, since it includes only four income groups, and it also has different brackets for Paris and the provinces (see Table I-4). Moreover, all indications are that the Colson estimate remained below the reality, at least when it comes to "very big incomes." On the one hand, Colson estimated a number of "very big incomes" that were still below the estimates that Leroy-Beaulieu carried out in 1881, even though the latter's estimates were probably too low.<sup>45</sup> On the other hand, and most importantly, according to the Colson estimate, the 1,000 highest incomes, which amount to 0.01 percent of the some 13 million households Colson considered, received around 380 million francs, out of the roughly 25 billion francs of total income, or less than 2 percent of total income (see Table I-4): this is, on the one hand, significantly above what we estimated for the P99.99–100 fractile in the 1990s (0.5–0.6 percent), but significantly below what we estimated for the P99.99–100 fractile in the very first years of the income tax (more than 3 percent) or for the 1920s (from 2.8–2.9 percent in the early 1920s to 2.1–2.2 percent in the late 1920s; see Appendix B, Table B-14). Whatever the uncertainties surrounding the impact of the First World War on the concentration of income, it seems quite impossible that the P99.99–100 fractile found itself in the 1920s at a level higher than that prevailing at the beginning of the century.

In relying on the Doumer-Caillaux-Colson estimates and on the results obtained from income tax returns of the late 1910s and 1920s, we have therefore decided to adopt the following for our central estimate for the years 1900–1910: 11 percent of total income for fractile P90–95, 15 percent for fractile P95–99, 4 percent for fractile P99–99.5, 7 percent for fractile P99.5–99.9, 5 percent for fractile P99.9–99.99, and 3 percent for fractile P99.99–100, giving a total of 45 percent for fractile P90–100 (see Appendix B, Tables B-14 and B-15). Given



## APPENDIX I

TABLE I-4

*The income distribution estimate carried out by Colson (1903)*

	Number	Total amount	Proportion (%)
<i>Low incomes</i>			
Up to 2,800 francs in the provinces	11,500,000	12.420 billion	50
Up to 3,500 francs in Paris			
<i>Middle incomes</i>			
2,800 to 14,000 francs in the provinces	1,300,000	7.340 billion	29
3,500 to 17,500 francs in Paris			
<i>High incomes</i>			
14,000 to 140,000 francs in the provinces	160,000	4.860 billion	19
17,500 to 200,000 francs in Paris			
<i>Very high incomes</i>			
More than 140,000 francs in the provinces	1,000	380 million	2
More than 200,000 francs in Paris			
<i>Totals</i>	12,961,000	25,000 billion	100

*Source:* Colson (1903, 312); the same distribution was also reproduced, with exactly the same figures, in Colson (1918, 419) and Colson (1927, 419).

*Explanation:* According to Colson, the number of "very high incomes," that is, households with income greater than 140,000 francs in the provinces and 200,000 francs in Paris, was around 1,000 in early twentieth-century France, and the total amount of their income was around 380 million francs, about 2 percent of total French income.

*Note:* We have reproduced this table as it was published by Colson, with no changes (in particular, the column titles, "low incomes," etc., are obviously Colson's).

the fragile nature of the available materials, this estimate would obviously warrant further elaboration. It should be stressed, however, that it only seems possible that it errs by omission. For example, according to the Colson estimate, which actually understates the weight of very large incomes, the roughly 1.47 million highest incomes, or just over 10 percent of the roughly 13 million households considered by Colson, received around 50 percent of total income (see Table I-4).

## 2.2. The Sauvy Estimate for 1929

Table I-5 reproduces the income distribution estimate for 1929 published in 1967 by Alfred Sauvy (Sauvy 1965–1975, 2:447), and taken up without modification in the 1984 edition of his *Histoire économique de la France entre les deux guerres* (see Sauvy 1984, 2:304).

Sauvy gives no information about the sources or the method used to arrive at this estimate. He merely says: “from a calculation by ourselves at the time, we obtained an approximate distribution of income in 1929 on the eve of the crisis, estimate highly approximate” (Sauvy 1965–1975, 2:447; 1984, 2:304). We searched through Sauvy’s publications “at the time,” and have found no trace of this estimate. In 1936 Sauvy published an article in the *Revue d’économie politique* entitled “How to reduce income inequality? A capitalist solution to the

TABLE I-5  
*Sauvy’s estimate of the income distribution for 1929*

Annual income	Number of incomes	Total income in millions of francs	Distribution in %
Less than 10,000 francs	6,740,000	51,900	15.62
10,000 to 15,000	5,670,000	67,500	20.31
15,000 to 30,000	3,510,000	72,300	21.76
30,000 to 50,000	1,600,000	59,000	17.76
500,00 to 100,000	568,000	37,700	11.35
100,000 to 200,000	134,800	17,940	5.40
200,000 to 400,000	37,600	10,040	3.02
400,000 to 600,000	12,500	5,820	1.75
600,000 to 1 million	540	3,960	1.19
1 to 2 million	240	3,210	0.97
more than 2 million	60	2,880	0.87
All	18,273,740	332,250	100.00

Sources: Sauvy (1965–1975, 2:447) and Sauvy (1984, 2:304).

Explanation: According to Sauvy, in 1929 there were around 60 households in France with incomes greater than 2 million francs; the total amount of their income was around 2,880 million francs, amounting to 0.87 percent of total French income.

Note: We have reproduced this table as it was published by Sauvy, with no changes.

problem of distribution,” but this article contains no estimate of the income distribution, either for 1929 or any other year, and it makes no reference to any estimates published elsewhere by him or by any other author. This is a purely theoretical article in which Sauvy lays out his vision of how a more transparent capitalism, one in which the owners of securities are named and income tax returns and accounts are published, could solve the problem of distribution without upheaval. The only figures mentioned in this article are the following: Sauvy refers to national income per capita, “which, even in the best moments, has never exceeded 6,000 francs,” and concludes that “to increase the income of the working classes by 15 percent one would practically have to undertake the full equalization of incomes, which would require a bloody revolution, whereas it would be sufficient to increase national income by 10 percent, which is far more within our reach” (Sauvy 1936, 1613). Sauvy would make use of similar figures in his *Histoire économique de l'entre-deux-guerres*, without giving any further details,<sup>46</sup> apart from the table showing his estimate of the income distribution for 1929. It is thus likely that Sauvy had his estimate of the 1929 distribution already in 1936, but that he had thought it too “approximate” to publish in the *Revue d'économie politique*.

The only detail we are given is that this is an estimate “of household income in the legal (conjugal) sense, that is, of adult individuals, minus married women” (Sauvy 1965–1975, 2:447; 1984, 2:304), which means that it is more an estimate of the incomes of families than an estimate of household income in the usual sense. In fact, the total number of incomes estimated by Sauvy (18.27 million) is significantly higher than the number of households estimated in the censuses (12.52 million in 1926, 12.98 million in 1931), and it is closer to the total number of families that we adopted for 1929 (16.45 million) (see Appendix H, Table H-1). Sauvy devotes barely two paragraphs to his estimate, in which he concludes: “The income pyramid is a rather classic one: the top 1 percent of incomes having 13 percent of all income and the bottom 27 percent of incomes having only 16 percent.” Since Sauvy does not refer to any other income distributions, it is hard to say in what sense Sauvy considered this income “pyramid” to be a “classic” one.

There is every reason to be extremely wary of Sauvy’s estimate, especially because the figures Sauvy gives are not consistent with the tax statistics, even though those statistics were available at the time and constituted the most immediate source for estimating the income distribution (at least for the top of

the distribution), but to which Sauvy makes no reference. For example, Sauvy estimates that in 1929 there were 300 “legal households” with annual incomes greater than 1 million francs, and 840 whose annual incomes were greater than 600,000 francs (see Table I-5). However, according to the statistics based on income tax returns published at the time by the Finance Ministry, 821 taxpayers declared annual 1929 incomes above 1 million francs, and 3,373 taxpayers declared annual incomes greater than 500,000 francs (see Appendix A, Table A-1). Sauvy thus estimates a number of incomes above 1 million francs that is nearly a third of the number from the tax statistics, and a number of incomes greater than 600,000 francs that is nearly a fourth of the number from the tax statistics. One really cannot see what could justify such a discrepancy between the tax statistics and Sauvy’s estimates.<sup>47</sup> Given the magnitude of tax fraud at the time, at least as described by contemporaries, any adjustment of the tax statistics should have involved increasing the number of top incomes, not reducing it.<sup>48</sup> Under these circumstances, it is far preferable not to use Sauvy’s estimate of the income distribution for 1929.

### 2.3. The Brochier-Jankeliowitch Estimates for 1938 and 1946

As we already noted,<sup>49</sup> the only two attempts to use the annual statistics derived from income tax returns to study the evolution of income inequality are (to our knowledge) the studies by Brochier (1950) and Jankeliowitch (1949), and we felt these studies deserved to be cited as such. However, it should be recognized that these authors do not offer genuine estimates of income inequality. Brochier combines the statistical tables from the IGR and the statistical tables from the schedular taxes to estimate an income distribution for 1938 and 1946 covering a larger part of the population than just those households taxable under the IGR. But the distributions obtained are expressed in terms of a small number of income brackets (“low incomes,” “medium incomes,” etc.), in the manner of Colson’s estimates (see section 2.1 and Table I-4), so that Brochier cannot really measure the evolution of inequality between 1938 and 1946 (Brochier makes no reference to the concept of fractiles, and provides no measure of inequality expressed in terms of fractiles).<sup>50</sup> The calculations by Jankeliowitch based on the 1938 and 1946 IGR statistics are technically more sophisticated. Jankeliowitch represents the two distributions graphically, estimates the Pareto coefficients associated with the two distributions, notes that the 1938 coefficient is signifi-

cantly higher than that of 1946, and concludes that the concentration of income declared under the IGR sharply declined between 1938 and 1946. But, besides the fact that he compares only two years (as Brochier does), Jankeliowitch goes no further than these graphical representations and Pareto coefficient calculations: he does not attempt to estimate the income levels corresponding to the different fractiles of the distribution, let alone to compare the changes he obtains for top-income fractiles with changes in average income from the national accounts (though it is true that the national accounts were still in their infancy at the time that Jankeliowitch was writing).<sup>51</sup>

## Raw Data, Methodology, and Results of Estimates Based on the Statistics Derived from Bequest Declarations (1902–1994 Bequests)

This appendix describes how we analyzed the statistics from the tabulations of bequest declarations undertaken throughout the twentieth century by the tax administration. We start by describing the raw statistical materials available to us (section 1). Then we present the methodology that we used in analyzing these data and the resulting series (section 2). Finally, we provide some information about the evolution of bequest tax legislation (section 3).

### *1. The Raw Statistical Tables Compiled by the Tax Administration from Bequest Declarations (1902–1994 Bequests)*

Since the establishment of a progressive tax on bequests in France by the law of February 25, 1901, the tax administration has undertaken at (more or less) regular intervals a tabulation of bequest declarations submitted by heirs, which allows it to compile and publish several series of statistical tables. As with the tables derived from tabulations of income tax returns (see Appendix A), among the tables derived from bequest declarations we may distinguish the “distribution” tables (section 1.1) and the “composition” tables (section 1.2); we will then discuss the case of the tables dealing with gifts (section 1.3), and finally the various other tables compiled episodically by the tax administration (section 1.4).

#### 1.1. The Distribution Tables

The distribution tables give the number and amount of bequests declared as a function of the total amount of the bequest (before its division among the

various heirs). As we mentioned in Chapter 6 (section 3), these distribution tables, which are the only ones we have really made use of for this book, and which are also the tables available for the greatest number of years, unfortunately have not been compiled every year: the distribution tables are available for the years 1902–1913 (except 1906 and 1908), 1925–1964 (except 1928, 1934, 1961, and 1963), 1984, and 1994. In Table J-1 we reproduce all the raw data contained in these distribution tables, with no adjustments.<sup>1</sup> For example, Table J-1 shows that in the year 1902, twenty-seven bequests greater than 5 million francs were declared, and that the total amount of these bequests was 250.893 million francs; 381 bequest declarations between 1 and 5 million francs were declared, and the total amount of these bequests was 714.188 million francs, and so on.

Note that, unlike the tables derived from income tax returns, the tables derived from bequest declarations raise no issues concerning the “date of tax-list issuance”: the tables derived from the “bequest declarations” always cover all declarations submitted over the course of a given year,<sup>2</sup> so there are never several tables compiled for a single year.<sup>3</sup>

We should also make clear that the bequest brackets used by the tax administration in tabulating bequest declarations, which are reproduced in Table J-1, are brackets of “net bequest assets” for the 1902–1956 and 1984–1994 periods, and brackets of “gross bequest assets” for the 1957–1964 period. Likewise, the amounts reproduced in Table J-1 show the “net assets” corresponding to the different brackets for the 1902–1956 and 1984–1994 periods, and the “gross assets” corresponding to the various brackets for the 1957–1964 period. “Net bequest assets” refers to the sum of all assets passed on in a given bequest, before their division among the various heirs, but after deducting any liabilities left by the deceased. “Gross bequest assets” refers to the sum of all assets passed on in a given bequest, before their division among the various heirs, and before deducting any liabilities left by the deceased. However, the bias introduced in this way is extremely small: the raw tables published by the tax administration for the years 1957–1964 also include a column showing the total amount of liabilities corresponding to the different brackets of gross assets, and these columns show that the total amount of liabilities never exceeds 3–4 percent of gross assets, irrespective of the bracket in question (and even for the highest brackets).<sup>4</sup> Given that the main purpose of our analysis of bequest statistics is to study long-term changes, which involve shifts far greater than 3–4 percent, we have not attempted to correct for this bias, so our estimates are for net bequest assets

for the years 1902–1956 and 1984–1994, and gross bequest assets for the years 1957–1964.

Like the tables derived from income tax returns, the statistical tables derived from bequest declarations were published in the various statistical bulletins issued by the Finance Ministry over the course of the twentieth century: statistics prior to the Second World War were published in the *Bulletin de Statistique et de Législation Comparée (BSLC)*, all statistics from the Second World War years were published after the fact in the short-lived *Bulletin de Statistique du ministère des Finances (BSMF)*, until the baton was passed to *Statistiques et Etudes Financières (S&EF)*. Exact references to the publications where the distribution tables were published are given in Table J-2.

We should also make clear that, unlike the earlier tables, the tables for the years 1984 and 1994 were not based on a complete tabulation of all bequest declarations by the tax administration, but on studies carried out by the tax administration (the so-called Droits de mutation à titre gratuit, or DMTG, surveys) based on representative samples of bequest declarations. However, as noted in Chapter 6 (section 3.1), the important point for our purposes is that these samples contained all large bequests: the sample used for the 1984 DMTG study contained all bequest declarations greater than 2 million francs,<sup>5</sup> and the sample used for the 1994 DMTG study contained all bequest declarations greater than 3.5 million francs.<sup>6</sup> The statistical tables from these studies are thus perfectly reliable, like the earlier tables.<sup>7</sup>

## 1.2. The Composition Tables

The “composition” tables give, for each bequest bracket, not only the number and amount of bequests declared, but also the amounts of the different types of assets making up these bequests. These tables were established very irregularly by the tax administration, and the first edition dates from 1945. Before 1945, the only available statistics on the composition of bequests by type of asset are aggregate statistics covering all bequests, which give no indication of how this average composition varied by bequest level.<sup>8</sup> In the end, we only have composition tables for the years 1945, 1946, 1949, 1956, 1959, and 1962 and 1994.<sup>9</sup> We have not attempted to estimate the average composition of bequests within the various fractiles of the hierarchy of wealth at time of death from these isolated tables, and in Table J-3 we merely reproduce the raw figures given in the composition



## APPENDIX J

TABLE J-1

*The raw statistical tables compiled by the tax administration from bequest declarations, I: the distribution tables (1902-1994 bequests)*

1902			1903		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1	213,378	241,495	1	121,558	32,981
2,000	97,257	554,175	500	105,597	136,445
10,000	39,198	903,987	2,000	102,800	508,510
50,000	6,964	477,418	10,000	41,847	903,354
100,000	4,250	662,786	50,000	7,079	487,463
250,000	1,473	513,492	100,000	4,423	687,203
500,000	684	453,693	250,000	1,525	525,158
1,000,000	381	714,188	500,000	706	498,196
5,000,000	27	250,893	1,000,000	353	494,299
Total	363,612	4,772,126	2,000,000	119	361,886
			5,000,000	17	133,043
			10,000,000	7	104,775
			50,000,000	1	50,634
			Total	386,032	4,923,948
1904			1905		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1	119,539	30,399	1	116,802	29,203
500	102,785	129,144	500	101,710	127,689
2,000	103,157	496,913	2,000	107,733	520,229
10,000	42,042	887,986	10,000	44,056	944,048
50,000	6,876	488,141	50,000	7,118	492,987
100,000	4,449	698,892	100,000	4,638	723,136
250,000	1,548	553,802	250,000	1,619	576,963
500,000	724	492,495	500,000	816	565,460
1,000,000	311	449,949	1,000,000	328	463,767
2,000,000	123	350,853	2,000,000	150	442,006
5,000,000	33	230,234	5,000,000	34	234,956
10,000,000	11	214,540	10,000,000	12	252,805
50,000,000	3	250,458	50,000,000	3	373,640
Total	381,601	5,273,806	Total	385,019	5,746,889

(continued)

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TABLE J-1  
(continued)

1907			1909		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1	116,323	27,686	1	103,438	26,960
500	106,807	135,162	500	101,178	129,938
2,000	114,695	562,248	2,000	110,427	543,254
10,000	47,967	1,014,215	10,000	48,755	1,026,513
50,000	7,703	532,421	50,000	7,692	529,556
100,000	5,018	776,396	100,000	4,822	758,743
250,000	1,713	602,866	250,000	1,720	605,656
500,000	814	579,240	500,000	810	554,401
1,000,000	360	501,586	1,000,000	373	512,170
2,000,000	134	389,141	2,000,000	145	425,611
5,000,000	33	234,477	5,000,000	46	303,298
10,000,000	7	106,406	10,000,000	10	179,938
50,000,000	0	0	50,000,000	2	144,399
Total	401,574	5,461,843	Total	379,418	5,740,436
1910			1911		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1	98,657	24,575	1	95,522	23,554
500	95,590	120,663	500	94,787	119,126
2,000	104,713	533,354	2,000	105,966	523,586
10,000	45,529	970,347	10,000	47,032	993,981
50,000	7,651	528,353	50,000	7,755	539,326
100,000	4,641	724,499	100,000	4,878	761,071
250,000	1,706	586,919	250,000	1,675	587,971
500,000	785	542,913	500,000	832	591,274
1,000,000	383	472,425	1,000,000	379	532,314
2,000,000	142	424,298	2,000,000	245	439,897
5,000,000	29	200,931	5,000,000	30	200,604
10,000,000	10	190,704	10,000,000	9	233,041
50,000,000	0	0	50,000,000	3	215,979
Total	359,836	5,319,982	Total	359,113	5,761,725

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1912			1913		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1	103,128	25,277	1	96,689	22,210
500	93,783	118,351	500	95,144	118,775
2,000	100,942	511,828	2,000	105,188	528,901
10,000	45,799	977,137	10,000	47,668	999,995
50,000	7,738	528,328	50,000	7,731	524,305
100,000	4,597	711,133	100,000	5,042	770,712
250,000	1,630	564,805	250,000	1,734	579,944
500,000	768	539,125	500,000	795	549,859
1,000,000	352	500,214	1,000,000	376	531,383
2,000,000	137	409,354	2,000,000	125	373,697
5,000,000	30	196,567	5,000,000	29	194,414
10,000,000	16	252,328	10,000,000	18	337,327
50,000,000	1	242,701	50,000,000	0	0
Total	358,921	5,577,146	Total	360,539	5,531,523
1925			1926		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1	50,865	15,923	1	45,491	13,082
500	71,397	97,044	500	72,499	90,420
2,000	132,996	732,731	2,000	138,178	704,881
10,000	97,793	2,097,089	10,000	110,409	2,277,881
50,000	17,606	1,162,299	50,000	20,115	1,303,004
100,000	10,053	1,473,813	100,000	11,041	1,570,558
250,000	3,006	1,016,776	250,000	3,559	1,120,890
500,000	1,352	952,528	500,000	1,563	1,000,920
1,000,000	572	826,141	1,000,000	715	927,900
2,000,000	239	736,521	2,000,000	305	867,283
5,000,000	48	310,636	5,000,000	85	492,914
10,000,000	14	234,330	10,000,000	27	470,794
50,000,000	2	145,701	50,000,000	3	217,561
Total	385,943	9,801,533	Total	403,990	11,058,090

(continued)

APPENDIX J

TABLE J-1  
(continued)

1927			1929		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1	40,051	10,817	1	34,826	10,083
500	65,279	82,439	500	58,634	75,773
2,000	129,688	686,648	2,000	127,039	707,123
10,000	107,206	2,259,780	10,000	120,126	2,684,825
50,000	20,792	1,374,265	50,000	25,374	1,709,163
100,000	11,741	1,664,966	100,000	14,370	2,146,741
250,000	3,700	1,224,715	250,000	4,348	1,528,069
500,000	1,727	1,143,579	500,000	2,219	1,525,774
1,000,000	780	1,057,269	1,000,000	968	1,368,749
2,000,000	352	1,017,453	2,000,000	520	1,536,684
5,000,000	94	602,831	5,000,000	117	807,288
10,000,000	43	805,942	10,000,000	74	1,203,710
50,000,000	3	211,935	50,000,000	5	590,372
Total	381,456	12,142,639	Total	388,620	15,894,352
1930			1931		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1	31,505	8,538	1	29,051	7,973
500	51,298	66,080	500	52,032	64,742
2,000	113,460	636,015	2,000	117,214	646,276
10,000	112,767	2,535,557	10,000	121,515	2,748,741
50,000	24,911	1,667,486	50,000	27,113	1,797,958
100,000	14,769	2,146,988	100,000	16,442	2,414,477
250,000	4,668	1,581,491	250,000	4,975	1,710,573
500,000	2,102	1,482,251	500,000	2,114	1,464,971
1,000,000	1,002	1,409,635	1,000,000	1,049	1,467,030
2,000,000	522	1,530,020	2,000,000	501	1,565,963
5,000,000	167	1,142,628	5,000,000	123	851,274
10,000,000	62	1,129,857	10,000,000	50	904,890
50,000,000	7	642,387	50,000,000	4	325,077
Total	357,240	15,978,934	Total	372,183	15,969,945

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1932			1933		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1	29,584	7,938	1	27,466	7,334
500	52,497	64,860	500	46,724	59,602
2,000	117,919	657,757	2,000	111,283	622,630
10,000	121,600	2,759,177	10,000	119,774	2,667,885
50,000	25,920	1,767,334	50,000	25,808	1,715,260
100,000	15,001	2,244,886	100,000	14,838	2,223,453
250,000	4,783	1,671,067	250,000	4,709	1,598,528
500,000	2,121	1,448,395	500,000	2,032	1,391,903
1,000,000	965	1,323,185	1,000,000	947	1,289,165
2,000,000	481	1,434,699	2,000,000	404	1,195,449
5,000,000	77	542,825	5,000,000	94	626,190
10,000,000	44	700,454	10,000,000	66	838,365
50,000,000	5	479,408	50,000,000	2	254,091
Total	370,999	15,101,986	Total	354,147	14,489,855
1935			1936		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1	26,382	7,505	1	24,654	7,137
500	46,103	61,548	500	45,544	60,376
2,000	121,581	679,422	2,000	119,814	694,943
10,000	127,694	2,795,982	10,000	125,314	2,813,808
50,000	25,529	1,700,038	50,000	25,245	1,711,663
100,000	14,789	2,186,050	100,000	14,349	2,185,841
250,000	4,637	1,599,055	250,000	4,510	1,554,373
500,000	2,004	1,387,266	500,000	1,823	1,277,012
1,000,000	891	1,233,042	1,000,000	909	1,271,954
2,000,000	418	1,204,357	2,000,000	344	1,018,112
5,000,000	83	586,030	5,000,000	99	627,269
10,000,000	37	586,566	10,000,000	30	474,763
50,000,000	2	911,574	50,000,000	3	1,122,408
Total	370,150	14,938,435	Total	362,638	14,819,658

(continued)

## APPENDIX J

TABLE J-1  
(continued)

1937			1938		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1	21,424	6,695	1	112,805	249,259
500	42,404	56,159	5,000	68,273	490,935
2,000	118,829	664,621	10,000	137,687	3,147,348
10,000	128,361	2,884,789	50,000	32,505	2,185,838
50,000	26,772	1,802,310	100,000	16,472	2,341,619
100,000	15,176	2,316,053	250,000	7,548	2,377,281
250,000	4,714	1,638,672	500,000	2,347	1,616,086
500,000	2,098	1,414,240	1,000,000	1,024	1,417,388
1,000,000	1,019	1,345,882	2,000,000	440	1,353,824
2,000,000	400	1,100,276	5,000,000	87	576,350
5,000,000	88	601,020	10,000,000	35	549,203
10,000,000	40	710,614	50,000,000	2	194,350
50,000,000	3	344,855	150,000,000	1	742,831
Total	361,328	14,886,186	Total	379,226	17,242,311
1939			1940		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1	91,776	199,118	1	70,336	165,148
5,000	58,972	431,157	5,000	50,676	361,301
10,000	120,399	2,813,669	10,000	112,202	2,581,207
50,000	31,489	2,128,697	50,000	35,803	2,139,957
100,000	18,637	2,806,377	100,000	18,780	2,660,802
250,000	5,431	1,845,933	250,000	5,614	1,670,871
500,000	2,397	1,640,645	500,000	2,161	1,361,978
1,000,000	1,037	1,421,096	1,000,000	721	951,657
2,000,000	425	1,244,223	2,000,000	271	708,952
5,000,000	92	633,865	5,000,000	50	288,993
10,000,000	39	619,439	10,000,000	17	342,828
50,000,000	1	60,025	50,000,000	2	186,116
150,000,000	1	851,906	150,000,000	0	0
Total	330,696	16,696,149	Total	296,633	13,419,810

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1941			1942		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
I	77,722	178,024	I	74,132	172,204
5,000	53,262	402,002	5,000	47,612	362,914
10,000	131,887	3,256,005	10,000	130,120	3,352,123
50,000	42,151	2,887,733	50,000	48,258	3,382,291
100,000	27,357	4,180,995	100,000	34,266	5,323,231
250,000	8,513	2,895,172	250,000	11,880	4,066,803
500,000	3,464	2,382,102	500,000	5,018	3,480,121
1,000,000	1,203	1,674,275	1,000,000	2,097	2,881,707
2,000,000	510	1,508,739	2,000,000	938	2,814,895
5,000,000	104	690,191	5,000,000	196	1,328,118
10,000,000	40	675,772	10,000,000	60	841,439
50,000,000	0	0	50,000,000	2	125,379
150,000,000	0	0	150,000,000	2	375,063
Total	346,213	20,731,011	Total	354,581	28,506,290
1943			1944		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
I	49,884	109,874	I	40,505	87,341
5,000	39,038	274,984	5,000	33,379	229,199
10,000	126,032	3,161,548	10,000	118,142	2,989,053
50,000	49,397	3,526,068	50,000	49,448	3,510,372
100,000	40,894	6,333,430	100,000	43,156	6,689,267
250,000	15,119	5,234,351	250,000	16,242	5,629,526
500,000	7,026	4,845,090	500,000	7,330	5,043,898
1,000,000	2,984	4,085,168	1,000,000	3,164	4,317,949
2,000,000	1,451	4,289,878	2,000,000	1,397	4,190,542
5,000,000	326	2,224,787	5,000,000	332	2,236,685
10,000,000	93	1,214,230	10,000,000	112	1,454,110
20,000,000	30	881,175	20,000,000	38	1,154,089
50,000,000	2	121,324	50,000,000	4	308,937
100,000,000	0	0	100,000,000	1	109,184
150,000,000	0	0	Total	313,250	37,950,152
Total	332,276	36,301,907			

(continued)

APPENDIX J

TABLE J-1  
(continued)

1945			1946		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1	32,145	74,582	1	241,356	15,453,997
5,000	29,389	201,454	250,000	24,791	8,751,403
10,000	115,880	2,982,158	500,000	11,724	8,163,454
50,000	53,893	3,816,041	1,000,000	4,716	6,479,080
100,000	51,076	7,975,304	2,000,000	2,041	6,019,723
250,000	20,400	7,068,838	5,000,000	548	4,576,467
500,000	9,461	6,508,479	20,000,000	46	1,218,762
1,000,000	4,127	5,644,255	50,000,000	5	317,058
2,000,000	1,750	5,244,384	100,000,000	3	240,402
5,000,000	421	2,954,141	Total	285,230	51,220,346
10,000,000	100	1,311,284			
20,000,000	41	1,277,463			
50,000,000	9	589,752			
100,000,000	1	124,768			
Total	318,693	45,772,903			
1947			1948		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1	247,483	16,990,729	1	214,029	15,760,339
250,000	33,048	11,686,201	250,000	35,623	12,574,145
500,000	16,685	11,620,934	500,000	20,071	14,057,918
1,000,000	7,202	9,926,772	1,000,000	9,110	12,630,294
2,000,000	3,102	9,092,700	2,000,000	4,117	12,258,523
5,000,000	920	7,835,849	5,000,000	1,197	10,100,559
20,000,000	72	2,159,878	20,000,000	95	2,840,156
50,000,000	14	1,064,509	50,000,000	22	1,676,255
100,000,000	0	0	100,000,000	0	0
Total	308,526	70,377,572	Total	284,264	81,898,189



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1949			1950		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1	200,105	15,858,078	1	174,645	13,653,121
250,000	41,973	15,054,548	250,000	48,761	16,538,919
500,000	25,749	18,117,755	500,000	27,791	19,834,295
1,000,000	12,226	17,021,274	1,000,000	14,501	20,423,304
2,000,000	5,530	18,784,121	2,000,000	7,467	22,762,843
5,000,000	1,703	16,022,477	5,000,000	2,419	21,039,928
20,000,000	153	4,543,680	20,000,000	260	7,740,440
50,000,000	23	1,587,286	50,000,000	41	2,776,989
100,000,000	7	1,212,932	100,000,000	14	2,885,853
Total	287,669	108,202,151	Total	275,899	127,655,692
1951			1952		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1	172,490	14,621,735	1	150,113	12,940,155
250,000	47,237	17,287,370	250,000	49,139	17,801,632
500,000	32,438	23,437,809	500,000	39,053	27,827,885
1,000,000	17,832	25,477,346	1,000,000	24,950	35,211,978
2,000,000	9,377	28,999,710	2,000,000	15,641	47,963,178
5,000,000	3,272	29,274,339	5,000,000	4,536	31,460,622
20,000,000	358	10,427,784	10,000,000	1,607	22,027,723
50,000,000	71	4,753,211	20,000,000	575	17,152,911
100,000,000	15	10,874,619	50,000,000	120	8,565,923
Total	283,090	165,153,923	100,000,000	34	5,928,026
			Total	285,768	226,880,033

(continued)

## APPENDIX J

TABLE J-1  
(continued)

1953			1954		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
I	122,321	11,568,200	I	125,799	12,086,800
250,000	46,496	17,449,369	250,000	50,736	18,699,700
500,000	39,633	29,047,620	500,000	45,763	33,007,900
1,000,000	26,320	37,542,524	1,000,000	31,698	44,894,100
2,000,000	17,022	52,608,871	2,000,000	21,799	67,000,000
5,000,000	6,651	57,606,766	5,000,000	6,601	45,627,500
20,000,000	647	18,979,514	10,000,000	2,431	33,004,200
50,000,000	92	6,172,170	20,000,000	880	25,140,700
100,000,000	41	7,878,580	50,000,000	160	10,917,400
Total	259,223	238,853,614	100,000,000	65	12,166,100
			Total	285,932	302,544,400
1955			1956		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
I	102,365	9,802,000	1,000,000	31,402	44,151,000
250,000	44,015	16,148,000	2,000,000	21,958	67,478,000
500,000	41,397	29,669,000	5,000,000	7,213	49,548,000
1,000,000	30,146	42,430,000	10,000,000	2,829	38,436,000
2,000,000	20,749	63,367,000	20,000,000	1,037	30,288,000
5,000,000	6,645	45,667,000	50,000,000	214	14,499,000
10,000,000	2,451	33,400,000	100,000,000	82	14,991,000
20,000,000	938	27,410,000	Total	64,735	259,391,000
50,000,000	188	12,163,000			
100,000,000	66	11,557,000			
Total	248,960	291,613,000			

APPENDIX J

1957			1958		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1,000,000	34,643	50,340,000	1,000,000	41,299	60,376,000
2,000,000	22,074	69,796,000	2,000,000	27,756	88,652,000
5,000,000	7,297	51,333,000	5,000,000	9,195	65,135,000
10,000,000	3,054	42,890,000	10,000,000	3,725	52,777,000
20,000,000	1,293	39,875,000	20,000,000	1,577	48,688,000
50,000,000	278	19,929,000	50,000,000	366	25,273,000
100,000,000	88	19,566,000	100,000,000	120	22,162,000
Total	68,727	293,729,000	Total	84,038	363,063,000
1959			1960		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1,000,000	40,817	60,245,000	10,000	37,738	565,242
2,000,000	30,229	97,766,000	20,000	32,336	1,046,768
5,000,000	10,636	76,115,000	50,000	11,918	846,760
10,000,000	4,370	62,477,000	100,000	4,966	698,337
20,000,000	1,951	58,720,000	200,000	2,052	616,068
50,000,000	373	26,384,000	500,000	444	304,142
100,000,000	184	40,047,000	1,000,000	200	355,780
Total	88,560	421,754,000	Total	89,654	4,433,097
1962			1964		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
10,000	40,572	871,218	10,000	38,869	584,759
20,000	37,292	1,214,977	20,000	45,777	1,466,950
50,000	15,511	1,097,206	50,000	21,512	1,519,757
100,000	7,002	989,381	100,000	10,624	1,507,540
200,000	3,328	982,736	200,000	5,357	1,618,964
500,000	614	425,652	500,000	1,244	851,542
1,000,000	333	705,881	1,000,000	532	1,119,082
Total	104,652	6,287,051	Total	123,915	8,668,594

(continued)

## APPENDIX J

TABLE J-1  
(continued)

1984			1994		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
I	30,094	728,002	I	19,217	326,945
50,000	38,218	2,814,794	50,000	26,965	2,100,644
100,000	65,783	9,597,715	100,000	48,212	7,133,071
200,000	118,852	47,743,124	200,000	113,013	37,575,242
1,000,000	12,708	20,505,056	500,000	60,938	42,588,217
3,000,000	1,146	4,314,319	1,000,000	33,242	53,366,108
5,000,000	456	3,045,074	3,000,000	3,618	13,492,010
10,000,000	138	2,779,109	5,000,000	1,471	9,760,943
Total	267,395	91,527,193	10,000,000	537	9,512,727
			Total	307,213	175,855,907

*Sources:* Raw data copied directly from the distribution tables compiled by the tax administration (see Table J-2 for references to the Finance Ministry publications where the original tables were published).

*Explanation:*  $s_i$  represents the thresholds of the bequest brackets used by the tax administration,  $N_i$  represents the number of bequests whose amounts are between thresholds  $s_i$  and  $s_{i+1}$ , and  $Y_i$  represents the total amount of the corresponding bequests. The "Total" line gives the total number of bequests and the total amount of these bequests. The thresholds are expressed in old francs for 1902–1959 bequests, and in new francs for 1960–1994 bequests. The amounts are expressed in thousands of old francs for 1902–1959 bequests, and in thousands of new francs for 1960–1994 bequests. For example, in 1902, 27 bequests greater than 5 million old francs were declared, and the total amount of those bequests was 250.893 million old francs; 381 bequests between 1 and 5 million old francs were declared, and the total amount of those bequests was 714.188 million old francs; etc.

*Notes:* (i) The "Total" line is always equal to the sum of all of the preceding lines (we have always reproduced all of the brackets appearing in the original tables compiled and published by the tax administration), and thus corresponds to all of the bequests declared over the course of a given year.

(ii) The brackets and amounts appearing in these tables are expressed in terms of "net bequest assets" for the years 1902–1956 and 1984–1994, and in terms of "gross bequest assets" for the years 1957–1964 ("net bequest assets" refers to the total amount of the bequest, before division among heirs, but after subtracting liabilities; "gross bequest assets" refers to the total amount of the bequest, before division among heirs, and before subtracting liabilities).

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TABLE J-2

*References to the publications where the various distribution tables were published (1902–1994 bequests)*

Date of bequests	References
1902 bequests	<i>BSLC</i> juin 1903, tome 53, p. 811
1903 bequests	<i>BSLC</i> juin 1904, tome 55, p. 707
1904 bequests	<i>BSLC</i> août 1905, tome 58, p. 197
1905 bequests	<i>BSLC</i> août 1905, tome 58, p. 197
1907 bequests	<i>BSLC</i> octobre 1908, tome 64, p. 331
1909 bequests	<i>BSLC</i> novembre 1910, tome 68, p. 495
1910 bequests	<i>BSLC</i> décembre 1911, tome 70, p. 673
1911 bequests	<i>BSLC</i> décembre 1912, tome 72, p. 643
1912 bequests	<i>BSLC</i> décembre 1913, tome 74, p. 703
1913 bequests	<i>BSLC</i> mars 1915, tome 77, p. 287
1925 bequests	<i>BSLC</i> juillet 1927, tome 102, p. 67
1926 bequests	<i>BSLC</i> janvier 1928, tome 103, p. 59
1927 bequests	<i>BSLC</i> juin 1929, tome 105, p. 1271
1929 bequests	<i>BSLC</i> juillet 1930, tome 108, p. 86
1930 bequests	<i>BSLC</i> octobre 1931, tome 110, p. 654
1931 bequests	<i>BSLC</i> octobre 1933, tome 114, p. 828
1932 bequests	<i>BSLC</i> décembre 1933, tome 114, p. 1374
1933 bequests	<i>BSLC</i> octobre 1934, tome 116, p. 888
1935 bequests	<i>BSLC</i> juin 1936, tome 119, p. 1135
1936 bequests	<i>BSLC</i> septembre 1937, tome 122, p. 637
1937 bequests	<i>BSLC</i> octobre 1938, tome 124, p. 715
1938 bequests	<i>BSLC</i> avril-mai-juin 1940, tome 127, p. 738
1939 bequests	<i>BSMF</i> n°2 (2ème trimestre 1947), p. 325
1940 bequests	<i>BSMF</i> n°2 (2ème trimestre 1947), p. 335
1941 bequests	<i>BSMF</i> n°2 (2ème trimestre 1947), p. 345
1942 bequests	<i>BSMF</i> n°2 (2ème trimestre 1947), p. 359
1943 bequests	<i>BSMF</i> n°2 (2ème trimestre 1947), p. 376
1944 bequests	<i>BSMF</i> n°2 (2ème trimestre 1947), p. 414
1945 bequests	<i>BSMF</i> n°2 (2ème trimestre 1947), p. 480
1946 bequests	<i>BSMF</i> n°6 (2ème trimestre 1948), pp. 423–424
1947 bequests	<i>S&amp;EF</i> n°3 (mars 1949), p. 166
1948 bequests	<i>S&amp;EF</i> “supplément Statistiques” n°14 (2ème trimestre 1952), pp. 268–269

(continued)

## APPENDIX J

TABLE J-2  
(continued)

Date of bequests	References
1949 bequests	<i>S&amp;EF</i> n°30 (juin 1951), pp. 496–497
1950 bequests	<i>S&amp;EF</i> “supplément Statistiques” n°14 (2ème trimestre 1952), pp. 322–323
1951 bequests	<i>S&amp;EF</i> “supplément” n°79 (juillet 1955), pp. 764–765
1952 bequests	<i>S&amp;EF</i> “supplément” n°79 (juillet 1955), pp. 776–777
1953 bequests	<i>S&amp;EF</i> n°76 (avril 1955), p. 377
1954 bequests	<i>S&amp;EF</i> “supplément” n°91 (juillet 1956), pp. 820–821
1955 bequests	<i>S&amp;EF</i> “supplément” n°103 (juillet 1957), p. 876
1956 bequests	<i>S&amp;EF</i> “supplément” n°118 (octobre 1958), p. 1182
1957 bequests	<i>S&amp;EF</i> “supplément” n°128 (août 1959), pp. 1198–1199
1958 bequests	<i>S&amp;EF</i> “supplément” n°138 (juin 1960), p. 814
1959 bequests	<i>S&amp;EF</i> “supplément” n°159 (mars 1962), p. 358
1960 bequests	<i>S&amp;EF</i> “supplément” n°184 (avril 1964), p. 700
1962 bequests	<i>S&amp;EF</i> “supplément” n°204 (décembre 1965), p. 1708
1964 bequests	<i>S&amp;EF</i> “supplément” n°204 (décembre 1965), p. 1754
1984 bequests	“L'imposition du capital,” 8ème Rapport au Président de la République, Conseil des Impôts, 1986, pp. 69 et 83
1994 bequests	“L'imposition du patrimoine,” 16ème Rapport au Président de la République, Conseil des Impôts, 1998, pp. 210–211

*Acronyms:* *BSLC*=*Bulletin de Statistique et de Législation Comparée* (monthly Finance Ministry publication, 1877–1940)

*BSMF*=*Bulletin de Statistique du ministère des Finances* (quarterly Finance Ministry publication, 1947–1948)

*S&EF*=*Statistiques et Etudes Financières* (monthly Finance Ministry publication, 1949–1985)

*Explanation:* For bequests declared in 1902, the statistical table giving the number and amount of bequests by bequest bracket was published in the June 1903 *BSLC*, p. 811.

*Note:* (i) The missing years are years for which bequest declarations were not tabulated.

(ii) The distribution tables based on tabulations of the 1902–1964 bequest declarations were also compiled and published (in summary form) in the *Annuaire Statistique de la France 1966—Résumé Rétrospectif*, INSEE, 1966, p. 531; however, the tables reproduced in that publication are incomplete for most years (many bequest brackets were combined into a single bracket), so it is preferable to refer to the original publications shown here; on the other hand, the *Annuaire Statistique de la France 1966—Résumé Rétrospectif* (p. 530) contains a very useful retrospective table where all of the aggregate statistics are gathered together (volume and composition of bequests, volume of gifts) for the 1826–1964 period.

tables of 1945, 1956, 1962, and 1994, expressing them as a percentage of the total amount of bequests declared within each bequest bracket (the composition tables for the years 1946, 1949, and 1959 describe similar profiles, and we have not reproduced them here). Exact references to the publications where these tables were published in their original form are given in Table J-3.<sup>10</sup> The way we grouped together the various asset categories used in the original tables is also shown in Table J-3.

### 1.3. The Gift Tables

In terms of gifts, the key turning point (both in terms of available statistics and in legislative terms) was the law of March 14, 1942, which unified the bequest tax and gift tax regimes and established the general principle that gifts prior to death must be “recalled” at the opening of a bequest and added to the wealth passed on in the bequest (see section 3). Thus, two periods must be distinguished.

When it comes to the 1901–1941 period, the distribution tables for bequests do not take gifts into account, and there is no table specifically covering gifts. The only available statistics for gifts in the 1901–1941 period are thus the aggregate statistics for the annual volume of gifts, which give no indication of the distribution of that overall volume by gift amount.<sup>11</sup>

When it comes to the 1942–1994 period, all “recalled” gifts are in principle taken into account in the distribution tables for bequests. However, the treatment of “recalled” gifts in the statistical tables compiled by the tax administration since the law of March 14, 1942, has been relatively ambiguous. The Finance Ministry publications are quite clear that the bequest brackets used from 1943–1944 onward in tabulating bequest declarations are indeed brackets of “net assets, including recalled assets” (or “gross assets, including recalled assets,” for 1957–1964). On the other hand, it is not clear that the amount of “recalled” assets has always been included in the column giving the total amount of bequeathed assets for each bracket of “assets, including recalled assets”: the Finance Ministry publications are not entirely clear on this point, and “recalled” assets seem to have been omitted for certain years.<sup>12</sup> It is thus difficult to know whether our estimates based on the bequest distribution tables really take into account all recalled gifts. Independent of these technical problems, moreover, gifts continued to enjoy certain tax advantages after 1942, so the value of “recalled” assets is often artificially low, and for perfectly legal reasons: for example, as a general rule the value of

TABLE J-3

*The raw statistical tables compiled by the tax administration from bequest declarations, II: the composition tables  
(1945, 1956, 1962, and 1994 bequests)*

1945								
$s_i$	$p_i$	Housing	Agricultural goods	Furniture	Liquidity	Securities	Total	Share of warrants and bonds in securities
1	63.74	27.1		29.2	18.8	24.9	100.0	30.6
5,000	57.31	25.5		40.6	15.5	18.5	100.0	30.7
10,000	51.43	41.0		25.0	13.6	20.4	100.0	48.3
50,000	28.26	48.4		17.5	10.3	23.7	100.0	53.0
100,000	17.48	48.0		13.5	8.6	29.8	100.0	52.5
250,000	7.26	48.3		10.6	7.8	33.3	100.0	52.4
500,000	3.18	46.2		8.3	7.2	38.4	100.0	45.2
1,000,000	1.29	43.5		6.1	6.3	44.1	100.0	37.6
2,000,000	0.46	40.8		4.9	5.8	48.6	100.0	31.2
5,000,000	0.11	29.9		3.5	4.2	62.3	100.0	23.6
10,000,000	0.03	31.5		2.6	4.2	61.7	100.0	25.0
20,000,000	0.01	17.3		1.5	3.7	77.5	100.0	25.8
Total	63.74	43.2		10.5	7.7	38.5	100.0	40.4



1956

$s_i$	$p_i$	Housing	Agricultural goods	Furniture	Liquidity	Securities	Total	Share of warrants and bonds in securities
1,000,000	12.95	37.9	26.7	8.5	8.5	18.5	100.0	27.9
2,000,000	6.67	35.1	24.1	7.9	7.3	25.6	100.0	21.4
5,000,000	2.28	31.3	22.2	7.0	6.6	33.0	100.0	15.8
10,000,000	0.83	27.5	20.5	6.0	6.8	39.3	100.0	10.4
20,000,000	0.27	22.7	19.6	4.3	5.1	48.2	100.0	7.5
50,000,000	0.06	15.8	18.5	5.1	5.0	55.6	100.0	5.8
100,000,000	0.02	12.2	13.2	4.3	4.8	65.6	100.0	3.0
Total	12.95	24.1	18.6	5.7	5.7	46.0	100.0	8.4

1962

$s_i$	$p_i$	Housing	Agricultural goods	Furniture	Liquidity	Securities	Total
10,000	20.93	44.7	23.0	6.9	14.3	11.1	100.0
20,000	12.82	39.4	20.3	7.1	12.0	21.1	100.0
50,000	5.36	36.3	19.0	5.8	20.6	18.4	100.0
100,000	2.26	32.5	20.2	5.1	15.2	27.1	100.0
200,000	0.86	31.1	19.2	4.3	11.6	33.8	100.0
300,000	0.43	29.4	17.9	5.1	10.9	36.8	100.0
400,000	0.27	28.3	18.6	4.4	10.4	38.4	100.0

(continued)

TABLE J-3  
(continued)

1962								
$s_i$	$p_i$	Housing	Agricultural goods	Furniture	Liquidity	Securities	Total	
500,000	0.19	26.3	18.0	4.9	9.0	41.8	100.0	
750,000	0.11	22.4	19.9	4.5	8.3	45.0	100.0	
1,000,000	0.07	21.8	15.5	3.7	9.8	49.1	100.0	
2,000,000	0.01	17.2	12.5	3.3	6.9	60.1	100.0	
Total	20.93	33.7	19.3	5.6	13.7	27.7	100.0	
1994								
$s_i$	$p_i$	Housing	Agricultural goods	Furniture	Liquidity	Securities	Total	Share of warrants and bonds in securities
1	61.44	17.3	0.6	6.3	68.0	7.7	100.0	34.1
50,000	57.60	24.4	1.8	5.8	56.8	11.2	100.0	24.8
100,000	52.21	38.1	0.6	4.3	44.8	12.3	100.0	25.3
200,000	42.56	48.5	2.6	3.3	31.3	14.3	100.0	22.6
500,000	19.96	48.7	2.7	3.5	26.7	18.4	100.0	21.9
1,000,000	7.77	50.9	2.5	3.4	19.0	24.2	100.0	25.8
3,000,000	1.13	46.6	1.3	3.0	13.1	36.1	100.0	22.7
5,000,000	0.40	49.8	2.1	2.9	8.7	36.5	100.0	20.9

$s_i$	$p_i$	Agricultural					Total	Share of warrants and bonds in securities
		Housing	goods	Furniture	Liquidity	Securities		
10,000,000	0.11	37.8	1.6	3.2	6.3	51.0	100.0	19.2
20,000,000	0.03	30.7	0.5	6.6	6.8	55.4	100.0	13.2
Total	61.44	47.7	2.3	3.5	23.8	22.7	100.0	21.9

*Sources:* Raw data recopied directly from the “composition” tables compiled by the tax administration. 1945: *BSMF* n°2 (Second quarter, 1947), pp. 530–532; 1956: *S&EF* “supplément” n°118 (October 1958), pp. 1188–1189; 1962: *S&EF* “supplément” n°204 (December 1965), pp. 1720–1721; 1994: table derived from a specific analysis of the 1994 sample of bequest declarations, carried out at my request by Luc Arrondel (CNRS) (July 1999).

*Explanation:* In 1945, bequests between 1 and 5,000 francs were composed of 27.1 percent housing, 29.2 percent furniture, 18.8 percent liquidity, and 24.9 percent securities; the share of “*bons*” and “*obligations*” in these investment securities was 30.6 percent.

*Notes:* (i) Our method of categorization is as follows: housing includes all real estate assets (apartment buildings, houses, land for building, historic monuments, etc.), with the exception of real estate assets for agricultural use (farmlands, woods and forests, farm operations, etc.) (for 1945, the breakdown between agricultural and nonagricultural real estate is not available, and we grouped all of it within housing); furniture includes all tangible property, furniture, works of art, and art collections, etc.; liquidity includes cash, checking accounts, and other current accounts, etc.; given the problems arising from the distinction between listed and unlisted securities, we have included in securities not only stocks, business equity shares, mutual funds, bonds, annuities, loans, etc., but also inventories, customer bases, etc. (for 1962, the categories used do not make it possible to separate out bonds from other investment securities) (since the categories used by the tax administration changed a great deal from one year to another, some differences are not significant: for example, the relatively small share of “bonds” within the investment securities of the lower bequest brackets for 1945 is due to the fact that we included within bonds only fixed-income securities strictly speaking [bills, bonds, notes, etc.], which among other things excluded *créances*, a category that, for small bequests in 1945, included significant sums passed on in the form of pensions).

(ii) Column  $P_i$  is from Table J-4, and it shows the percentage of deaths that resulted in a bequest declaration with an amount greater than the threshold in question (these percentages were calculated based on a theoretical number of deaths assumed to be equal to 500,000) (for 1945, we combined the top brackets into a single bracket covering bequests greater than 20 million francs; for 1962, the number of brackets used in the “composition” table is greater than the number of brackets from the “distribution” table; for 1994, the percentage corresponding to the 20 million franc threshold was calculated from data provided by Luc Arrondel [128 bequests greater than 20 million francs, versus 537 bequests greater than 10 million francs]).

(iii) “Composition” tables have also been compiled from analyses of the 1984 bequest declarations (see Laferrère 1990, p. 21) and 1987 bequest declarations (see Laferrère and Monteil (1992, pp. 36–37) and Arrondel and Laferrère (1994, p. 50); those tables display the same regularities (liquid assets gradually replaced by real estate, then by investment securities, and especially stocks), but the top bequest brackets used in those analyses (2 million francs in 1984, 5 million francs in 1987) were not high enough to show very large bequests.

“recalled” gifts (expressed in the current francs of the date of the gift) is not updated at the time of bequest, gifts made more than ten years before death stopped being “recalled” after the law of December 30, 1991, and so forth (see section 3).

Fortunately, the law of March 13, 1942, also led the tax administration to compile distribution tables specifically for gifts, giving the number and amount of gifts made over the course of the year in question according to a given number of gift brackets. These “gift” tables are available for every year of the 1944–1994 period for which bequest distribution tables were compiled, and they were published in the same publications as those shown in Table J-2. The brackets used in those tables are the same as in the bequest distribution tables, and these tables give us a very precise sense of the importance of gifts: in the years 1944–1964 and 1984, the total amount of assets transmitted by gift was generally between 15 percent and 25 percent of the total amount of assets transmitted by bequest, and this percentage has always been a sharply declining function of the size of the transfer made (with the percentage usually very significantly below 10 percent for the highest brackets); for 1994, we observe a very significant increase in the total amount of assets transmitted by gift (which was then nearly 60 percent of the total amount of assets transmitted by bequest), but this percentage is always a sharply declining function of the amount transmitted, and it falls to levels of about 15–20 percent for the highest brackets.<sup>13</sup> Also, this very sharp growth in gifts in the 1990s was probably the result of the very strong incentives created by the law of December 30, 1991, so it is of no consequence for wealth passed on by bequest in 1994: gift must have been made ten years before death to not be “recalled,” and the boom in gifts observed since the law of December 30, 1991, is thus due to relatively young individuals, or at least individuals who did not expect to die in 1994.<sup>14</sup> In any event, the key point to remember is that gifts are generally less than 10 percent (and a maximum of 15–20 percent in 1994) of bequests at the level of the highest brackets, which can correspond to nonnegligible tax savings, but it is extremely small compared to the orders of magnitude involved in the long-term evolution in the level of large bequests.

#### 1.4. Other Tables

The tabulation of bequest declarations has also led the tax administration to compile other statistical tables, whose number and sophistication have always varied over time. As we explained in Chapter 6 (section 3.1), we have not at-

tempted to analyze these complementary tables for this book. However, it seems useful here to indicate the nature of the available tables and the years for which they were compiled, so that any interested readers can easily locate them.

Let us first mention the tables that give, not the number and amount of bequests as a function of some number of bequest brackets (before division among heirs: the distribution tables), but the number and amount of bequest shares as a function of some number of “bequest share” brackets (the “bequest share” is the amount of bequest going to each heir). These “bequest share” tables would be particularly useful for precisely estimating average tax rates on the various bequest fractiles (see section 3). A first bequest share table covering bequest declarations submitted between the vote on the law of February 25, 1901, and the end of the year 1901 had been compiled and published by 1902.<sup>15</sup> Subsequently, bequest share tables were compiled far less frequently than the distribution tables: the bequest share tables exist only for the years 1902–1903, 1905, 1907, 1909–1911, 1938, 1943–1951, 1959, 1984, and 1994.<sup>16</sup>

The tax administration has also tried to compile cross-tabulated tables showing the number and amount of bequests not only as a function of a given number of bequest brackets, but also by bracket of age at death. Unfortunately, these “age bracket” tables, which require a relatively painstaking tabulation of bequest declarations, were compiled only for the years 1943–1954.<sup>17</sup> Tables giving the number and amount of bequests by age-at-death bracket had been compiled from the bequest declarations of 1906 and 1908, but these tables were not cross-tabulated, since the bequest brackets did not appear in the tables.<sup>18</sup> However, it should be noted that in 1931 the SGF undertook a vast study whose purpose was to analyze precisely the information contained in bequest declarations more systematically than did the tabulations carried out by the tax administration of the time (particularly with respect to age at death), and which yielded an age bracket table for 1931 (although the study, unfortunately, did not cover the entire national territory<sup>19</sup>). Also, although age bracket tables were not formally published after the studies of the 1980s–1990s, the computer files from those studies could in principle be reanalyzed to obtain all the necessary information. This information deserves to be collected and analyzed: indeed, the age bracket tables could make it possible to estimate the distribution of wealth for the entire population (and not just among the deceased), using the so-called rate of bequest devolution method.

In its most rudimentary form, this method consists simply of applying a uniform coefficient assumed to represent the average turnover of wealth holdings,

that is, the average number of years between two bequests. This method was frequently used in the nineteenth and early twentieth centuries to estimate the total amount of private wealth from the annual volume of bequests (called the “annual inheritance flow”), and the “rate of bequest devolution” usually adopted was around 40 (or slightly less): if the annual volume of bequests was 5 billion francs, it was inferred that the total amount of private wealth held in France was about 200 billion francs.<sup>20</sup> Likewise, in the early twentieth century a number of authors tried to estimate the number and sizes of large fortunes (and thus the number and sizes of very large capital incomes) using bequest statistics: if 500 bequests greater than 1 million francs were declared each year, it was inferred that the total number of millionaires in France was around 20,000 (and thus, assuming an average return of 4 percent, that 20,000 individuals received annual incomes greater than 40,000 francs from their wealth holdings).<sup>21</sup>

This method can provide some interesting orders of magnitude, but it is obviously highly imprecise. For example, a period of strong growth and rapidly increasing wealth will not make its effects felt on the level of large bequests until the deaths of the working-age individuals who profited from that period: the distribution of wealth described in the bequest statistics always registers some delay relative to the distribution of wealth in the entire population, and applying a fixed coefficient to all bequests declared over a given year does not correct this bias.<sup>22</sup> A more sophisticated method is to use bequest statistics by age bracket, so that bequests declared by deceased individuals of working age can be used to find out the evolution of wealth among the entire working-age population: in other words, a higher coefficient is applied to the deceased of working age than to the deceased of higher ages, since the former are by definition less well represented than the latter within the population of the deceased (compared to their share in the entire population). This method, which Atkinson and Harrison (1978), notably, have applied to British bequest statistics,<sup>23</sup> results in far more precise estimates than estimates from use of the fixed-coefficient method. However, it remains imperfect: there is no guarantee that individuals within a given age group who die in a given year are actually representative of all individuals belonging to that age group.

Finally, let us mention the tables showing the number and amounts of bequests declared by French department, which are available for all of the years for which a distribution table was compiled (in most cases, the distribution

tables were published separately for each department). These tables could make it possible to study the evolution of the geographical distribution of wealth.<sup>24</sup>

## *2. Methodology and Results of Estimates of the Levels of the Various Fractiles of Large Bequests (1902–1994 Bequests)*

The methodology used to estimate the level of the various fractiles of large bequests is almost identical to that which we used to estimate the level of the various top-income fractiles (see Appendix B, section 1), and only a few points need to be clarified. Table J-4 gives the Pareto coefficients obtained from the raw data reproduced in Table J-1. Tables J-5, J-6, and J-7 show estimates of the various fractiles of large bequests obtained by extrapolation using a Pareto law, in current francs (applying the same formulas as with the fractiles of top incomes). Tables J-8, J-9, and J-10 show the same estimates in 1998 francs. Finally, Tables J-11 and J-12 express the same estimates in terms of shares of the total annual inheritance flow. We emphasize that these shares were calculated from the total annual inheritance flow shown in Table J-1, with no attempt made to render them homogeneous. Some of the short-term changes shown in Tables J-11 and J-12 are thus totally artificial: for example, the fact that from 1956 onward bequests smaller than 1 million old francs (10,000 new francs) were exempted from the obligation to be declared (see section 3.3) explains why the year 1956 is characterized by a significant decline in the annual bequest flow (see Table J-1), and thus by a significant increase in our estimates of the top-bequest fractiles' shares in the annual bequest flow (see Tables J-11 and J-12). However, because the number of deaths giving rise to bequest declarations returned practically to its early twentieth-century level in the 1990s (around 300,000–400,000 bequest declarations per year in both cases), we may assume that these biases are less significant when it comes to the long-term changes shown in Tables J-11 and J-12. In any event, these uncertainties by definition concern only the estimates expressed in terms of shares of the total annual bequest flow (that is, the series in Tables J-11 and J-12), and not the estimates expressed in francs (that is, the series in tables Tables J-5 to J-10): the estimates of the levels for the various large-bequest fractiles depend only on the raw data for the top of the distribution and the technique of extrapolation using a Pareto law, and we carried out multiple tests to be sure that this technique was just as reliable for bequests as for incomes.<sup>25</sup>

Let us also clarify that all of our estimates were carried out using the assumption of an annual number of deaths equal to 500,000 throughout the twentieth century: fractile P90–100 includes the 50,000 largest annual bequests, fractile P95–100 includes the 25,000 largest annual bequests, and so on, and fractile P99.99–100 includes the fifty largest annual bequests. In reality, the annual number of deaths in France (all ages combined) declined steadily over the course of the twentieth century, falling from around 750,000–800,000 deaths per year at the beginning of the century to 600,000–700,000 deaths per year in the interwar era and 500,000–550,000 deaths per year since 1945 (obviously excepting the brief surges during the war).<sup>26</sup> But the number of deaths of individuals aged less than one year declined sharply, falling from nearly 150,000 per year at the beginning of the century to less than 5,000 per year in the 1990s,<sup>27</sup> which means that the number of deaths of individuals older than one year declined only very slowly between the two endpoints of the century (from 600,000–650,000 to 500,000–550,000); thus, taking into account deaths at age two, age three, etc.,<sup>28</sup> we would probably observe a very high degree of long-term stability in the annual number of deaths at adult ages, at around 500,000, justifying our assumption. Given the magnitude of the changes observed at the level of the very large bequests, it is quite clear that any biases introduced by this simplifying assumption are small enough to be ignored.

Finally, note that with the small number of bequests in play (fifty), the average bequest for fractile P99.99–100 is at times characterized by large, erratic fluctuations, particularly at the beginning of the century. For example, three bequests greater than 50 million francs were declared in 1905, for a total amount of more than 373 million francs, while no bequests greater than 50 million francs were declared in 1907 (see Table J-1). As a result, the average bequest for fractile P99.99–100 declines very sharply between 1905 and 1907 (see Table J-5). Such changes are of no interest from an economic point of view (they are simply due to the vagaries of nature), which is why we also give a “smoothed” series: the P99.99–100(\*) series shown in Table J-9 was obtained from the P99.99–100 series of the same table by replacing each data point of the 1902–1913 period with its three–four-year moving average.<sup>29</sup> This “smoothed” P99.99–100(\*) series was notably used to create Figure 6-2 (Chapter 6), as well as in calculating the P99.99–100(\*) / P90–95 ratios shown in Table J-9 and represented in Figure 6-3 (Chapter 6). By definition, this smoothing has no effect on the average value obtained for fractile P99.99–100 for the 1902–1913 period.<sup>30</sup>



TABLE J-4

*Pareto coefficients obtained from the raw data compiled by the tax administration (1902–1994 bequests)*

1902			1903			1904			1905		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
1	72.722	13124.23	1	77.206	12755.28	1	76.320	13820.21	1	77.004	14926.25
2,000	30.047	15.08	500	52.895	36.99	500	52.412	40.02	500	53.643	42.63
10,000	10.595	7.51	2,000	31.775	14.96	2,000	31.855	16.05	2,000	33.301	16.79
50,000	2.756	4.46	10,000	11.215	7.57	10,000	11.224	8.23	10,000	11.755	8.63
100,000	1.363	3.81	50,000	2.846	4.70	50,000	2.816	5.30	50,000	2.944	5.61
250,000	0.513	3.01	100,000	1.430	3.99	100,000	1.440	4.50	100,000	1.520	4.78
500,000	0.218	2.60	250,000	0.546	3.18	250,000	0.551	3.69	250,000	0.592	3.93
1,000,000	0.082	2.37	500,000	0.241	2.73	500,000	0.241	3.30	500,000	0.269	3.47
5,000,000	0.005	1.86	1,000,000	0.099	2.30	1,000,000	0.096	3.11	1,000,000	0.105	3.35
			2,000,000	0.029	2.26	2,000,000	0.034	3.08	2,000,000	0.040	3.27
			5,000,000	0.005	2.31	5,000,000	0.009	2.96	5,000,000	0.010	3.52
			10,000,000	0.002	1.94	10,000,000	0.003	3.32	10,000,000	0.003	4.18
			50,000,000	0.000	1.01	50,000,000	0.001	1.67	50,000,000	0.001	2.49
1907			1909			1910			1911		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
1	80.315	13601.09	1	75.884	15129.58	1	71.967	14784.46	1	71.823	16044.32
500	57.050	38.10	500	55.196	41.41	500	52.236	40.55	500	52.718	43.54
2,000	35.689	14.85	2,000	34.960	15.97	2,000	33.118	15.63	2,000	33.761	16.64
10,000	12.750	7.43	10,000	12.875	7.83	10,000	12.175	7.62	10,000	12.568	8.11

(continued)

TABLE J-4  
(continued)

1907			1909			1910			1911		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
50,000	3.156	4.72	50,000	3.124	5.14	50,000	3.069	4.78	50,000	3.161	5.19
100,000	1.616	3.95	100,000	1.586	4.39	100,000	1.539	4.08	100,000	1.610	4.42
250,000	0.612	3.15	250,000	0.621	3.51	250,000	0.611	3.17	250,000	0.635	3.53
500,000	0.270	2.69	500,000	0.277	3.06	500,000	0.270	2.72	500,000	0.300	2.95
1,000,000	0.107	2.31	1,000,000	0.115	2.72	1,000,000	0.113	2.28	1,000,000	0.133	2.44
2,000,000	0.035	2.10	2,000,000	0.041	2.59	2,000,000	0.036	2.25	2,000,000	0.057	1.90
5,000,000	0.008	1.70	5,000,000	0.012	2.16	5,000,000	0.008	2.01	5,000,000	0.008	3.09
10,000,000	0.001	1.52	10,000,000	0.002	2.70	10,000,000	0.002	1.91	10,000,000	0.002	3.74
50,000,000			50,000,000	0.000	1.44	50,000,000			50,000,000	0.001	1.44
1912			1913			1925			1926		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
1	71.784	15538.65	1	72.108	15342.37	1	77.189	25396.32	1	80.798	27372.19
500	51.159	43.41	500	52.770	41.76	500	67.016	58.41	500	71.700	61.62
2,000	32.402	16.77	2,000	33.741	15.98	2,000	52.736	18.37	2,000	57.200	19.15
10,000	12.214	8.06	10,000	12.704	7.65	10,000	26.137	6.85	10,000	29.564	6.93
50,000	3.054	5.17	50,000	3.170	4.87	50,000	6.578	4.17	50,000	7.483	4.26
100,000	1.506	4.54	100,000	1.624	4.11	100,000	3.057	3.73	100,000	3.460	3.86

250,000	0.587	3.69	250,000	0.615	3.34	250,000	1.047	3.23	250,000	1.251	3.26
500,000	0.261	3.28	500,000	0.269	2.96	500,000	0.445	2.88	500,000	0.540	2.95
1,000,000	0.107	2.99	1,000,000	0.110	2.62	1,000,000	0.175	2.58	1,000,000	0.227	2.62
2,000,000	0.037	2.99	2,000,000	0.034	2.63	2,000,000	0.061	2.36	2,000,000	0.084	2.44
5,000,000	0.009	2.94	5,000,000	0.009	2.26	5,000,000	0.013	2.16	5,000,000	0.023	2.05
10,000,000	0.003	2.91	10,000,000	0.004	1.87	10,000,000	0.003	2.38	10,000,000	0.006	2.29
50,000,000	0.000	4.85	50,000,000			50,000,000	0.000	1.46	50,000,000	0.001	1.45

1927			1929			1930			1931		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
1	76.291	31832.35	1	77.724	40899.47	1	71.448	44728.85	1	74.437	42908.85
500	68.281	71.07	500	70.759	89.79	500	65.147	98.06	500	68.626	93.04
2,000	55.225	21.82	2,000	59.032	26.78	2,000	54.887	28.98	2,000	58.220	27.31
10,000	29.288	7.76	10,000	33.624	8.98	10,000	32.195	9.48	10,000	34.777	8.77
50,000	7.846	4.64	50,000	9.599	5.17	50,000	9.642	5.28	50,000	10.474	4.77
100,000	3.688	4.19	100,000	4.524	4.73	100,000	4.660	4.75	100,000	5.052	4.24
250,000	1.340	3.62	250,000	1.650	4.15	250,000	1.706	4.18	250,000	1.763	3.76
500,000	0.600	3.23	500,000	0.781	3.60	500,000	0.772	3.80	500,000	0.768	3.43
1,000,000	0.254	2.91	1,000,000	0.337	3.27	1,000,000	0.352	3.33	1,000,000	0.345	2.96
2,000,000	0.098	2.68	2,000,000	0.143	2.89	2,000,000	0.152	2.93	2,000,000	0.136	2.69
5,000,000	0.028	2.32	5,000,000	0.039	2.65	5,000,000	0.047	2.47	5,000,000	0.035	2.35
10,000,000	0.009	2.21	10,000,000	0.016	2.27	10,000,000	0.014	2.57	10,000,000	0.011	2.28
50,000,000	0.001	1.41	50,000,000	0.001	2.36	50,000,000	0.001	1.84	50,000,000	0.001	1.63

(continued)

TABLE J-4  
(continued)

1932			1933			1935			1936		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
1	74.200	40706.31	1	70.829	40914.81	1	74.030	40357.79	1	72.528	40866.26
500	68.283	88.42	500	65.336	88.66	500	68.754	86.87	500	67.597	87.65
2,000	57.783	26.01	2,000	55.991	25.76	2,000	59.533	24.98	2,000	58.488	25.22
10,000	34.200	8.40	10,000	33.735	8.18	10,000	35.217	8.06	10,000	34.525	8.14
50,000	9.880	4.70	50,000	9.780	4.55	50,000	9.678	4.71	50,000	9.462	4.75
100,000	4.696	4.19	100,000	4.618	4.08	100,000	4.572	4.24	100,000	4.413	4.32
250,000	1.695	3.59	250,000	1.651	3.49	250,000	1.614	3.72	250,000	1.544	3.81
500,000	0.739	3.21	500,000	0.709	3.16	500,000	0.687	3.44	500,000	0.642	3.61
1,000,000	0.315	2.85	1,000,000	0.303	2.78	1,000,000	0.286	3.16	1,000,000	0.277	3.26
2,000,000	0.122	2.60	2,000,000	0.113	2.57	2,000,000	0.108	3.04	2,000,000	0.095	3.41
5,000,000	0.025	2.72	5,000,000	0.032	2.12	5,000,000	0.024	3.42	5,000,000	0.026	3.37
10,000,000	0.010	2.39	10,000,000	0.014	1.61	10,000,000	0.008	3.84	10,000,000	0.007	4.84
50,000,000	0.001	1.80	50,000,000	0.000	2.54	50,000,000	0.000	9.12	50,000,000	0.001	7.48
1937			1938			1939			1940		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
1	72.266	41198.54	1	75.845	45467.11	1	66.139	50487.91	1	59.327	45240.45
500	67.981	87.55	5,000	53.284	12.76	5,000	47.784	13.81	5,000	45.259	11.71
2,000	59.500	24.91	10,000	39.630	8.33	10,000	35.990	8.93	10,000	35.124	7.34

10,000	35.734	7.92	50,000	12.092	4.42	50,000	11.910	4.45	50,000	12.684	3.25
50,000	10.062	4.48	100,000	5.591	4.00	100,000	5.612	3.96	100,000	5.523	2.96
100,000	4.708	4.02	250,000	2.297	3.07	250,000	1.885	3.53	250,000	1.767	2.49
250,000	1.672	3.42	500,000	0.787	3.28	500,000	0.798	3.24	500,000	0.644	2.38
500,000	0.730	3.02	1,000,000	0.318	3.04	1,000,000	0.319	3.03	1,000,000	0.212	2.34
1,000,000	0.310	2.65	2,000,000	0.113	3.02	2,000,000	0.112	3.06	2,000,000	0.068	2.25
2,000,000	0.106	2.60	5,000,000	0.025	3.30	5,000,000	0.027	3.26	5,000,000	0.014	2.37
5,000,000	0.026	2.53	10,000,000	0.008	3.91	10,000,000	0.008	3.74	10,000,000	0.004	2.78
10,000,000	0.009	2.45	50,000,000	0.001	6.25	50,000,000	0.000	9.12	50,000,000	0.000	1.86
50,000,000	0.001	2.30	150,000,000	0.000	4.95	150,000,000	0.000	5.68	150,000,000		

1941

1942

1943

1944

$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
1	69.243	59879.36	1	70.916	80394.30	1	66.455	109252.27	1	62.650	121149.73
5,000	53.698	15.31	5,000	56.090	20.21	5,000	56.478	25.63	5,000	54.549	27.76
10,000	43.046	9.36	10,000	46.567	12.01	10,000	48.671	14.76	10,000	47.873	15.72
50,000	16.668	4.05	50,000	20.543	4.79	50,000	23.464	5.58	50,000	24.245	5.72
100,000	8.238	3.40	100,000	10.892	3.90	100,000	13.585	4.30	100,000	14.355	4.34
250,000	2.767	2.84	250,000	4.039	3.15	250,000	5.406	3.39	250,000	5.724	3.42
500,000	1.064	2.61	500,000	1.663	2.85	500,000	2.382	2.97	500,000	2.476	3.04
1,000,000	0.371	2.45	1,000,000	0.659	2.54	1,000,000	0.977	2.62	1,000,000	1.010	2.73
2,000,000	0.131	2.20	2,000,000	0.240	2.29	2,000,000	0.380	2.30	2,000,000	0.377	2.51
5,000,000	0.029	1.90	5,000,000	0.052	2.05	5,000,000	0.090	1.97	5,000,000	0.097	2.16
10,000,000	0.008	1.69	10,000,000	0.013	2.10	10,000,000	0.025	1.77	10,000,000	0.031	1.95
50,000,000			50,000,000	0.001	2.50	20,000,000	0.006	1.57	20,000,000	0.009	1.83

(continued)



1949			1950			1951			1952		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
I	57.494	376395.89	I	55.180	462689.94	I	56.618	583397.23	I	57.154	793930.86
250,000	17.473	4.23	250,000	20.251	4.50	250,000	22.120	5.44	250,000	27.131	6.31
500,000	9.078	3.41	500,000	10.499	3.71	500,000	12.673	4.21	500,000	17.303	4.53
1,000,000	3.928	3.01	1,000,000	4.940	3.14	1,000,000	6.185	3.55	1,000,000	9.493	3.55
2,000,000	1.483	2.84	2,000,000	2.040	2.80	2,000,000	2.619	3.22	2,000,000	4.503	2.96
5,000,000	0.377	2.48	5,000,000	0.547	2.52	5,000,000	0.743	2.98	5,000,000	1.374	2.48
20,000,000	0.037	2.01	20,000,000	0.063	2.13	20,000,000	0.089	2.93	10,000,000	0.467	2.30
50,000,000	0.006	1.87	50,000,000	0.011	2.06	50,000,000	0.017	3.63	20,000,000	0.146	2.17
100,000,000	0.001	1.73	100,000,000	0.003	2.06	100,000,000	0.003	7.25	50,000,000	0.031	1.88
									100,000,000	0.007	1.74
1953			1954			1955			1956		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
I	51.845	921421.38	I	57.186	1058099.13	I	49.792	1171324.71	1,000,000	12.947	4.01
250,000	27.380	6.64	250,000	32.027	7.26	250,000	29.319	7.69	2,000,000	6.667	3.23
500,000	18.081	4.64	500,000	21.879	4.97	500,000	20.516	5.18	5,000,000	2.275	2.60
1,000,000	10.155	3.56	1,000,000	12.727	3.75	1,000,000	12.237	3.86	10,000,000	0.832	2.36
2,000,000	4.891	2.93	2,000,000	6.387	3.04	2,000,000	6.207	3.12	20,000,000	0.267	2.24
5,000,000	1.486	2.44	5,000,000	2.027	2.50	5,000,000	2.058	2.53	50,000,000	0.059	1.99
20,000,000	0.156	2.12	10,000,000	0.707	2.30	10,000,000	0.729	2.32	100,000,000	0.016	1.83
50,000,000	0.027	2.11	20,000,000	0.221	2.18	20,000,000	0.238	2.14			
100,000,000	0.008	1.92	50,000,000	0.045	2.05	50,000,000	0.051	1.87			
			100,000,000	0.013	1.87	100,000,000	0.013	1.75			

(continued)

TABLE J-4  
(continued)

1957			1958			1959			1960		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
1,000,000	13.745	4.27	1,000,000	16.808	4.32	1,000,000	17.712	4.76	10,000	17.931	4.94
2,000,000	6.817	3.57	2,000,000	8.548	3.54	2,000,000	9.549	3.79	20,000	10.383	3.73
5,000,000	2.402	2.89	5,000,000	2.997	2.86	5,000,000	3.503	3.01	50,000	3.916	2.88
10,000,000	0.943	2.59	10,000,000	1.158	2.57	10,000,000	1.376	2.73	100,000	1.532	2.58
20,000,000	0.332	2.39	20,000,000	0.413	2.33	20,000,000	0.502	2.50	200,000	0.539	2.37
50,000,000	0.073	2.16	50,000,000	0.097	1.95	50,000,000	0.111	2.39	500,000	0.129	2.05
100,000,000	0.018	2.22	100,000,000	0.024	1.85	100,000,000	0.037	2.18	1,000,000	0.040	1.78
1962			1964			1984			1994		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
10,000	20.930	6.01	10,000	24.783	7.00	1	53.479	342292.09	1	61.443	572423.39
20,000	12.816	4.23	20,000	17.009	4.75	50,000	47.460	7.65	50,000	57.599	12.19
50,000	5.358	3.14	50,000	7.854	3.37	100,000	39.817	4.42	100,000	52.206	6.64
100,000	2.255	2.75	100,000	3.551	2.87	200,000	26.660	2.94	200,000	42.564	3.91
200,000	0.855	2.47	200,000	1.427	2.52	1,000,000	2.890	2.12	500,000	19.961	2.58
500,000	0.189	2.39	500,000	0.355	2.22	3,000,000	0.348	1.94	1,000,000	7.774	2.22
1,000,000	0.067	2.12	1,000,000	0.106	2.10	5,000,000	0.119	1.96	3,000,000	1.125	1.94
						10,000,000	0.028	2.01	5,000,000	0.402	1.92
									10,000,000	0.107	1.77

Sources: Results of calculations carried out directly from the raw data reproduced in Table J-1 (assuming an annual number of deaths equal to 500,000).

Explanation: In 1994, 0.107 percent of deaths gave rise to a bequest declaration greater than 10 million francs, and their average amount was 1.77 times the 10 million-franc threshold.



### 3. *General Data about Legislation and the Effective Burden of Bequest Taxes on Very Large Bequests (1902–1994 Bequests)*

In contrast to what we did for the income tax (see Chapter 4), we have not attempted in this book to gather complete data on the evolution of bequest tax legislation in twentieth-century France. As a result, and in contrast to what we did for the income tax (see Chapter 5), we also have not attempted to systematically estimate the average tax rates on the various fractiles of large bequests over the course of the century. The legislative information and average tax-rate estimates given here, and referred to in the text of the book,<sup>31</sup> are therefore extremely incomplete (for the former) and approximate (for the latter).

#### 3.1. Bequest Shares, Bequests, and Gifts

A key characteristic of the progressive inheritance tax instituted by the law of February 25, 1901, is that the tax was calculated according to the “bequest share,” that is, as a function of the amount of inheritance going to each heir: the tax was calculated separately for each heir, and never as a function of the total bequest amount (all heirs combined). This general rule was never changed, and throughout the twentieth century, the rate schedules of the progressive inheritance tax have always been expressed in terms of rates that apply to “bequest shares,” and never in terms of rates that apply to the total bequest amount (all heirs combined) (except for the episode of *taxe successorale*, which was in effect from 1917 to 1934, and which will be discussed below). Moreover, there have always been several rate schedules for the progressive inheritance tax, which apply to bequest shares according to the degree of family relationship between the deceased and the heir in question: bequests in the direct line (children, grandchildren, etc.), bequests between spouses, bequests in the collateral line (brothers and sisters, cousins, etc.), bequests between nonrelations, and so forth. These complications mean that in order to rigorously estimate the average tax rates actually experienced by the various fractiles of wealth, it would be necessary to estimate not the levels of the various fractiles of bequests (all heirs combined), as we have done in this book, but the levels of the various fractiles of bequest shares, and this would have to be done separately for each degree of family relationship. In this appendix, we will mainly be examining the

## APPENDIX J

TABLE J-5

*Estimate of the distribution of bequests (P90-100 to P99.99-100 levels)  
(in current francs)*

Year	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1902	78,919	140,463	478,470	766,350	2,103,427	6,990,545
1903	83,643	150,746	522,090	843,711	2,295,265	7,790,309
1904	91,060	166,252	597,756	990,737	3,029,570	14,198,512
1905	99,513	181,385	665,610	1,114,679	3,479,347	17,327,293
1907	91,688	164,152	565,017	905,263	2,393,949	7,771,287
1909	97,604	175,937	627,455	1,024,817	2,971,994	11,720,716
1910	90,462	162,610	565,543	907,926	2,444,375	8,864,193
1911	99,101	179,330	642,357	1,058,778	3,106,312	13,745,791
1912	96,022	173,581	624,256	1,036,076	3,128,655	14,125,807
1913	94,240	169,609	593,215	964,699	2,774,912	10,929,655
1925	151,665	260,013	832,693	1,334,895	3,530,821	12,320,432
1926	170,664	293,492	951,851	1,550,348	4,400,745	15,750,813
1927	191,827	332,432	1,118,619	1,829,468	5,308,159	20,777,949
1929	250,303	437,440	1,506,589	2,485,620	7,309,051	31,097,574
1930	256,419	449,226	1,570,561	2,602,405	7,713,668	31,267,517
1931	247,630	427,134	1,421,131	2,317,869	6,513,540	23,782,046
1932	232,844	399,737	1,303,013	2,108,703	5,856,622	23,730,052
1933	223,739	384,091	1,247,834	2,014,436	5,554,138	18,043,168
1935	229,469	396,024	1,318,023	2,157,909	6,412,901	31,964,846
1936	227,498	392,445	1,309,790	2,164,504	6,579,440	34,806,981
1937	225,168	384,581	1,224,591	1,965,891	5,387,231	22,447,132
1938	258,370	434,433	1,387,707	2,244,185	6,562,411	31,888,304
1939	257,371	432,167	1,387,312	2,241,316	6,578,292	32,298,694
1940	199,751	316,077	923,581	1,381,117	3,626,016	14,280,709
1941	296,575	484,061	1,353,499	2,054,409	5,088,221	15,643,106
1942	415,532	681,155	1,972,001	3,001,809	7,489,015	23,856,754
1943	544,414	894,968	2,585,950	3,934,326	9,360,592	26,659,349
1944	575,625	939,850	2,744,670	4,232,764	10,655,090	34,148,367
1945	675,384	1,101,488	3,116,192	4,739,989	11,768,480	39,437,728
1946	744,581	1,188,752	3,249,195	4,832,740	11,635,513	33,900,377
1947	1,008,534	1,605,861	4,366,765	6,692,971	16,095,696	48,287,876
1948	1,206,458	1,928,777	5,198,441	7,806,862	18,935,430	58,147,204
1949	1,590,317	2,564,175	7,338,218	10,472,438	27,348,500	73,630,904

## APPENDIX J

Year	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1950	1,923,898	3,117,046	8,753,578	13,296,620	33,308,720	108,134,244
1951	2,518,964	4,136,909	12,225,693	19,373,875	54,264,107	269,229,710
1952	3,416,002	5,516,038	14,976,062	22,113,284	53,200,538	147,912,223
1953	3,600,223	5,773,278	15,409,755	22,902,340	53,546,418	174,714,550
1954	4,477,778	7,153,223	18,890,111	27,939,680	68,130,627	211,497,236
1955	4,479,240	7,223,689	19,377,783	28,747,415	68,175,623	197,250,200
1956	4,863,975	7,875,665	21,230,692	31,652,197	76,730,591	228,740,001
1957	5,419,278	8,926,052	25,015,599	37,684,868	91,274,797	303,466,195
1958	6,328,021	10,241,583	28,133,153	41,754,527	96,260,303	275,909,696
1959	7,318,931	11,872,915	33,385,638	49,996,339	126,982,834	440,164,962
1960	76,580	122,830	334,587	494,374	1,166,516	3,264,122
1962	102,140	164,374	450,508	680,766	1,732,308	5,771,474
1964	142,173	229,691	623,377	919,558	2,173,122	7,272,680
1984	1,100,466	1,587,359	3,491,648	4,887,305	10,668,734	33,573,519
1994	1,929,974	2,823,177	6,166,804	8,641,785	18,273,970	54,792,193

*Sources:* Results of extrapolations using a Pareto law carried out from the raw bequest statistics (see Tables J-1 and J-4).  
*Explanation:* In 1994, the average bequest in fractile P99.99-100 of the hierarchy of deaths was 54.792 million francs (in current francs).

evolution of tax rates for the schedule that applies to bequests in the direct line, which in practice is the schedule most frequently applied.

A second important characteristic of the law of February 25, 1901, is that bequests and gifts were treated in completely different ways: bequests were taxed according to the progressive tax schedules, gifts were taxed according to proportional rates (which varied depending on the degree of family relationship, but also as a function of the nature of the gift: *donations-partages*, gifts by marriage contract, etc.), and when a bequest was initiated the tax administration did not attempt to reconstitute the list of gifts made by the deceased prior to their death. The law of March 14, 1942, profoundly changed this state of affairs: since that date, the general principle has been that gifts are subjected to the same progressive rate schedules as bequests, and gifts made prior to death are “recalled” and added to the wealth transmitted by bequest when calculating

## APPENDIX J

TABLE J-6

*Estimate of the distribution of bequests (P90-95 to P99.99-100 levels)  
(in current francs)*

Year	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1902	17,374	55,961	190,591	432,081	1,560,414	6,990,545
1903	16,541	57,910	200,470	480,823	1,684,705	7,790,309
1904	15,868	58,376	204,775	481,028	1,788,576	14,198,512
1905	17,640	60,328	216,542	523,512	1,940,686	17,327,293
1907	19,223	63,936	224,571	533,341	1,796,467	7,771,287
1909	19,271	63,058	230,094	538,022	1,999,914	11,720,716
1910	18,315	61,876	223,160	523,814	1,731,061	8,864,193
1911	18,872	63,573	225,937	546,894	1,924,147	13,745,791
1912	18,462	60,912	212,436	512,931	1,906,749	14,125,807
1913	18,871	63,707	221,731	512,146	1,868,829	10,929,655
1925	43,318	116,843	330,491	785,913	2,554,198	12,320,432
1926	47,836	128,902	353,355	837,749	3,139,626	15,750,813
1927	51,222	135,885	407,769	959,795	3,589,294	20,777,949
1929	63,166	170,152	527,559	1,279,763	4,665,881	31,097,574
1930	63,611	168,893	538,716	1,324,589	5,096,573	31,267,517
1931	68,125	178,635	524,392	1,268,952	4,594,817	23,782,046
1932	65,950	173,919	497,322	1,171,724	3,870,686	23,730,052
1933	63,386	168,155	481,231	1,129,511	4,166,468	18,043,168
1935	62,914	165,524	478,138	1,094,161	3,573,796	31,964,846
1936	62,550	163,109	455,076	1,060,771	3,443,047	34,806,981
1937	65,755	174,578	438,291	1,110,557	3,491,686	22,447,132
1938	82,306	196,115	531,230	1,164,628	3,748,423	31,888,304
1939	82,574	193,381	533,308	1,157,070	3,720,476	32,298,694
1940	83,425	164,202	466,044	819,983	2,442,161	14,280,709
1941	109,088	266,702	652,589	1,295,956	3,915,456	15,643,106
1942	149,909	358,444	942,192	1,880,008	5,670,377	23,856,754
1943	193,860	472,223	1,237,573	2,577,760	7,438,507	26,659,349
1944	211,400	488,645	1,256,577	2,627,182	8,044,726	34,148,367
1945	249,281	597,812	1,492,394	2,982,866	8,694,119	39,437,728
1946	300,410	673,642	1,665,650	3,132,047	9,161,639	33,900,377
1947	411,207	915,635	2,040,558	4,342,290	12,518,787	48,287,876
1948	484,140	1,111,361	2,590,020	5,024,720	14,578,566	58,147,204
1949	616,459	1,370,664	4,203,997	6,253,422	22,206,011	73,630,904

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Year	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1950	730,751	1,707,913	4,210,536	8,293,595	24,994,773	108,134,244
1951	901,020	2,114,713	5,077,510	10,651,317	30,379,040	269,229,710
1952	1,315,966	3,151,032	7,838,841	14,341,470	42,677,017	147,912,223
1953	1,427,169	3,364,158	7,917,169	15,241,320	40,083,292	174,714,550
1954	1,802,334	4,219,001	9,840,543	17,891,943	52,201,004	211,497,236
1955	1,734,790	4,185,166	10,008,150	18,890,363	53,834,004	197,250,200
1956	1,852,286	4,536,908	10,809,188	20,382,598	59,840,657	228,740,001
1957	1,912,504	4,903,666	12,346,329	24,287,386	67,697,975	303,466,195
1958	2,414,459	5,768,690	14,511,778	28,128,083	76,299,260	275,909,696
1959	2,764,947	6,494,735	16,774,938	30,749,715	92,184,819	440,164,962
1960	30,330	69,891	174,801	326,338	933,448	3,264,122
1962	39,907	92,840	220,251	417,880	1,283,512	5,771,474
1964	54,655	131,269	327,195	606,167	1,606,505	7,272,680
1984	613,572	1,111,287	2,095,991	3,441,947	8,123,758	33,573,519
1994	1,036,771	1,987,270	3,691,823	6,233,739	14,216,389	54,792,193

Sources: Series calculated from the series in Table J-5.

Explanation: In 1994, the average bequest in fractile P90-95 of the hierarchy of deaths was 1.036 million francs (in current francs).

the tax owed (the tax owed is calculated as if the gifts had been transmitted at the same time as the bequest; then, the taxes already paid at the time the gifts were made are subtracted from that resulting tax). In practice, however, gifts did keep certain tax advantages. For example, the gift giver can himself decide to pay the tax owed, and this extra gift is not “recalled” at the time of a bequest. Moreover, the value of a gift, expressed in the current francs of the date of the gift, is, generally speaking, not updated at the time of a bequest, which can be very advantageous in cases of high inflation. Also, various categories of gifts (inter vivos gifts, gifts by marriage contract, etc.) enjoy preferential tax regimes. These preferential regimes have changed a great deal, especially during the 1980s-1990s, and we will not attempt to provide a complete description of the legislative changes here. For example, the law of March 14, 1942, instituted a 25 percent tax reduction for all *donations-partages* (that is, gifts with equal sharing among the

## APPENDIX J

TABLE J-7

*Estimate of the distribution of bequests (P90 to P99.99 thresholds)  
(in current francs)*

Year	P90	P95	P99	P99.5	P99.9	P99.99
1902	10,514	31,496	125,654	254,324	889,251	3,761,465
1903	11,047	32,087	130,761	265,412	996,601	3,375,907
1904	11,068	31,379	132,821	268,208	974,057	4,799,335
1905	11,537	32,353	139,252	283,689	1,037,598	4,928,237
1907	12,340	34,797	143,091	287,070	1,037,967	4,559,511
1909	12,466	34,234	142,771	291,975	1,093,556	5,415,581
1910	11,865	33,990	138,493	286,755	1,070,064	4,413,590
1911	12,202	34,336	143,379	290,390	1,084,063	4,443,519
1912	11,914	33,596	137,616	280,937	1,047,338	4,799,863
1913	12,313	34,808	144,316	289,133	1,058,344	4,830,297
1925	36,367	69,772	257,984	463,653	1,499,226	5,708,308
1926	40,048	76,128	292,047	525,829	1,804,506	7,666,933
1927	41,337	79,315	308,953	566,911	1,979,875	8,974,205
1929	48,376	92,416	418,070	760,112	2,529,344	11,715,223
1930	48,544	94,589	413,363	782,340	2,630,867	12,173,599
1931	51,865	100,788	414,835	782,710	2,421,679	10,441,178
1932	49,526	95,331	405,990	740,462	2,255,554	9,922,199
1933	49,139	94,184	395,303	725,114	2,157,543	11,230,978
1935	48,727	93,393	383,105	682,942	2,106,090	8,321,179
1936	47,865	90,855	362,755	664,046	1,931,697	7,191,656
1937	50,241	95,573	404,876	742,723	2,075,346	9,145,004
1938	64,670	108,739	423,410	737,702	2,170,467	8,152,374
1939	64,924	109,018	427,908	740,060	2,153,240	8,647,465
1940	67,501	106,811	387,418	579,343	1,614,846	6,023,502
1941	87,213	170,373	519,542	838,658	2,315,159	8,245,490
1942	106,558	216,083	776,629	1,182,196	3,271,472	11,378,291
1943	126,514	264,150	985,830	1,714,065	4,752,462	17,019,452
1944	168,485	275,093	1,006,070	1,687,097	4,929,721	18,679,181
1945	199,548	370,430	1,172,067	1,913,833	5,378,881	20,194,190
1946	228,341	419,859	1,388,189	2,064,744	5,513,082	20,612,517
1947	288,292	539,033	1,780,254	3,043,845	7,320,038	25,758,430
1948	389,797	623,172	2,101,002	3,509,009	8,511,051	30,126,677
1949	466,985	851,175	2,582,187	4,226,376	11,037,072	39,442,056

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Year	P90	P95	P99	P99.5	P99.9	P99.99
1950	518,097	991,858	3,474,165	5,277,231	15,656,235	52,512,355
1951	598,932	1,165,080	4,105,432	6,505,818	18,493,721	74,078,599
1952	963,302	1,866,027	6,044,239	9,624,039	24,509,978	84,834,573
1953	1,011,094	1,971,072	6,316,948	10,816,641	25,289,659	90,921,163
1954	1,193,462	2,356,857	8,223,163	12,162,582	33,204,217	112,996,937
1955	1,161,272	2,316,564	8,351,267	12,389,310	36,502,126	112,646,129
1956	1,213,880	2,439,319	8,996,899	14,116,357	38,508,401	125,119,606
1957	1,517,823	2,499,994	9,643,262	15,753,861	42,292,158	136,486,891
1958	1,787,016	3,584,686	10,935,842	17,922,784	49,312,225	149,396,099
1959	1,933,162	3,942,138	12,238,388	20,038,325	53,235,265	202,238,252
1960	20,558	42,626	129,847	208,909	569,186	1,834,911
1962	24,170	52,409	182,183	275,298	724,900	2,722,698
1964	42,187	80,018	247,747	414,370	1,033,080	3,457,357
1984	518,854	748,417	1,797,741	2,516,321	5,440,444	16,671,335
1994	870,924	1,273,992	3,176,596	4,501,661	10,315,782	30,930,571

*Sources:* Results of extrapolations using a Pareto law, carried out from the raw bequest statistics (see Tables J-1 and J-4).

*Explanation:* In 1994, the P99.99 threshold of the hierarchy of deaths was 30,931 million francs (in current francs).

children); this advantage was in effect without any major interruption for nearly forty years, before being eliminated by the law of August 3, 1981, and then ultimately reintroduced, with higher rates, provided that the gift giver was sufficiently young: according to the terms of the law of April 12, 1996, *donations-partages* enjoy a tax reduction of 35 percent when the giver is less than sixty-five years old (and 25 percent if he is between sixty-five and seventy-five), and all other gifts enjoy a 25 percent tax reduction when the giver is younger than sixty-five (and 15 percent if he is between sixty-five and seventy-five). Let us also mention the law of December 30, 1991, which determined that gifts made more than ten years before the death of the gift giver would no longer be “recalled” at the time of a bequest: these gifts are always subject to the same progressive rate schedules as all bequests and gifts (according to the relationship between the parties), but, because of progressivity, the fact that they are no longer being “recalled” represents a notable tax advantage, especially for large wealth holdings.

TABLE J-8

*Estimate of the distribution of bequests (P90-100 to P99.99-100 levels) (in 1998 francs)*

	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1902	1,596,360	2,841,271	9,678,458	15,501,662	42,547,942	141,404,143
1903	1,700,436	3,064,594	10,613,869	17,152,278	46,661,735	158,373,558
1904	1,877,495	3,427,826	12,324,661	20,427,220	62,464,325	292,747,982
1905	2,053,826	3,743,574	13,737,437	23,005,704	71,809,735	357,615,487
1907	1,842,253	3,298,264	11,352,710	18,193,184	48,100,881	156,146,110
1909	1,920,879	3,462,496	12,348,515	20,168,711	58,489,783	230,667,369
1910	1,726,794	3,103,983	10,795,408	17,331,006	46,659,610	169,204,755
1911	1,721,288	3,114,787	11,157,128	18,389,945	53,953,634	238,751,120
1912	1,686,352	3,048,464	10,963,321	18,195,789	54,946,124	248,080,515
1913	1,600,638	2,880,758	10,075,600	16,385,162	47,131,147	185,637,325
1925	635,783	1,089,976	3,490,660	5,595,897	14,801,248	51,647,411
1926	549,905	945,675	3,067,005	4,995,449	14,179,846	50,751,434
1927	592,045	1,026,000	3,452,446	5,646,373	16,382,825	64,127,973
1929	728,880	1,273,820	4,387,173	7,238,099	21,283,877	90,555,804
1930	740,762	1,297,760	4,537,159	7,518,031	22,283,848	90,328,054
1931	744,404	1,284,015	4,272,085	6,967,786	19,580,462	71,491,611
1932	768,337	1,319,053	4,299,679	6,958,297	19,325,677	78,304,402
1933	762,699	1,309,320	4,253,719	6,866,979	18,933,408	61,507,054
1935	890,433	1,536,733	5,114,467	8,373,565	24,884,668	124,036,614
1936	822,724	1,419,242	4,736,738	7,827,734	23,793,949	125,876,285
1937	647,296	1,105,565	3,520,368	5,651,405	15,486,829	64,529,423
1938	653,823	1,099,365	3,511,692	5,679,069	16,606,650	80,695,628
1939	610,971	1,025,919	3,293,332	5,320,647	15,616,184	76,673,687
1940	399,821	632,660	1,848,636	2,764,441	7,257,823	28,584,228
1941	506,072	825,998	2,309,599	3,505,626	8,682,498	26,693,264



1942	590,392	967,791	2,801,836	4,264,997	10,640,459	33,895,889
1943	622,792	1,023,815	2,958,245	4,500,745	10,708,222	30,497,457
1944	538,428	879,116	2,567,307	3,959,238	9,966,548	31,941,666
1945	426,276	695,215	1,966,815	2,991,691	7,427,793	24,891,514
1946	307,962	491,673	1,343,880	1,998,841	4,812,497	14,021,337
1947	279,206	444,572	1,208,910	1,852,905	4,455,988	13,368,183
1948	210,726	336,889	907,984	1,363,583	3,307,350	10,156,261
1949	245,382	395,645	1,132,268	1,615,870	4,219,802	11,361,057
1950	269,866	437,229	1,227,868	1,865,122	4,672,226	15,168,029
1951	303,814	498,956	1,474,551	2,336,699	6,544,837	32,472,011
1952	368,192	594,543	1,614,187	2,383,468	5,734,191	15,942,638
1953	394,759	633,031	1,689,656	2,511,207	5,871,283	19,157,184
1954	489,025	781,215	2,063,020	3,051,338	7,440,657	23,097,957
1955	484,822	781,874	2,097,403	3,111,548	7,379,158	21,349,867
1956	505,244	818,083	2,205,333	3,287,864	7,970,371	23,760,311
1957	546,530	900,186	2,522,805	3,800,492	9,204,997	30,604,345
1958	554,454	897,355	2,464,994	3,658,483	8,434,215	24,174,885
1959	604,407	980,482	2,757,032	4,128,766	10,486,416	36,349,424
1960	609,845	978,158	2,664,482	3,936,939	9,289,535	25,993,798
1962	752,061	1,210,288	3,317,104	5,012,496	12,755,028	42,495,513
1964	966,032	1,560,694	4,235,700	6,248,184	14,765,856	49,416,157
1984	1,573,232	2,269,298	4,991,681	6,986,920	15,252,088	47,996,909
1994	2,040,246	2,984,484	6,519,154	9,135,547	19,318,082	57,922,833
1902–1913	1,772,632	3,198,602	11,304,711	18,475,066	53,276,492	217,862,837
1994	2,040,246	2,984,484	6,519,154	9,135,547	19,318,082	57,922,833
1994 / 1902–1913	1.15	0.93	0.58	0.49	0.36	0.27

*Sources:* Series obtained from the series in Table G-5 and from the conversion rates for converting into 1998 francs given in Appendix F, column (7) of Table F-1.

*Explanation:* In 1994, the average bequest of fractile P99.99–100 of the hierarchy of deaths was 57.923 million francs (in 1998 francs).

TABLE J-9  
*Estimate of the distribution of bequests (P90-95 to P99.99-100 levels) (in 1998 francs)*

	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100	P99.99-100(*)	P99.99-100(*) / P90-95
1902	351,449	1,131,975	3,855,255	8,740,092	31,563,920	141,404,143	197,508,561	562.0
1903	336,277	1,177,275	4,075,461	9,774,913	34,249,310	158,373,558	237,535,293	706.4
1904	327,165	1,203,617	4,222,102	9,917,944	36,877,252	292,747,982	221,257,456	676.3
1905	364,078	1,245,108	4,469,170	10,804,697	40,053,540	357,615,487	228,408,430	627.4
1907	386,243	1,284,653	4,512,235	10,716,260	36,095,855	156,146,110	193,406,739	500.7
1909	379,262	1,240,992	4,528,319	10,588,443	39,358,940	230,667,369	230,667,369	608.2
1910	349,605	1,181,127	4,259,810	9,998,855	33,043,483	169,204,755	203,977,938	583.5
1911	327,789	1,104,202	3,924,311	9,499,023	33,420,579	238,751,120	238,751,120	728.4
1912	324,240	1,069,749	3,730,854	9,008,205	33,486,748	248,080,515	224,156,320	691.3
1913	320,518	1,082,047	3,766,037	8,698,666	31,741,571	185,637,325	216,858,920	676.6
1925	181,589	489,805	1,385,422	3,294,559	10,707,230	51,647,411	51,647,411	284.4
1926	154,135	415,342	1,138,561	2,699,350	10,116,337	50,751,434	50,751,434	329.3
1927	158,090	419,389	1,258,518	2,962,261	11,077,808	64,127,973	64,127,973	405.6
1929	183,939	495,482	1,536,246	3,726,655	13,586,997	90,555,804	90,555,804	492.3
1930	183,764	487,911	1,556,286	3,826,577	14,723,380	90,328,054	90,328,054	491.5
1931	204,792	536,998	1,576,384	3,814,617	13,812,557	71,491,611	71,491,611	349.1
1932	217,621	573,897	1,641,062	3,866,452	12,772,485	78,304,402	78,304,402	359.8
1933	216,077	573,220	1,640,460	3,850,371	14,203,003	61,507,054	61,507,054	284.7
1935	244,133	642,299	1,855,369	4,245,789	13,867,785	124,036,614	87,949,357	360.3
1936	226,207	589,868	1,645,741	3,836,180	12,451,467	125,876,285	90,367,112	399.5
1937	189,027	501,865	1,389,330	3,192,549	10,037,652	64,529,423	64,529,423	341.4
1938	208,281	496,283	1,344,315	2,947,174	9,485,653	80,695,628	72,612,526	348.6
1939	196,023	459,065	1,266,017	2,746,763	8,832,017	76,673,687	52,628,957	268.5
1940	166,983	328,665	932,832	1,641,095	4,888,223	28,584,228	28,584,228	171.2
1941	186,147	455,097	1,113,573	2,211,408	6,681,302	26,693,264	26,693,264	143.4

1942	212,992	509,280	1,338,675	2,671,132	8,056,523	33,895,889	33,895,889	159.1
1943	221,769	540,208	1,415,745	2,948,876	8,509,418	30,497,457	30,497,457	137.5
1944	197,739	457,068	1,175,375	2,457,411	7,524,868	31,941,666	31,941,666	161.5
1945	157,336	377,315	941,939	1,882,666	5,487,380	24,891,514	24,891,514	158.2
1946	124,251	278,621	688,920	1,295,428	3,789,292	14,021,337	14,021,337	112.8
1947	113,840	253,488	564,915	1,202,135	3,465,744	13,368,183	13,368,183	117.4
1948	84,562	194,115	452,385	877,641	2,546,360	10,156,261	10,156,261	120.1
1949	95,118	211,490	648,666	964,887	3,426,330	11,361,057	11,361,057	119.4
1950	102,503	239,570	590,613	1,163,346	3,506,026	15,168,029	15,168,029	148.0
1951	108,673	255,057	612,403	1,284,664	3,664,040	32,472,011	17,019,999	156.6
1952	141,841	339,632	844,905	1,545,787	4,599,919	15,942,638	15,942,638	112.4
1953	156,487	368,875	868,106	1,671,188	4,395,072	19,157,184	19,157,184	122.4
1954	196,836	460,764	1,074,702	1,954,008	5,700,957	23,097,957	23,097,957	117.3
1955	187,769	452,992	1,083,257	2,044,646	5,826,857	21,349,867	21,349,867	113.7
1956	192,406	471,270	1,122,802	2,117,237	6,215,933	23,760,311	23,760,311	123.5
1957	192,875	494,531	1,245,118	2,449,365	6,827,292	30,604,345	26,179,847	135.7
1958	211,552	505,446	1,271,505	2,464,550	6,685,252	24,174,885	24,174,885	114.3
1959	228,333	536,344	1,385,297	2,539,353	7,612,748	36,349,424	28,839,369	126.3
1960	241,532	556,577	1,392,026	2,598,790	7,433,505	25,993,798	31,171,611	129.1
1962	293,834	683,584	1,621,712	3,076,863	9,450,530	42,495,513	34,244,655	116.5
1964	371,369	891,943	2,223,216	4,118,766	10,915,822	49,416,157	39,301,823	105.8
1984	877,167	1,588,702	2,996,441	4,920,629	11,613,775	47,996,909	47,996,909	54.7
1994	1,096,009	2,100,816	3,902,761	6,589,913	15,028,665	57,922,833	57,922,833	52.8
1902–1913	346,663	1,172,074	4,134,355	9,774,710	34,989,120	217,862,837	219,252,815	632.5
1994	1,096,009	2,100,816	3,902,761	6,589,913	15,028,665	57,922,833	57,922,833	52.8
1994 /	3.16	1.79	0.94	0.67	0.43	0.27	0.26	0.08
1902–1913								

*Sources:* Series obtained from the series in Table G-6 and from the conversion rates for converting into 1998 francs given in Appendix F, column (7) of Table F-1.

*Explanation:* In 1994, the average bequest of fractile P90–95 of the hierarchy of deaths was 1.096 million francs (in 1998 francs).

TABLE J-10  
*Estimate of the distribution of bequests (P90 to P99.99 thresholds) (in 1998 francs)*

	P90	P95	P99	P99.5	P99.9	P99.99
1902	212,678	637,108	2,541,712	5,144,451	17,987,689	76,086,592
1903	224,576	652,313	2,658,305	5,395,709	20,260,456	68,630,704
1904	228,194	646,986	2,738,541	5,529,979	20,083,327	98,953,734
1905	238,101	667,737	2,873,994	5,855,012	21,414,837	101,713,164
1907	247,938	699,164	2,875,089	5,768,011	20,855,545	91,612,874
1909	245,337	673,733	2,809,788	5,746,163	21,521,516	106,580,333
1910	226,485	648,819	2,643,641	5,473,743	20,425,999	84,249,123
1911	211,934	596,381	2,490,358	5,043,796	18,829,135	77,179,638
1912	209,241	590,016	2,416,841	4,933,882	18,393,580	84,296,244
1913	209,126	591,200	2,451,170	4,910,842	17,975,697	82,041,329
1925	152,449	292,487	1,081,471	1,943,640	6,284,776	23,929,303
1926	129,039	245,295	941,019	1,694,299	5,814,382	24,703,984
1927	127,580	244,795	953,537	1,749,684	6,110,583	27,697,516
1929	140,871	269,114	1,217,415	2,213,437	7,365,423	34,114,606
1930	140,237	273,256	1,194,155	2,260,086	7,600,255	35,168,047
1931	155,913	302,979	1,247,041	2,352,916	7,279,851	31,387,403
1932	163,426	314,575	1,339,684	2,443,377	7,442,874	32,741,264
1933	167,511	321,061	1,347,542	2,471,829	7,354,811	38,285,092
1935	189,082	362,404	1,486,604	2,650,092	8,172,486	32,289,560
1936	173,100	328,570	1,311,872	2,401,462	6,985,808	26,007,972
1937	144,428	274,745	1,163,908	2,135,129	5,966,057	26,289,409
1938	163,653	275,173	1,071,469	1,866,806	5,492,521	20,630,164
1939	154,123	258,797	1,015,807	1,756,824	5,111,565	20,528,169
1940	135,110	213,792	775,455	1,159,611	3,232,271	12,056,626

1941	148,820	290,723	886,541	1,431,079	3,950,567	14,070,034
1942	151,399	307,013	1,103,441	1,679,674	4,648,137	16,166,377
1943	144,728	302,179	1,127,758	1,960,836	5,436,666	19,469,718
1944	157,597	257,316	941,057	1,578,075	4,611,157	17,472,114
1945	125,947	233,800	739,762	1,207,935	3,394,934	12,745,763
1946	94,443	173,656	574,161	853,987	2,280,234	8,525,423
1947	79,812	149,228	492,852	842,669	2,026,505	7,131,053
1948	68,084	108,846	366,971	612,900	1,486,580	5,262,066
1949	72,055	131,334	398,425	652,119	1,702,991	6,085,807
1950	72,674	139,128	487,322	740,239	2,196,106	7,365,927
1951	72,238	140,521	495,159	784,672	2,230,543	8,934,679
1952	103,829	201,129	651,475	1,037,322	2,641,794	9,143,848
1953	110,865	216,125	692,644	1,186,028	2,772,973	9,969,367
1954	130,340	257,396	898,065	1,328,295	3,626,287	12,340,579
1955	125,693	250,739	903,920	1,340,988	3,950,898	12,192,534
1956	126,091	253,384	934,551	1,466,333	4,000,051	12,996,768
1957	153,071	252,123	972,516	1,588,765	4,265,133	13,764,604
1958	156,576	314,086	958,186	1,570,373	4,320,679	13,089,911
1959	159,643	325,547	1,010,663	1,654,792	4,396,241	16,701,111
1960	163,712	339,450	1,034,037	1,663,647	4,532,703	14,612,287
1962	177,967	385,888	1,341,421	2,027,029	5,337,454	20,047,297
1964	286,654	543,703	1,683,382	2,815,548	7,019,535	23,491,930
1984	741,757	1,069,942	2,570,062	3,597,349	7,777,692	23,833,442
1994	920,686	1,346,784	3,358,095	4,758,870	10,905,191	32,697,839
1902–1913	225,361	640,346	2,649,944	5,380,159	19,774,778	87,134,374
1994	920,686	1,346,784	3,358,095	4,758,870	10,905,191	32,697,839
1994 / 1902–1913	4.09	2.10	1.27	0.88	0.55	0.38

*Sources:* Series obtained from the series in Table G-7 and from the conversion rates for converting into 1998 francs given in Appendix F, column (7) of Table F-1.

*Explanation:* In 1994, the P99.99 threshold of the hierarchy of deaths was 32.698 million francs (in 1998 francs).

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TABLE J-11

*Estimate of large bequests as shares of the total annual bequest flow  
(P90-100 to P99.99-100 shares) (in percentages)*

Year	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1902	82.69	73.59	50.13	40.15	22.04	7.32
1903	84.94	76.54	53.02	42.84	23.31	7.91
1904	86.33	78.81	56.67	46.96	28.72	13.46
1905	86.58	78.91	57.91	48.49	30.27	15.08
1907	83.93	75.14	51.72	41.44	21.92	7.11
1909	85.01	76.62	54.65	44.63	25.89	10.21
1910	85.02	76.41	53.15	42.67	22.97	8.33
1911	86.00	77.81	55.74	45.94	26.96	11.93
1912	86.08	77.81	55.97	46.44	28.05	12.66
1913	85.18	76.66	53.62	43.60	25.08	9.88
1925	77.37	66.32	42.48	34.05	18.01	6.28
1926	77.17	66.35	43.04	35.05	19.90	7.12
1927	78.99	68.44	46.06	37.67	21.86	8.56
1929	78.74	68.80	47.39	39.10	22.99	9.78
1930	80.24	70.28	49.14	40.72	24.14	9.78
1931	77.53	66.87	44.49	36.28	20.39	7.45
1932	77.09	66.17	43.14	34.91	19.39	7.86
1933	77.21	66.27	43.06	34.76	19.17	6.23
1935	76.80	66.28	44.12	36.11	21.46	10.70
1936	76.76	66.20	44.19	36.51	22.20	11.74
1937	75.63	64.59	41.13	33.02	18.09	7.54
1938	74.92	62.99	40.24	32.54	19.03	9.25
1939	77.07	64.71	41.55	33.56	19.70	9.67
1940	74.42	58.88	34.41	25.73	13.51	5.32
1941	71.53	58.37	32.64	24.77	12.27	3.77
1942	72.88	59.74	34.59	26.33	13.14	4.18
1943	74.98	61.63	35.62	27.09	12.89	3.67
1944	75.84	61.91	36.16	27.88	14.04	4.50
1945	73.78	60.16	34.04	25.89	12.86	4.31
1946	72.68	58.02	31.72	23.59	11.36	3.31
1947	71.65	57.04	31.02	23.78	11.44	3.43
1948	73.66	58.88	31.74	23.83	11.56	3.55
1949	73.49	59.25	33.91	24.20	12.64	3.40

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Year	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1950	75.35	61.04	34.29	26.04	13.05	4.24
1951	76.26	62.62	37.01	29.33	16.43	8.15
1952	75.28	60.78	33.00	24.37	11.72	3.26
1953	75.36	60.43	32.26	23.97	11.21	3.66
1954	74.00	59.11	31.22	23.09	11.26	3.50
1955	76.80	61.93	33.23	24.65	11.69	3.38
1956	93.76	75.91	40.92	30.51	14.79	4.41
1957	92.25	75.97	42.58	32.07	15.54	5.17
1958	87.15	70.52	38.74	28.75	13.26	3.80
1959	86.77	70.38	39.58	29.64	15.05	5.22
1960	86.37	69.27	37.74	27.88	13.16	3.68
1962	81.23	65.36	35.83	27.07	13.78	4.59
1964	82.00	66.24	35.96	26.52	12.53	4.19
1984	60.12	43.36	19.07	13.35	5.83	1.83
1994	54.87	40.13	17.53	12.29	5.20	1.56
1902-1913	85.18	76.83	54.26	44.32	25.52	10.39
1994	54.87	40.13	17.53	12.29	5.20	1.56

*Sources:* Series obtained from the series in Table G-5 and from the annual bequest flows shown in Table J-1 ("total" lines).

*Explanation:* In 1994, the share of the total annual bequest flow represented by the P99.99-100 fractile of the hierarchy of deaths was 1.56 percent.

### 3.2. The Tax Rates in Effect at the Beginning of the Century

The tax schedule that was instituted by the law of February 25, 1901, and applicable to bequests in the direct line (whatever the number of children or grandchildren involved) was the following: the marginal rate was 1 percent on the portion of a bequest share between 0 and 2,000 francs, 1.25 percent on the portion between 2,000 and 10,000 francs, 1.5 percent on the portion between 10,000 and 50,000 francs, 1.75 percent on the portion between 50,000 and 100,000 francs, and 2 percent on the portion between 100,000 and 250,000 francs; then the increase stopped, and the marginal rate was 2.5 percent on both

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TABLE J-12

*Estimate of large bequests as shares of the total annual bequest flow  
(P90-95 to P99.99-100 shares) (in percentages)*

	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1902	9.10	23.45	9.98	18.11	14.71	7.32
1903	8.40	23.52	10.18	19.53	15.40	7.91
1904	7.52	22.14	9.71	18.24	15.26	13.46
1905	7.67	21.00	9.42	18.22	15.20	15.08
1907	8.80	23.41	10.28	19.53	14.80	7.11
1909	8.39	21.97	10.02	18.74	15.68	10.21
1910	8.61	23.26	10.49	19.69	14.64	8.33
1911	8.19	22.07	9.80	18.98	15.03	11.93
1912	8.28	21.84	9.52	18.39	15.38	12.66
1913	8.53	23.03	10.02	18.52	15.20	9.88
1925	11.05	23.84	8.43	16.04	11.73	6.28
1926	10.81	23.31	7.99	15.15	12.78	7.12
1927	10.55	22.38	8.40	15.81	13.30	8.56
1929	9.94	21.41	8.30	16.10	13.21	9.78
1930	9.95	21.14	8.43	16.58	14.35	9.78
1931	10.66	22.37	8.21	15.89	12.95	7.45
1932	10.92	23.03	8.23	15.52	11.53	7.86
1933	10.94	23.21	8.30	15.59	12.94	6.23
1935	10.53	22.16	8.00	14.65	10.77	10.70
1936	10.55	22.01	7.68	14.32	10.45	11.74
1937	11.04	23.46	8.12	14.92	10.56	7.54
1938	11.93	22.75	7.70	13.51	9.78	9.25
1939	12.36	23.16	7.99	13.86	10.03	9.67
1940	15.54	24.47	8.68	12.22	8.19	5.32
1941	13.16	25.73	7.87	12.50	8.50	3.77
1942	13.15	25.15	8.26	13.19	8.95	4.18
1943	13.35	26.02	8.52	14.20	9.22	3.67
1944	13.93	25.75	8.28	13.85	9.54	4.50
1945	13.62	26.12	8.15	13.03	8.55	4.31
1946	14.66	26.30	8.13	12.23	8.05	3.31
1947	14.61	26.02	7.25	12.34	8.00	3.43
1948	14.78	27.14	7.91	12.27	8.01	3.55
1949	14.24	25.34	9.71	11.56	9.24	3.40
1950	14.31	26.76	8.25	12.99	8.81	4.24



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	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1951	13.64	25.61	7.69	12.90	8.28	8.15
1952	14.50	27.78	8.64	12.64	8.46	3.26
1953	14.94	28.17	8.29	12.76	7.55	3.66
1954	14.89	27.89	8.13	11.83	7.76	3.50
1955	14.87	28.70	8.58	12.96	8.31	3.38
1956	17.85	34.98	10.42	15.72	10.38	4.41
1957	16.28	33.39	10.51	16.54	10.37	5.17
1958	16.63	31.78	9.99	15.49	9.46	3.80
1959	16.39	30.80	9.94	14.58	9.84	5.22
1960	17.10	31.53	9.86	14.72	9.48	3.68
1962	15.87	29.53	8.76	13.29	9.19	4.59
1964	15.76	30.29	9.44	13.99	8.34	4.19
1984	16.76	24.28	5.73	7.52	3.99	1.83
1994	14.74	22.60	5.25	7.09	3.64	1.56
1902-1913	8.35	22.57	9.94	18.80	15.13	10.39
1994	14.74	22.60	5.25	7.09	3.64	1.56

*Sources:* Series obtained from the series in Table G-6 and from the annual bequest flows shown in Table J-1 ("total" lines).  
*Explanation:* In 1994, the share of the total annual bequest flow represented by fractile P90-95 of the hierarchy of deaths was 14.74 percent.

the portion between 250,000 and 500,000 francs and the portion between 500,000 and 1 million francs, and on the portion above 1 million francs.<sup>32</sup>

The law of March 30, 1902, then created new brackets: marginal rates were kept the same for the portion of bequest shares below 1 million francs, but a 3 percent marginal rate was instituted on the portion between 1 and 2 million francs, and 3.5 percent on the portion between 2 and 5 million francs, 4 percent on the portion between 5 and 10 million francs, 4.5 percent on the portion between 10 and 50 million francs, and 5 percent on the portion above 50 million francs.<sup>33</sup>

Finally, the law of April 8, 1910, decided to keep the same brackets, but to raise all marginal rates on bequests in the direct line (with the exception of the lowest rate): marginal rates rose to 1 percent, 1.5 percent, 2 percent, 2.5 percent, 3 percent, 3.5 percent, 4 percent, 4.5 percent, 5 percent, 5.5 percent, 6 percent, and 6.5 percent

(instead of 1 percent, 1.25 percent, 1.5 percent, 1.75 percent, 2 percent, 2.5 percent, 2.5 percent, 3 percent, 3.5 percent, 4 percent, 4.5 percent, and 5 percent).<sup>34</sup>

In practice, the top marginal rate of 5 percent (in effect from 1902 to 1910) then 6.5 percent (in effect starting from 1910) applied only to a (small) handful of bequests each year: the total number of bequests greater than 50 million francs (before division among heirs) was one in 1903, three in 1904, three in 1905, zero in 1907, and so on (see Table J-1), and the number of bequest shares greater than 50 million francs was thus even smaller. According to our estimates, the average bequest in fractile P99.99–100 gravitated around 10 million (current) francs over the 1902–1913 period (see Table J-5). We can estimate that the average tax rate inflicted on bequests in the direct line for fractile P99.99–100 was around 2.5 percent in 1901, around 3.5–4 percent between 1902 and 1910, and around 5–5.5 percent after 1910 (at a maximum).<sup>35</sup>

### 3.3. The Tax Rates in Effect in the Interwar Period

The evolution of bequest-tax legislation over the interwar period was extremely complex and chaotic, and we will not attempt here to retrace all of its episodes.

As was the case for the income tax, a decisive step was taken at the end of the First World War, because it was then that the rates on the largest bequests reached their “modern” levels. The rates set in the law of April 8, 1910, were sharply increased by the law of December 31, 1917, and by the law of June 25, 1920: the same nominal brackets were kept (which, given inflation, resulted in a significant increase in the effective tax rates on bequests of a given real value), the law of December 31, 1917, set marginal rates that escalated from 1 percent to 12 percent (as opposed to 1 percent to 6.5 percent), and then the law of June 25, 1920, established marginal rates that rose from 1 percent to 17 percent.<sup>36</sup> Moreover, the law of July 31, 1917, established a *taxe successorale*, which weighed on the total assets (rather than on bequest shares) of all bequests involving fewer than four children, coming on top of the inheritance tax strictly speaking (which continued to be calculated at the level of each heir’s bequest share, as it always has been). The *taxe successorale* used the same tax brackets as the inheritance tax, and its marginal rates escalated from 0.25 percent to 3 percent for bequests involving three children, 0.5 percent to 6 percent for bequests with two children, 1 percent to 12 percent for bequests with one child, and from 2 percent to 24 percent for bequests without children. The law of June 25, 1920, then in-

creased all of these rates and brought the top marginal rates of the *taxe successorale* for bequests involving three children, two children, one child, or no children to 7.5 percent, 12 percent, 21 percent, and 39 percent, respectively. Thus, after the law of June 25, 1920, the top marginal rate for a bequest in the direct line benefiting an only child rose to 38 percent (17 percent for the inheritance tax, and 21 percent for the *taxe successorale*)—a top marginal rate nearly six times the 6.5 percent top marginal rate that had been in effect on the eve of the war.

The law of August 3, 1926—again, as with the income tax—tried to bring top rates down to “reasonable” levels: the rates on the *taxe successorale* were kept as they were, but the rate schedules for the inheritance tax were reduced, with a top rate for the direct line in the first degree brought down to 7.8 percent (instead of 17 percent). Most importantly, the law of August 3, 1926, established a “maximum rate” of taxation to limit the taxes owed on the largest bequests: in the direct line, the effective rate obtained by combining the *taxe successorale* and the inheritance tax was in no case to exceed 25 percent of a bequest’s net assets.<sup>37</sup>

Over the following years, the tax base of the *taxe successorale* was reduced: for example, the law of December 29, 1929, exempted all bequests involving fewer than two children (as opposed to fewer than four children). The decree-law of July 11, 1934, then definitively abolished the *taxe successorale*, which was therefore in effect from 1917 to 1934. This abolition did not, however, mean that the bequests concerned received a corresponding reduction in their taxes, since the rates on the *taxe successorale* were actually integrated into the schedules of the inheritance tax: the decree-law of July 11, 1934, undertook a general overhaul of the tax schedules, which now varied not only according to the degree of family relationship but also according to the number of children represented. In the direct line in the first degree, the top marginal rate, which still applied to the portion of a bequest share over 50 million francs, was 15 percent for bequests involving fewer than two children, and 28 percent for bequests with one child.

The law of December 31, 1936, decided to increase all of these rates very sharply, particularly the highest rates: a bracket affecting bequest shares greater than 150 million francs was created, and the top marginal rate on the portions of bequest shares greater than 150 million francs for the direct line in the first degree was set at 40 percent for bequests with at least two children and 60 percent for bequests with one child.<sup>38</sup> It should be noted, however, that the decree-law of July 11, 1934, and the law of December 31, 1936, kept the system of

“maximum rates” established by the law of August 3, 1926: in the direct line, the total amount of tax owed was in no case to exceed 25 percent of a bequest’s net assets.<sup>39</sup> The top rates of the schedules established by the law of December 31, 1936, were then once again increased by the decree-law of July 29, 1939, before being slightly reduced by the law of November 9, 1940, which took the opportunity to reduce the “maximum rate” on bequests in the direct line with at least three children, while increasing the “maximum rate” on bequests in the direct line with one child, which rose to 30 percent.<sup>40</sup>

In the end, it is extremely difficult to estimate precisely the average tax rates that applied to the various fractiles of large bequests in the interwar era. The legislation and the tax rates were constantly being revised, and the rates that actually applied depended in an extremely fine-grained way on the family configuration involved, even more so than in other periods. However, based on the legislative information given above and the estimates of the levels of bequest fractiles shown in Table J-5, we can estimate that the laws of July 31, 1917, and June 25, 1920, brought the average tax rate inflicted on bequests in the direct line for fractile P99.99–100 to a level of around 30–35 percent, and that the average tax rate never fell below a minimum level of about 20–25 percent over the 1920s and 1930s. Compared to the situation prevailing on the eve of the First World War, when the corresponding average tax rate barely exceeded 5 percent (at a maximum), we may thus estimate that the tax burden on very large wealth holdings passed on by bequest multiplied by a factor of around 5.

### 3.4. The Tax Rates in Effect since the Second World War

At the end of the 1940s, inheritance tax rates were very close to those that had been in effect in the late 1930s: the “official” marginal rates in the tax schedules applying to the direct line rose to levels of around 60–70 percent for the highest bequest-share portions, but the effects of these top marginal rates were in practice sharply circumscribed by the “maximum rate” system established by the law of August 3, 1926 (and never abolished), which limited taxes owed to 35 percent of a bequest’s net assets (in the direct line). The “official” marginal rates for the direct line were then sharply reduced by the law of April 14, 1952, which set the top marginal rate at 35 percent for bequests with one child, 30 percent for bequests with two children, and 24 percent for bequests with at

least three children; the “maximum rate” system thus became obsolete, and these new rates would be in effect until 1959.

Besides a general simplification of the tax schedules, the main objective of the vast reform of the inheritance tax undertaken by the law of December 28, 1959, was to grant significant tax relief for bequests in the direct line and between spouses, in exchange for a significant increase in taxes on other bequests. In the direct line and between spouses, there were now only three marginal rates: a 5 percent rate, applicable to portions of bequest shares between 0 and 50,000 francs, a 10 percent rate applicable to the portion between 50,000 and 100,000 francs, and a 15 percent top rate applicable to the portion above 100,000 francs (these, of course, were new francs).<sup>41</sup> Moreover, the law of December 28, 1959, introduced a standard deduction of 100,000 francs for bequests in the direct line and between spouses: each heir could receive 100,000 francs of inheritance completely free of tax, and the rate schedule described above applied only to the portions of bequest shares left over after subtracting this standard deduction.<sup>42</sup>

This 100,000-franc deduction represented a genuine revolution compared to the system established in 1901: although bequests had been subject to a progressive rate schedule under the law of February 25, 1901, this progressive schedule applied from the very first franc of a bequest (there was no “0 percent bracket”), so that all bequests, even the tiniest, were in principle subject to tax, just as had been the case under the proportional inheritance tax in effect during the nineteenth century. In principle, under the law of February 25, 1901, just like in the nineteenth century, the only bequests that did not give rise to declaration and taxation were those of deceased individuals who possessed strictly no wealth at all. However, it is very difficult to know how the tax administration behaved in practice when faced with very small bequests; when expenses arising from a death (funeral costs, etc.) exhausted most of the deceased’s meager patrimony, it is likely that the tax administration showed a degree of tolerance toward heirs who failed to submit a corresponding declaration.<sup>43</sup> Still, it was not until August 1956 that the tax administration officially decided to “exempt beneficiaries in the direct line and surviving spouses from filing a declaration, when there appeared gross inheritance assets below 1 million francs” (that is, 10,000 new francs).<sup>44</sup> Likewise, it would not be until the law of December 28, 1959, that a 100,000-franc standard deduction was created for

heirs in the direct line and for spouses (bequests in the direct line and between spouses already enjoyed an exemption at the base before the law of December 28, 1959, but these exemptions were always at far lower levels<sup>45</sup>). However, it should be noted that the creation of this 100,000-franc exemption per bequest share did not alter the system of mandatory declaration: in principle, all bequests with gross assets greater than 10,000 francs must still result in a declaration, even if the standard deduction allows them to escape taxation.<sup>46</sup>

The new tax rules established by the law of December 28, 1959, changed very little subsequently: like the income tax, the inheritance tax has become a “pacified” tax, at least compared to the rather chaotic changes that characterized the interwar era. The 100,000-franc standard deduction was raised irregularly, at a significantly slower pace than the increase in prices, and the standard deduction in effect in the 1990s was 300,000 francs.<sup>47</sup> The schedule applicable to bequests in the direct line or between spouses went almost unchanged from the law of December 28, 1959, until the early 1980s, if we except the increase in the top marginal rate established by law of December 27, 1968, an increase from 15 percent to 20 percent: the portion of a bequest share between 0 and 50,000 francs remained subject to a 5 percent marginal rate and the portion between 50,000 and 75,000 francs remained subject to a 10 percent rate, but the rate on the portion between 75,000 and 100,000 francs rose to 15 percent (instead of 10 percent), and the rate on the portion above 100,000 francs rose to 20 percent (instead of 15 percent).

In fact, the main legislative change that has taken place since the law of December 28, 1959, is due to the law of December 29, 1983, which created new brackets intended to hit very large bequests and brought the top marginal rate to 40 percent. These new rates, as well as the nominal thresholds of the new brackets, have not been changed since then, so that the schedule applying to bequests in the direct line and between spouses in the late 1990s is still that established by the law of December 29, 1983: the marginal rate is 5 percent on the portion of a bequest share between 0 and 50,000 francs, 10 percent on the portion between 50,000 and 75,000 francs, 15 percent on the portion between 75,000 and 100,000 francs, 20 percent on the portion between 100,000 and 3.4 million francs, 30 percent on the portion between 3.4 and 5.6 million francs, 35 percent on the portion between 5.6 and 11.2 million francs, and 40 percent on the portion above 11.2 million francs.<sup>48</sup>

## Raw Data, Methodology, and Estimates Based on Statistics on the Distribution of Parisian Rents (1889, 1901, and 1911 Rents)

This appendix presents the raw data, methodology, and the estimates carried out on the basis of statistics on the distribution of Parisian rents. The general methodology is practically identical to the one that we used with the income tax return, wage declaration, and bequest declaration statistics, and only a few points need to be clarified.

The statistics on Parisian rents, or rather, the statistics on Parisian rental values (since they pertained to the rental value of all dwellings and properties, whether occupied by the owner or rented out), come from vast property surveys that the tax administration organized every 10–15 years under the system of the “four old ladies.” These rental values served as the basis for determining the personal property tax, which was based on the rental value of a taxpayer’s principal residence (whether the taxpayer was an owner or renter), and for determining the real estate tax, which was based on the rental value of real estate properties owned by the titleholder. These surveys were actually censuses, since every property and every residence were individually enumerated.

The raw data derived from the 1889, 1901, and 1911 surveys are reproduced in Tables K-1 and K-2: Table K-1 shows the distribution of rental values of principal residences according to a certain number of rental-value brackets, and Table K-2 shows the distribution of the rental values of owners’ properties by a certain number of rental-value brackets (the rental values used in these tables are always annual values). Table K-1 thus covers all Parisian residences (804,011 residences in 1889, 910,504 residences in 1901, and 993,304 residences in 1911), whereas Table K-2 covers only owner-households (80,526 owners in 1889 and

## APPENDIX K

TABLE K-I

*The raw statistical tables compiled on the basis of the built-property surveys of 1889, 1901, and 1911, I: the distribution tables pertaining to rental values of dwellings (tax on primary residence rental value)*

1889			1901			1911		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1	403,682	65,342,827	1	433,774	70,352,949	1	415,259	68,767,764
300	121,665	39,844,647	300	148,423	48,961,682	300	173,528	57,973,640
400	78,959	33,671,460	400	115,511	50,802,407	400	154,173	68,464,018
500	40,124	20,711,604	500	31,179	16,370,858	500	39,305	20,628,656
600	29,885	18,401,622	600	33,175	20,590,843	600	38,969	24,284,883
700	18,789	13,488,576	700	21,313	15,358,537	700	25,617	18,535,511
800	15,894	12,892,794	800	18,494	15,078,859	800	21,651	17,727,562
900	8,615	7,838,543	900	10,637	9,753,930	900	12,820	11,792,261
1,000	12,187	12,243,825	1,000	12,095	12,187,355	1,000	13,098	13,221,918
1,100	4,640	5,140,294	1,100	5,718	6,365,474	1,100	6,716	7,499,532
1,200	8,227	9,931,445	1,200	8,671	10,492,669	1,200	9,118	11,044,220
1,300	3,471	4,541,991	1,300	4,463	5,862,553	1,300	5,491	7,223,015
1,400	4,025	5,671,503	1,400	4,616	6,521,535	1,400	5,434	7,690,200
1,500	15,449	25,440,521	1,500	17,689	29,435,600	1,500	20,506	34,339,780
2,000	10,194	21,829,305	2,000	11,529	24,845,149	2,000	13,172	28,635,253
2,500	5,659	14,883,862	2,500	6,815	18,079,616	2,500	8,158	21,746,395
3,000	8,056	26,490,537	3,000	9,382	31,137,760	3,000	11,138	37,271,375
4,000	4,516	19,219,635	4,000	5,439	23,366,720	4,000	6,021	26,065,670
5,000	4,759	26,884,841	5,000	5,470	31,196,715	5,000	6,208	35,667,179
7,000	2,796	22,286,476	7,000	3,288	26,342,487	7,000	3,656	29,395,650
10,000	1,471	17,223,645	10,000	1,728	20,193,200	10,000	1,991	23,405,640
15,000	489	8,194,013	15,000	568	9,422,470	15,000	571	9,674,245
20,000	459	14,450,690	20,000	527	17,047,150	20,000	704	22,629,570
Total	804,011	446,624,656	Total	910,504	519,766,518	Total	993,304	603,683,937

*Sources:* Raw data recopied directly from the tables published by the tax administration (1889: *BSLC* September 1890, 28:339; 1901: *BSLC* July 1902, 52:66–67; 1911: *BSLC* May 1913, 73:570–573).

*Explanation:*  $s_i$  represents the thresholds of the rental-value brackets used by the tax administration,  $N_i$  represents the number of dwellings whose rental values are between the  $s_i$  and  $s_{i+1}$  thresholds, and  $Y_i$  represents the total amount of the corresponding rental values. For example, in 1889, out of a total of 804,011 Parisian residences, 459 had a rental value greater than 20,000 francs (per year), and the total rental value of those residences was about 14.45 million francs. All thresholds and amounts are expressed in old francs.

*Notes:* (i) The line “Total” is always equal to the sum of all of the preceding lines and thus corresponds to the total number of Parisian residences (we have always reproduced all of the brackets appearing in the original tables compiled and published by the tax administration).

(ii) These tables measure the rental values prevailing on 1/1/1889, 1/1/1901, and 1/1/1911.



## APPENDIX K

TABLE K-2

*The raw statistical tables compiled on the basis of the built-property surveys of 1889, 1901, and 1911, II: the distribution tables pertaining to rental values of built properties (tax on real estate property)*

1889			1901		
$s_i$	$N_i$	$Y_i$	$s_i$	$N_i$	$Y_i$
1	8,954	2,427,373	1	8,329	2,437,152
500	7,605	5,484,155	500	7,449	5,668,072
1,000	5,302	6,493,341	1,000	5,075	6,397,074
1,500	4,297	7,443,939	1,500	4,388	7,764,034
2,000	3,649	8,129,151	2,000	3,510	7,973,707
2,500	3,067	8,447,150	2,500	3,198	8,899,721
3,000	5,429	18,849,957	3,000	5,500	19,321,997
4,000	4,516	20,173,983	4,000	4,536	20,540,171
5,000	3,802	20,700,494	5,000	4,039	22,360,375
6,000	3,292	21,184,345	6,000	3,529	23,024,931
7,000	2,886	21,583,768	7,000	3,249	24,442,231
8,000	2,601	22,000,383	8,000	2,914	24,829,553
9,000	2,232	21,218,323	9,000	2,568	24,478,260
10,000	3,902	42,800,231	10,000	4,432	48,704,264
12,000	4,447	59,790,355	12,000	5,096	68,485,014
15,000	4,781	82,535,589	15,000	5,482	95,131,343
20,000	2,899	64,559,263	20,000	3,298	73,814,854
25,000	2,025	55,266,573	25,000	2,197	60,145,555
30,000	1,318	42,573,926	30,000	1,477	47,862,525
35,000	918	34,135,244	35,000	972	36,267,733
40,000	1,100	48,941,035	40,000	1,239	55,144,861
50,000	614	33,419,267	50,000	675	36,805,104
60,000	308	20,126,122	60,000	362	23,355,485
70,000	170	12,697,934	70,000	193	14,432,979
80,000	103	8,726,498	80,000	139	11,747,971
90,000	75	7,133,894	90,000	85	8,084,818
100,000	234	36,629,010	100,000	287	46,333,313
Total	80,526	733,471,303	Total	84,218	824,454,100

*Sources:* Raw data recopied directly from the tables published by the tax administration (1889: *BSLC* September 1890, 28:340; 1901: *BSLC* July 1902, 52:62-63; 1911: no table published).

(continued)

## APPENDIX K

TABLE K-2  
(continued)

*Explanation:*  $s_i$  represents the thresholds of the rental-value brackets used by the tax administration,  $N_i$  represents the number of real estate properties whose rental values are between the thresholds  $s_i$  and  $s_{i+1}$ , and  $Y_i$  represents the total amount of the corresponding rental values. For example, in 1889, out of a total of 80,526 Parisian properties, 234 had a rental value greater than 100,000 francs (per year), and the total rental value of those properties was about 36.63 million francs. All thresholds and amounts are expressed in old francs.

*Notes:* (i) The line "Total" is always equal to the sum of all of the preceding lines and thus corresponds to the total number of Parisian properties (we have always reproduced all of the brackets appearing in the original tables compiled and published by the tax administration).

(ii) These tables measure the rental values prevailing on 1 / 1 / 1889 and 1 / 1 / 1901.

(iii) We have only recopied the tables relating to properties that took the form of *maisons*, but those that took the form of *usines* or *terrains*, which were few in number in Paris, would not significantly change the results. The *maisons* levied under the real estate tax included business locations (not only personal residences), which explains why the total rental values are greater than those shown on Table K-1.

84,218 owners in 1901). As we noted in Chapter 7 (section 2.3), Table K-2 was compiled, unfortunately, by the tax administration in a relatively ambiguous way. The official publications from the period do not make it entirely clear whether all real estate properties belonging to a given owner were actually combined into a single property for the purpose of these statistics: there is no doubt that an apartment building belonging to a given owner was counted as a single property (even if the building was composed of multiple dwellings), but it is possible that two noncontiguous apartment buildings belonging to a single owner were sometimes counted as two distinct properties.<sup>1</sup> In other words, it is possible that these statistics underestimate the actual concentration of Parisian real estate property ownership. However, it seems unlikely that these difficulties could significantly bias the changes over time.<sup>2</sup> In any event, these ambiguities concern only the statistics derived from the real estate tax (Table K-2), not the statistics derived from the personal property tax (Table K-1).

In Tables K-3 and K-4 we have shown the Pareto coefficients obtained on the basis of the raw data reproduced in Tables K-1 and K-2. The estimates for the various rental-value fractiles were obtained by extrapolation using a Pareto law, applying the same formula used in the extrapolations carried out on the income tax return statistics (see Appendix B, section 1.1), and they are shown in Table K-5. As for the statistics derived from the personal property tax, we calculated the fractiles on the basis of the total number of principal residences: in 1889, the total number of residences was 804,011, so fractile P90–100 includes

## APPENDIX K

TABLE K-3

*Pareto coefficients obtained from the distribution tables for dwellings*

1889			1901			1911		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
1	100.00	555.50	1	100.00	570.86	1	100.00	607.75
300	49.79	3.17	300	52.36	3.14	300	58.19	3.08
400	34.66	3.06	400	36.06	3.05	400	40.72	2.95
500	24.84	3.08	500	23.37	3.29	500	25.20	3.26
600	19.85	3.00	600	19.95	3.06	600	21.25	3.06
700	16.13	2.96	700	16.30	3.01	700	17.32	3.02
800	13.79	2.88	800	13.96	2.92	800	14.74	2.94
900	11.82	2.83	900	11.93	2.89	900	12.56	2.91
1,000	10.75	2.71	1,000	10.76	2.78	1,000	11.27	2.82
1,100	9.23	2.72	1,100	9.43	2.75	1,100	9.96	2.78
1,200	8.65	2.60	1,200	8.81	2.64	1,200	9.28	2.67
1,300	7.63	2.60	1,300	7.85	2.62	1,300	8.36	2.63
1,400	7.20	2.50	1,400	7.36	2.53	1,400	7.81	2.55
1,500	6.70	2.44	1,500	6.86	2.47	1,500	7.26	2.48
2,000	4.78	2.23	2,000	4.91	2.25	2,000	5.20	2.27
2,500	3.51	2.12	2,500	3.65	2.13	2,500	3.87	2.14
3,000	2.80	1.99	3,000	2.90	2.00	3,000	3.05	2.03
4,000	1.80	1.87	4,000	1.87	1.87	4,000	1.93	1.92
5,000	1.24	1.79	5,000	1.27	1.80	5,000	1.32	1.84
7,000	0.65	1.70	7,000	0.67	1.71	7,000	0.70	1.76
10,000	0.30	1.65	10,000	0.31	1.65	10,000	0.33	1.71
15,000	0.12	1.59	15,000	0.12	1.61	15,000	0.13	1.69
20,000	0.06	1.57	20,000	0.06	1.62	20,000	0.07	1.61

*Source:* Calculations based on the raw data reproduced in Table K-1.

*Explanation:* In 1889, 0.06 percent of the dwellings had an annual rental value greater than 20,000 francs, and the average rental value of those dwellings was 1.57 times the 20,000-franc threshold.

the 80,401 residences with the highest rental values. When it comes to the statistics derived from the real estate tax, the mode of calculating fractiles poses more of a question, so we carried out two series of estimates: one taking all properties as the reference population, and the other taking all dwellings as the reference population (see Table K-5).

## APPENDIX K

TABLE K-4

*Pareto coefficients obtained from the distribution tables for real estate properties*

1889			1901		
$s_i$	$p_i$	$b_i$	$s_i$	$p_i$	$b_i$
1	100.00	9108.50	1	100.00	9789.51
500	88.88	20.43	500	90.11	21.66
1,000	79.44	11.34	1,000	81.27	11.93
1,500	72.85	8.17	1,500	75.24	8.52
2,000	67.52	6.54	2,000	70.03	6.80
2,500	62.98	5.55	2,500	65.86	5.73
3,000	59.18	4.86	3,000	62.06	5.01
4,000	52.43	4.00	4,000	55.53	4.09
5,000	46.83	3.48	5,000	50.15	3.53
6,000	42.10	3.12	6,000	45.35	3.16
7,000	38.02	2.87	7,000	41.16	2.89
8,000	34.43	2.67	8,000	37.30	2.69
9,000	31.20	2.52	9,000	33.84	2.54
10,000	28.43	2.40	10,000	30.79	2.42
12,000	23.58	2.22	12,000	25.53	2.24
15,000	18.06	2.05	15,000	19.48	2.07
20,000	12.13	1.87	20,000	12.97	1.89
25,000	8.53	1.75	25,000	9.06	1.78
30,000	6.01	1.68	30,000	6.45	1.72
35,000	4.37	1.64	35,000	4.69	1.68
40,000	3.23	1.61	40,000	3.54	1.64
50,000	1.87	1.58	50,000	2.07	1.62
60,000	1.11	1.60	60,000	1.27	1.63
70,000	0.72	1.60	70,000	0.84	1.64
80,000	0.51	1.59	80,000	0.61	1.62
90,000	0.38	1.57	90,000	0.44	1.63
100,000	0.29	1.57	100,000	0.34	1.61

*Source:* Calculations based on the raw data reproduced in Table K-2.

*Explanation:* In 1889, 0.29 percent of the real estate properties had an annual rental value greater than 100,000 francs, and the average rental value of those properties was 1.57 times the 100,000-franc threshold.

## APPENDIX K

TABLE K-5  
*Estimate of the distribution of rental values*

Personal property tax							
(francs)	P0-100	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1889	555	2,840	4,354	9,815	13,270	25,397	59,432
1901	571	2,920	4,503	10,128	13,686	26,254	63,228
1911	608	3,078	4,671	10,524	14,342	28,224	67,363
(%)	P0-100	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1889	100.0	51.12	39.19	17.67	11.94	4.57	1.07
1901	100.0	51.15	39.44	17.74	11.99	4.60	1.11
1911	100.0	50.65	38.43	17.32	11.80	4.64	1.11
(francs)	P0-90	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1889	302	1,325	2,988	6,360	10,238	21,615	59,432
1901	310	1,337	3,097	6,571	10,544	22,146	63,228
1911	333	1,486	3,208	6,706	10,871	23,875	67,363
(%)	P0-90	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1889	48.88	11.93	21.52	5.72	7.37	3.50	1.07
1901	48.85	11.71	21.70	5.76	7.39	3.49	1.11
1911	49.35	12.22	21.11	5.52	7.15	3.54	1.11
(francs)		P90	P95	P99	P99.5	P99.9	P99.99
1889		1,046	1,950	5,497	7,794	15,948	37,755
1901		1,048	1,981	5,564	7,908	16,088	39,093
1911		1,239	2,181	5,992	8,408	17,561	41,913

(continued)

## APPENDIX K

TABLE K-5  
(continued)

Real estate tax (1)							
(francs)	P0-100	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1889	9,109	40,772	54,392	99,514	128,497	230,106	528,555
1901	9,790	43,797	57,914	106,786.00	139,794	257,430	618,350
(%)	P0-100	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1889	100.00	44.76	29.86	10.93	7.05	2.53	0.58
1901	100.00	44.74	29.58	10.91	7.14	2.63	0.63
(francs)	P0-90	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1889	5,590	27,153	43,111	70,531	103,094	196,945	59,432
1901	6,011	29,679	45,696	73,778	110,385	217,328	63,228
(%)	P0-90	P90-95	P95-99	P99-99.5	P99.5-99.9	P99.9-99.99	P99.99-100
1889	55.24	14.91	18.93	3.87	4.53	1.95	0.58
1901	55.26	15.16	18.67	3.77	4.51	2.00	0.63
(francs)		P90	P95	P99	P99.5	P99.9	P99.99
1889		23,353	33,224	62,288	80,688	147,001	337,661
1901		23,933	34,114	65,695	86,141	159,458	383,021
Real estate tax (2)							
(francs)	P0-100	P90-100	P95-100	P99-100	P99.5-100	P99.9-100	P99.99-100
1889	912	9,123	16,616	40,799	54,425	99,222	230,235
1901	905	9,055	16,715	41,302	55,483	103,617	249,900

APPENDIX K

Real estate tax (2)							
(%)	P <sub>0-100</sub>	P <sub>90-100</sub>	P <sub>95-100</sub>	P <sub>99-100</sub>	P <sub>99.5-100</sub>	P <sub>99.9-100</sub>	P <sub>99.99-100</sub>
1889	100.00	100.00	91.07	44.72	29.83	10.88	2.52
1901	100.00	100.00	92.30	45.61	30.64	11.44	2.76
(francs)	P <sub>0-90</sub>	P <sub>90-95</sub>	P <sub>95-99</sub>	P <sub>99-99.5</sub>	P <sub>99.5-99.9</sub>	P <sub>99.9-99.99</sub>	P <sub>99.99-100</sub>
1889	0	1,630	10,570	27,174	43,225	84,665	59,432
1901	0	1,395	10,569	27,121	43,449	87,363	63,228
(%)	P <sub>0-90</sub>	P <sub>90-95</sub>	P <sub>95-99</sub>	P <sub>99-99.5</sub>	P <sub>99.5-99.9</sub>	P <sub>99.9-99.99</sub>	P <sub>99.99-100</sub>
1889	0.00	8.93	46.34	14.89	18.95	8.35	2.52
1901	0.00	7.70	46.69	14.98	19.19	8.68	2.76
(francs)		P <sub>90</sub>	P <sub>95</sub>	P <sub>99</sub>	P <sub>99.5</sub>	P <sub>99.9</sub>	P <sub>99.99</sub>
1889		1	4,150	23,368	33,244	62,011	147,083
1901		1	4,082	21,796	33,055	63,752	154,794

*Sources:* Results of extrapolations by a Pareto law from the raw data reproduced in Tables K-1 and K-2.

*Explanation:* In 1889, the average rental value of the 10 percent of dwellings with the highest rental values (fractile P<sub>90-100</sub>) was 2,840 francs, and their share of total rental value was 51.12 percent; the average rental value of the 10 percent of properties with the highest rental values (fractile P<sub>90-100</sub>) was 40,772 francs, and their share of total rental value was 44.76 percent.

*Note:* For the raw real estate tax data, we carried out two series of estimates: the “real estate tax (1)” estimates calculate the fractiles on the basis of the number of properties (for example, in 1889, the P<sub>90-100</sub> fractile included 8,053 properties), whereas the “real estate tax (2)” estimates calculate the fractiles on the basis of the total number of dwellings (for example, in 1889, the P<sub>90-100</sub> fractile included 80,401 dwellings).





# Notes

## INTRODUCTION

1. [Translator's note:] The "200 families" was a phrase often heard in the French political discourse of the 1930s. It referred to the 200 largest shareholders of the Banque de France (which was then a private concern) and was often employed more broadly to suggest that behind the scenes, a small group of ultrarich French families wielded decisive political and economic power.
2. [Translator's note:] The French term for tax unit is *foyer fiscal*, or tax household. Because the author usually abbreviates the term to *foyer* (household), there are instances in the text where both concepts—the statistical unit and the underlying human household—are being referenced simultaneously, which is not possible to replicate in English. In those instances I have generally chosen to translate the term as "household." However, as the author makes clear, the reader should always keep in mind that the two terms, tax unit and household, refer to distinct concepts.
3. See *Le Monde*, June 24, 1997, p. 16, and *Le Monde*, June 27, 1997, p. 8. In fact, if we look solely at households collecting family benefits, the share with incomes greater than 25,000 per year is significantly less than 10 percent (according to the figures put out at the time by the CNAF [*Caisse nationale des allocations familiales*], only 5.8 percent of child-benefit recipients have annual incomes above 200,000; see *Le Monde*, June 24, 1997, p. 7).
4. See *Le Monde*, June 24, 1997, p. 16, and *Le Monde*, June 27, 1997, p. 8. The theme of defending the "middle classes" from the designs of the socialists could regularly be found in Communist rhetoric in the ensuing years. For example, in June 1998, Robert Hue feared the consequences of the reform of the *taxe d'habitation* (community tax): "In introducing the idea of taking income into account in the calculation of this tax, we should not start hitting the middle classes, the households with 20,000 per month who are already going to be penalized by the reduction of the *quotient familial* (family quotient, or dependents' allowance)" (*Le Monde*, June 23, 1998, p. 16).
5. See, for example, the editorial and front-page articles appearing in *Libération*, August 26, 1999.
6. In fact, we will see that the problem of tax evasion and legal exemptions from the progressive income tax (income subject to *prélèvement libératoire*, capital gains, etc.)—incomes that are not taken into account in the figures given in Table I-1—is important only for incomes significantly higher than those of the "middle classes" with 20,000–30,000 per month. At the level of fractiles P90–95 and P95–99, the overwhelming majority of incomes are wages and retirement pensions (see Figure I-1), incomes for which fraud and the possibilities of legal evasion are practically nil, so that we may regard the declared incomes as being extremely close to real incomes.

7. It even falls slightly at the level of fractile P99.99–100 (see Appendix B, Tables B-16 and B-17, for complete results).
8. Except for the definition initially given by Daladier in 1934 when speaking to the Nantes congress of the Radical Party (namely, the 200 biggest shareholders of the Banque de France, a definition that was rendered inoperative when the Banque de France was nationalized), there is obviously no precise definition of the “200 families.” As Birnbaum (1979) showed, no “serious” literature really sought to define this category, and the few books dealing explicitly with the theme of the “200 families” were generally the product of openly anti-Semitic authors who were far more interested in denouncing a few hundred “cosmopolitan capitalists” who exploited the people of France than with analyzing the income distribution. In this book, we will often use this symbolic category to refer to households of the P99.99–100 fractile of the income hierarchy.
9. We will revisit in detail the studies available in countries other than France when we compare the French experience with experiences abroad (see Chapter 7). The rare works dealing with France, and especially those of Jean Fourastié and Christian Morrison, will be discussed in the relevant chapters (see Chapter 3, section 2.4, and Chapter 7, section 2.3).
10. On the *Revenus fiscaux* studies, see Appendix I, section 1.
11. For an examination of the Sauvy estimate for 1929, see Appendix I, section 2.2.
12. For an examination of the Doumer-Caillaux-Colson estimate for 1900–1910, see Appendix I, section 2.1.
13. For an examination of the Jankielowitch-Brochier estimate for 1938 and 1946, see Appendix I, section 2.3.
14. We will return to this estimate when we examine what can be said about the evolution of income inequality in the nineteenth century (see Chapter 7, section 2.3).
15. [Translator’s note:] In this translation, the term “tax year” will be used to refer to incomes earned in a given year, as declared by taxpayers the *following* year in their tax returns. For example, the income tax schedule for the “1955 tax year” was the tax schedule that was applied to 1955 incomes, as declared in tax returns (usually) submitted in 1956.
16. See Appendix A, Table A-1.
17. See Appendixes A and B.
18. For an examination of the Jankielowitch-Brochier estimates, see Appendix I, section 2.3.
19. See, for example, Lhomme (1925), Allix and Lecerclé (1926a, 1926b, 1930), and Laufenburger (1950). Marchal (1942) and Lecaillon (1948) push the analysis a bit further by examining the raw figures from the tables by income bracket compiled by the tax administration and comparing them with macroeconomic indices available at the time (industrial production, prices, etc.); this allowed them to diagnose the very strongly pro-cyclicality of top incomes. But these authors examine the issue entirely from a public-finance perspective, and they do not examine the distribution of income as such (in particular, they never attempt to estimate income or profit percen-

tiles based on the raw figures compiled by the administration.) (Authors from that period were greatly concerned about the fact that replacing the old system of the *quatre vieilles*—the four direct levies that had anchored the French tax system since the Revolution—with the new income tax system had made tax revenues much more sensitive to the macroeconomic cycle than they had been in the past. On this theme, see also the articles by Marchal [1933] and Laufenburger [1934], although they limit themselves to examining aggregate tax-revenue statistics, rather than by income bracket.)

20. See, for example, David (1987).
21. In particular, INSEE never sought to exploit these annual statistics: we have combed through all INSEE publications since 1946 (as well as all *Statistique générale de la France* publications from the interwar period), and the only attempt to use these statistics that we have been able to find in these publications is that of Jankeliowitch (1949). Likewise, we have gone through all the publications of the CERC (Centre d'études des revenus et des coûts; Center for the Study of Incomes and Costs) from its establishment in 1966 to its dissolution in 1993, and we have observed that the *Revenus fiscaux* studies constitute the sole source used by that organization to study income inequality at the overall level. On INSEE and CERC publications devoted to income inequality, see Appendix 1, section 1.
22. [Translator's note:] See translator's note on the terminology of the French socio-professional categories in Chapter 3, note 1.
23. It is also interesting to note that this is the one and only reference to the statistical tables produced each year by the tax administration based on income tax returns, even though the book is a reference work on the history of statistics in France, and it contains many quite thorough and highly useful chapters on the history of demographic statistics, statistics on wages, prices, health, the justice system, etc.
24. In particular, Marchal and Lecaillon do not even mention the existence of the statistics by income bracket compiled by the tax administration based on income tax returns, and they refer to the *Revenus fiscaux* studies solely for the purpose of comparing the average incomes of different CSPs (see Marchal and Lecaillon 1958–1970, 4:208–211). It is true that INSEE long limited itself to presenting the results of the *Revenus fiscaux* studies in terms of CSPs and not in terms of fractiles (see Appendix I, section 1).
25. See especially Chapter 3, section 2.4.
26. In all of the *Revenus fiscaux* studies carried out by INSEE between 1956 and 1996, the households with the highest average incomes are those of *cadres supérieurs* (or *cadres et professions intellectuelles supérieures* since the adoption of the 1982 classification system), and their average income, expressed in 1998 francs, is barely 30,000 francs per month (see Appendix I, Table I-2). In other words, the highest incomes are those of the “middle classes”! We will return more than once to the significance of this “pacified” vision of inequality offered by the socioprofessional categories. See especially Chapter 3, section 4, and Chapter 6, section 3.3.
27. All of these adjustments are described in detail in Appendixes A and B.
28. A chronology of the main texts of legislation devoted to the income tax is provided in Appendix C.

29. See, notably, Frajerman and Winock (1972), as well as the biography of Caillaux published by Allain (1978–1981). Also see Jeanneney (1984, 96–108; 1987, 122–129).
30. We should, however, note the recent thesis by Séré de Roch (1999).
31. We have primarily used the voluminous history of the Third Republic by Bonenfant (1956–1967) and the *La France politique* series published annually since 1945; we have also made use of the usual political history textbooks: Azéma (1979), Becker and Bernstein (1990), Borne and Dubief (1989), Goguel (1946), Mayeur (1984), Rioux (1980, 1983), etc. We will refer to these works only when dealing with contentious issues or for quotations.
32. Specific references to these documents will be provided when they are used.
33. Among works of tax law devoted specifically to the income tax that we have used, we note those of Lhomme (1925), Allix and Lecerclé (1926a, 1926b, 1930), Marquis (1947), Laufenburger (1950), Beltrame (1970), and David (1987). Also see works on the history of tax law published by Isaïa and Spindler (1987, 1989), which for our purposes have the drawback of not really examining the rate schedules and incomes at play. The same is true of the monumental general history of taxation by Ardant (1972), as well as the history of taxation in France since 1945 by Nizet (1991). Let us mention finally the unusual work by Morselli and Trotabas (1964), which offers a compilation of tax-rate schedules prevailing in various countries (unfortunately, this work contains a number of errors). As in the case of parliamentary narratives and political history textbooks, we refer to these works of tax law (and especially to the treatise by Allix and Lecerclé, which was especially useful to us) only when dealing with contentious issues or for quotations (whenever inconsistencies arise between different sources, we always refer back to the texts of laws published in the *JO*.)
34. See Appendix A, section 1.4.
35. See Appendix A, section 1.2
36. The complete collection of these *Guides pratiques du contribuable* may be consulted at the SNUI (Syndicat national unifié des impôts; United National Tax Association), 80–82 rue de Montreuil, 75011 Paris.
37. See Appendix G.
38. See Baudelot and Lebeauvin (1979a, 1979b), Bayet and Julhès (1996), and Friez and Julhès (1998).
39. We have gone through all INSEE publications since 1946 (as well as all publications of the interwar SGF) and have found no utilization of the statistics derived from the interwar wage declarations. Generally speaking, all of the authors who have used statistics derived from the wage declarations start their series in 1947–1950 (see, for example, Marchal and Lecaillon 1958–1970, 1:277, 296, 427). See also Volkoff (1987, 220), who, in an article devoted to the history of the wage declarations, writes: “Annual employer wage declarations have existed since 1927. But the decision to carry out analyses of these documents was made in 1947” (in reality the declarations have existed since 1917, and the tax administration began tallying them and compiling corresponding statistical tables starting in 1919).

40. See Appendix D.
41. See notably Arrondel and Laferrère (1991, 1994, 1998).
42. Among the very few works using twentieth-century bequest statistics in historical perspective, we will mention the article by Trévoux (1949) (Trévoux, who uses only bequest statistics on the composition of bequests in 1934 and 1945, does not seek to study the evolution of the level and distribution of bequests) and the book by Cornut (1963) (Cornut studies the evolution of average bequests by *département* since the early twentieth century and is no more interested than Trevor in the distribution of bequests at the individual level). In the early twentieth century (and to a lesser degree in the interwar era), bequest statistics were analyzed in a far more intensive way than they were after the Second World War (we will revisit this point later). Let us also note that bequest declarations from the nineteenth century have been the object of significant studies (see notably Daumard 1973), which we will discuss when relevant.
43. To our knowledge, with the exception of the study by Daumard (1973), which deals solely with the nineteenth century, the only French study dealing with the evolution of wealth inequality over a relatively long period is due to the work of Masson and Strauss-Kahn (1978), but it does not deal with the 1949–1975 period (in addition, the method used is not entirely satisfactory, because Masson and Strauss-Kahn start with a study of 1975 wealth-holdings, and go backwards to 1949 using macro-economic data on capital incomes). We will revisit the historical studies carried out by Anglo-Saxon authors based on bequest statistics when we compare the French experience to foreign experiences.
44. See Appendix J.

I. A FIVEFOLD INCREASE IN “AVERAGE” PURCHASING POWER  
IN THE TWENTIETH CENTURY

1.  $2,000^{1/100} = 1.079$ .
2. We refer here to the price index furnished by Bayet (1997, 25–26) for the nineteenth century, which Bayet reports having compiled on the basis of the Kuczynski and Singer-Kerel indices (no “official” index exists for the nineteenth century), which rises from a value of 46 in 1820 to 61 in 1914 ( $61 / 46 = 1.33$ , and  $1.33^{1/94} = 1.0030$ ). According to the index used by Bayet, this increase was entirely due to the period 1820–1873: the index stood at 61 in both 1873 and 1914, with the slight deflation of retail prices in the 1873–1896 period being negated by the slight inflation of the 1896–1914 years.
3. See Marczewski (1987, 25). Generally speaking, Marczewski (1987, 9–33) provides a very useful chronological description of the cycles of the French economy over the 1815–1938 period. For a chronology of the cycles of the French economy since the Second World War, see, for example, Portier (1912, 68–69), Allard (1994), or Candelon and Hénin (1995). For a reminder of annual GDP growth rates from 1900–1998, we invite the reader to refer to Appendix G, Table G-1, column (3); (the 1900–1998 annual inflation rates on which Figure 1-1 is based are reproduced in Appendix F, Table F-1, column [6]).

4. See Villa (1993, 2–80) for a detailed macroeconomic analysis of the reconversion crisis of the early 1920s, and in particular the recession of 1921.
5. Officially, the gold value of the franc fixed by the law of 7 Germinal of the year XI (March 28, 1803) was not modified until the monetary law of June 25, 1928; in reality, since 1914 the Bank of France had been exempted from converting its notes into gold or silver specie, and the “gold-franc” *de facto* became a “paper-franc” between 1914 and the monetary stabilization of 1926–1928. See Sauvy (1984, 1:59–72) and Jeanneney (1991, 289, 309).
6. See Appendix F, Table F-1.
7. See Appendix G, Table G-1, column (2).
8. According to available estimates (see Appendix G, Table G-1, column [2]), the lowest level reached by GDP (expressed in constant francs) during the First World War was about one-third the level of 1913 (244.5 billion 1938 francs in 1918, versus 368.4 billion in 1913), whereas the lowest level reached during the Second World War was almost half the level of 1938 (222.2 billion 1938 francs in 1944, the lowest level for France in the twentieth century, versus 395.8 billion in 1938).  $20^{1/100} = 1.030$ .
9. See Chélini (1998) for a detailed analysis of the inflationary process from 1944 to 1952, especially the multiple aborted stabilization plans, from the Mendès-France plan of February 1944 (which could not be implemented given the sharp wage increases granted in 1944–1945) to the Blum plan of January 1947 (whose heavy-handed price-reduction and wage-freeze measures did not last long—just a few months before the great strikes of 1947 and the departure of the Communists from the government); the Mayer plan of December 1947 ultimately conquered hyperinflation over the course of 1948, and the Pinay plan of 1952 achieved definitive stabilization. According to Chélini, inflation could have been defeated before 1952, but the relatively heavy-handed solutions that that implied were supported by hardly more than a fraction of the SFIO (Section française de l’Internationale ouvrière; French Section of the Workers’ International) and MRP (Mouvement républicain populaire; Popular Republican Movement) and were ultimately fought off by a heterogeneous coalition made up of both liberals and Communists (who were then at the highest point in their electoral history).
10.  $20^{(1/100)} = 1.030$
11. To convert 1959 old francs into 1998 new francs, income expressed in 1959 current francs must be multiplied by 0.0826, which approximates to dividing by 12. But to convert 1960 new francs into 1998 new francs, new-franc incomes must be multiplied by 7.96 (it would have been necessary to multiply them by 0.0796, that is, divide them by about 12.5, if the old franc had been kept).
12. See Appendix H, Table H-1, column (1)
13. See Appendix H, Table H-1, column (3).
14. See Appendix H, Table H-1, column (4).
15. See Appendix H, Table H-1, column (2).
16. See Appendix H, Table H-1, column (8).
17. [Translator’s note:] See the translator’s note on the term *foyer fiscal* at Introduction, note 2.

18. See Part Two, Chapter 4, section 2. Over the 1914–1998 period, the only changes to the rules for combining individuals into tax units have concerned the specific conditions for assigning infirm individuals to tax units in which they are cared for (conditions for age, infirmity, etc.). But beside the fact that these conditions have changed in opposing directions (they were tightened in some periods and made more generous in others, without any clear trend over the course of the century), and that the incomes of the individuals in question are generally very small (one must in general be not only infirm but also “without independent resources” to be assigned to a tax unit), this issue of infirm individuals (fortunately concerns only a very small fraction of tax units, and these relatively minor legislative changes may thus be ignored. On the other hand, the law on the PACS (*pacte civil de solidarité*; civil solidarity pact) adopted in 1999, and which made it possible for domestic partners to file a joint tax return, like married couples, is liable to cause the first major break in the tax-unit concept since 1914.
19. The statistical tables always report the distribution of declared incomes at the tax-unit level. The tax administration has always disregarded the household concept, just as the census has always disregarded the tax-unit concept).
20. Because practically all tax units not subject to tax have had to file returns only since the mid-1980s, and because tax units not subject to tax have only been taken into account in the tax statistics since the 1985 tax collection, tax statistics available over long-term periods only give information about the number of tax units subject to tax. Thus we have had to carry out our own estimate of the long-term evolution in the total number of tax units (those subject and not subject to tax, combined) (see Appendix H, section 1).
21. See Appendix H, table H-1, column (9).
22. See Appendix H, table H-1, column (10).
23. Since differences in the average family structure of tax units as a function of income have always been of relatively limited magnitude (see Appendix B, section 3.2), the fact that we have not taken into account changes in the size of the tax units belonging to the various fractiles of the income hierarchy could only marginally bias our estimates and conclusions.
24. See Appendix H, section 2, Table H-5, column (1). Recall that the employed population combines all labor-force participants occupying a job (the size of the employed population is thus by definition equal to the total number of jobs), as opposed to the active population, which also includes the unemployed (if we were to include the roughly 3 million who were unemployed in the late 1990s, the active population would be around 25 million, rather than 22 million).
25. We invite the reader interested in a complete analysis of the evolution of the employment level in France in the nineteenth and twentieth centuries to refer to Marchand and Thélot (1991, 1997), who carried out an ambitious project of reconstruction on a consistent base of employment levels by sex, age, sector, etc., based on information provided by every census since 1806 (notably, Marchand and Thélot make corrections to the raw census figures to take into account changes in accounting for female



- employment, in particular female employment in the agricultural sector). The figures we cite in the following notes come from Marchand and Thélot (1997, table A5, 222–224).
26. According to Marchand and Thélot, the labor force participation rate of men ages fifteen to sixty-four, which had always been above 95 percent from 1806 to 1946, was still 92 percent in 1962 and 88 percent in 1968, before falling to 74 percent in 1995 (the decline in the employment rate of men is even sharper than the drop in their participation rate, given the high employment of the 1990s).
  27. According to Marchand and Thélot, the participation rate of women ages fifteen to sixty-four, after slightly increasing over the nineteenth century (from 47 percent in 1806 to 55 percent in 1906), fell during the first third of the twentieth century, then stabilized around 47–48 percent between 1936 and 1968, before rising, starting in 1968, to reach 57 percent in 1990 and 60 percent in 1996. Between 1806 and 1990, the participation rate of women ages fifteen to sixty-four was thus always in the range of 45 percent to 55 percent, and it would not be until the 1990s that the rate would slightly surpass the 55 percent threshold (if we take into account the very high unemployment of women in the 1990s, we would even note that the female employment rate in the late twentieth century was slightly lower than its level at the start of the century).
  28. According to Marchand and Thélot, the overall participation rate for those ages fifteen to sixty-four (men and women combined), after steadily increasing over the nineteenth century (from 70 percent in 1806 to 78 percent in 1906), fell continually over the twentieth century (from 78 percent in 1906 to 66–67 percent in the 1990s); the drop would be even larger if the rise in unemployment were taken into account.
  29. See Introduction, section 1.1, Figure I-1.
  30. We often speak of the “factor distribution of income” (or the “functional income distribution”) in regard to this macroeconomic distribution between labor income, capital income, and mixed income, referring to the “factors” of production among which income is distributed, as opposed to the “individual” distribution, which refers to the microeconomic distribution of income among individuals (or among tax units or households).
  31. We omit mention here of a third structural evolution in the composition of household income, that is, the considerable increase in the share of social benefits (especially retirement pensions) within labor incomes, a shift that also represents a major upheaval in French society (along with the aging of the population, notably), since it represents an internal shift within labor incomes, and not a change in the overall distribution between labor, capital, and mixed incomes.
  32. For absolute numbers, see Appendix H, section 2, Table H-5, columns (2) and (3). This decomposition between wage-earning and self-employed workers was obtained using estimates from the censuses carried out by the SGF and then by INSEE since 1901, with no adjustments made on our part, classifying all “isolated laborers” from the pre-World War I and interwar periods as self-employed workers, a convention that seems to us the least bad way of avoiding artificial discontinuities, but which



means that the percentage of self-employed workers shown in Figure 1-4 for the pre-World War I and interwar periods is probably slightly overstated. But what is important is that these technical difficulties do not call into question the orders of magnitude of the overall trend.

33. See Appendix H, Table H-5, columns (4) and (8).
34. See Appendix H, Table H-5, columns (5) and (9).
35. See Appendix H, Table H-5, column (5).
36. See Appendix G, Table G-5, column (17).
37. See Appendix G, Table G-5, column (17).
38. See especially Paxton (1996), who showed how the year 1935, which represented the high point of deflation, was also the year peasant agitation reached its high point.
39. See Appendix G, Table G-6, column (14).
40. See Appendix G, Table G-5, column (17), and Table G-6, column (14).
41. In theory, self-provisioning is taken into account by the national accounts and included in the mixed income of farmers, but it goes without saying that the concept is very difficult to assess.
42. To obtain the estimates for the “mixed-income share” cited earlier, we calculated the gross operating surplus share of “individual enterprises” (see Appendix G, Tables G-5 and G-6). In the national accounts, individual enterprises comprise all firms having no legal personality separate from that of their operator (peasants, artisans, shopkeepers, etc.), which in practice may lead to the exclusion of a certain number of “big” self-employed workers (for example, partners in a general partnership).
43. Capital gains represent the only form of capital income not taken into account in the national income accounts, and in Part Three (Chapter 6, section 1.3), we will return to the specific problems posed by capital gains.
44. See Appendix G, Table G-5, column (14), and Table G-6, column (11).
45. See Appendix G, section 2.
46. See Appendix G, Table G-5, columns (8) and (9).
47. See Appendix G, Table G-5, columns (8) and (9), and Table G-6, columns (6) and (7).
48. See Appendix G, Table G-5, columns (8) and (9), and Table G-6, columns (6) and (7).
49. See section 5 in this chapter, in particular Figures 1-9 and 1-10.
50. See Appendix G, Table G-5, column (8), and Table G-6, column (6).
51. See Appendix G, Table G-5, column (8), and Table G-6, column (6).
52. See especially Sauvy (1965–1975, 1984), whose analyses have been echoed widely in general works on the history of the interwar period.
53. Figure 1-5 depicts the distribution of the “net” value-added (that is, net of taxes such as the VAT, which are levied on total value-added) of firms (other than individual enterprises) between workers’ compensation (labor incomes) and the gross operating surplus (capital incomes) (see Appendix G, section 2).
54. See, for example, Piketty (1997, table VIII, 40) for series dealing with the United States, France, and the United Kingdom for the 1920–1995 period, which show a

- split of the “two-thirds–one-third” type for all countries and for all years (the figures for France that we provided at that time are very slightly different from the estimates ultimately retained here).
55. We will return in Chapter 2 (section 2.2) to the question of the evolution of the distribution of value-added over the course of the First World War.
  56. See Appendix G, Table G-3, column (16). However, it is possible that the estimates of the labor share undertaken for the very first years of the century are slightly overstated (see Appendix G, section 2).
  57. In particular, it should be pointed out that the trough seen in 1944–1945 in Figure 1-5 is entirely consistent with both the estimates undertaken at the time by Mitzakis (1944) based on tax-receipt statistics for the investment-income tax (*impôt sur le revenu des valeurs mobilières*, or IRVM) (see Appendix G, Table G-12) and with the statistics from the tax on industrial and commercial profits (*impôt cédulaire sur les bénéfices industriels et commerciaux*, BIC), which also show that a very significant decline in profits (in particular the profits of large firms) took place over the course of the Second World War (see Appendix G, Tables G-15 to G-17).
  58. See Malissen (1953, 89). We reproduce the main results obtained by Malissen in Appendix G, Table G-15.
  59. See Appendix G, on the limitations of the available source for carrying out such estimates for the interwar period.
  60. This interpretation is confirmed in its entirety by the estimates of Dugé de Bernonville regarding the structure of investment incomes in 1913 and in the 1920s, which shows a very strong growth in the share of incomes arising from state-issued securities and a sharp drop in the share of incomes arising from securities issued by firms (see Appendix G, Table G-14) (which is especially striking given the opposite trend that prevailed at the start of the century and on the eve of the war; see Michalet (1968, 158–161). On the importance of capital incomes created by the state in the 1920s (in the form of interest on the public debt), see also Lecaillon (1948, 235–238).
  61. See Appendix G, Table G-1, columns (9) and (10). We refer here to the household-income share of market GDP (see note 63 in this chapter).
  62. The fact that the high level of the undistributed-profit share at the end of the Second World War did not lead to a drop in the household income share of GDP seems to be explained on the one hand by the fact that this high level, though it played a large role from the point of view of household investment income, remained of relatively modest size when compared to GDP or to total household income (recall that fluctuations in the investment-income share of total household income were always between 5 percent and 10 percent); and on the other hand by the fact that the immediate postwar years were also years when the state was taking on considerable debt to preserve household purchasing power, and it was doing this while, notably, calling on foreign assistance.
  63. It would look (slightly) different if we observed the evolution in the household-income share of “total” GDP (market and nonmarket), rather than the evolution in

the household-income share of market GDP alone: nonmarket GDP, which was integrated into the national accounts in the 1970s, measures the “value” of non-market services provided by the state (schools, hospitals, police, etc.), a “value” supposedly equal to the cost of production of these services, and a cost that mainly comprises the wages of public employees; nonmarket GDP represented about 10 percent of market GDP at the beginning of the 1950s (and a similar figure in earlier periods), and it represented 20 percent in the 1980s and 1990s (see Appendix G, Table G-1, column [5]), so the household-income share of total GDP declined by about 10 percent over the century.

64. This notion of “fiscal income” is the same as that used by INSEE since 1956 in its publications on the “Fiscal income” studies (see Appendix I, section 1).
65. 2. The methodology used to carry out these adjustments is described in Appendix B (section 1).
66. In fact, fictive rents only stopped appearing in income tax filings starting with the 1964 tax collection (see Chapter 2, section 1.2.1.2, and Chapter 4, section 4.4).
67. Capital gains pose a special problem, since they are also ignored by the national accounts (unlike all the other income categories mentioned here).
68. See Appendix G, Table G-2, column (3). The methodology and sources used to estimate the evolution of the fiscal income share of household income in the national-accounting sense are described in detail in Appendix G, section 1.
69. Expressed in current francs, market GDP rose from about 35 billion francs at the beginning of the century to about 7 trillion francs in the late 1990s (see Appendix G, Table G-1, column [1]), increasing by a factor of about 200 (actually 20,000, given the shift from old to new francs); since prices rose by a factor of around 20 between the two endpoints of the century (see Appendix F, Table F-1, column [7]) (actually 2,000, given the shift from old to new francs), this means that market GDP expressed in constant francs rose by a factor of around 10 (if we take into account nonmarket GDP (see note 63 in this chapter), the factor of multiplication would be around 11–12).
70. See Appendix G, Table G-2, column (7). The minimum level was reached in 1916, with an average income of 25,717 francs, and the maximum in 1925, with an average income of 33,009 francs ( $33,009 / 25,717 = 1.284$ ). Average income in the 1900–1914 period was 29,051 francs ( $33,009 / 29,051 = 1.136$ ).
71. According to Villa’s estimates, GDP (expressed in 1938 francs) rose from 473.1 billion francs in 1929 to 391.5 billion in 1935 (see Appendix G, Table G-1, column [2]), a decline of 17.2 percent ( $391.5 / 473.1 = 0.828$ ).
72. See Appendix G, Table G-2, column (7). Average income per tax unit rose from 28,937 francs in 1934 to 30,245 francs in 1935, an increase of 4.5 percent ( $30,245 / 28,937 = 1.045$ ).
73. Expressed in current francs, average income per tax unit fell from 8,132 francs in 1934 to 7,794 francs in 1935 (see Appendix G, Table G-2, column [6]), a decline of 4.2 percent ( $7,794 / 8,132 = 0.958$ ), while the consumer price index fell by 8.3 percent between 1934 and 1935 (see Appendix F, Table F-1, column [5]).

74. See Appendix G, Table G-2, column (6).
75. See Sauvy (1965–1975, 1:281). Note, still, that Sauvy later revised slightly downward his estimate of the production level reached in 1929, which led him to qualify his conclusions (see Appendix G, Table G-21, and Sauvy (1984, 2:84–85).
76. This interpretation is laid out especially clearly in the conclusion of their study (see Carré, Dubois, and Malinvaud (1972, 611–624).
77. For a classic exposition of the Regulation school argument, see Boyer (1978, 1987).
78. See in particular Chapter 7, section 3.
79.  $10 / 1.15 = 8.7$
80.  $122,930 / 23,383 = 5.26$ . On the method used to estimate the evolution of the annual average net wage per worker (all workers included), see Appendix E, sections 1–3.
81. A detailed examination of the growth in social benefits and contribution rates over the course of the twentieth century would lie far beyond the scope of this book. We will limit ourselves to noting that the orders of magnitude are consistent: assuming that social-insurance contribution rates were zero at the start of the century and taking a worker-contribution rate of around 20 percent for the end of the century, we would find that total labor compensation grew roughly 75 percent more rapidly than the net wage between the two endpoints of the century (a gross wage of 100 corresponds to a net wage of 80 and a total labor compensation of 140, and  $140 / 80 = 1.75$ ). Thus an increase in the net average wage by a factor of 5.26 would correspond to an increase by a factor of 9.21 in the total average labor compensation ( $5.26 \times 1.75 = 9.21$ ) (actually, social-insurance contributions were not quite zero at the beginning of the century, and the approximations of 20 percent and 40 percent do not apply to all workers at the end of the century, so that a rigorous accounting of the actual increase in effective contribution rates would lead to a factor of growth slightly below 9.21, probably around 8.5–9.0).
82. This 20 percent gap may seem a bit small insofar as we have seen that capital incomes alone represented about 20 percent of household income at the beginning of the century. This apparent paradox is explained by the fact that fiscal income is less than income in the national-accounting sense, especially with respect to the mixed incomes of nonwage-earning workers (whose average fiscal income, according to our estimates, was slightly lower than that of wage earners at the beginning of the century.
83. See Appendix G, Table G-2, column (11).
84. See Appendix G, Table G-2, column (11).
85.  $122,930 / 114,523 = 1.07$
86. See Bayet (1997).
87. Indeed, these problems of estimation continue to fuel controversy: just recently, a study by the U.S. Senate sought to demonstrate that an inadequate accounting for new products (especially computers and their spectacular increases in quality) caused the “official” price index used in the United States to overstate inflation by around 1.1 percent per year, and thus to underestimate real growth in household purchasing power by about 1.1 percent per year (which would correspond to a nearly 40 percent underestimation of purchasing-power growth over 30 years and

- nearly 300 percent over 100 years). INSEE quickly made clear that the estimation techniques used in France caused the French index to underestimate inflation by much smaller proportions than the American index, but while the arguments advanced are broadly convincing, the problem of radically new products will, by definition, never be resolved in a completely satisfactory way (see Lequiller 1997).
88. See *Annuaire Rétrospectif de la France 1948–1988* (INSEE, 1990), 288.
  89. On the history of price indexes in France, see the references given in Appendix F.
  90. The detailed series on individual prices compiled by Jean Fourastié and his team were published in Fourastié (1958, 1961, 1970) and Fontaine (1966). Fourastié also published several books that recapitulated, extended, and interpreted the main results of this vast research project (see Fourastié 1969, 1977, 1979, 1987) and Fourastié and Bazil (1980, 1984), whose first steps were taken in the immediate postwar period (see Fourastié 1951). In order to measure the evolution of living standards on the basis of price samples, Fourastié generally uses as his sole reference income the “wage of a provincial blue-collar laborer” (we refer to this “Fourastié series on provincial blue-collar-labor wages” in Appendix E, section 1), but some of these works also deal with the issue of the evolution of inequality—unfortunately in a somewhat off-handed way—to which we will return in Chapter 3 (see Chapter 3, section 2.4).
  91. See *Annuaire Statistique de la France—Résumé rétrospectif 1966* (INSEE, 1966), 418, for prices at the beginning of the century, and *BMS* January 1999, 105, for 1998 prices (in the notes that follow, we will use the abbreviation “AR 1966” to refer to the retrospective yearbook published by INSEE in 1966).
  92. See *AR* 1966, 415, and Fourastié (1958, 81; 1970, 85).
  93. See *BMS* January 1999, 104.
  94. According to Fourastié’s estimates, the price of bread would be about half its level if it had followed the same path as the price of wheat and grains over the nineteenth and twentieth centuries (see Fourastié and Bazil 1984, 59; see also Fourastié 1987, 40).
  95. See *AR* 1966, 416, and Fourastié (1970, 88). See *BMS* January 1999, 105.
  96. See *BMS* January 1999, 105.
  97. The sources used are the same as for apples.
  98. See *AR* 1966, 416, and Fourastié (1970, 71) for prices at the beginning of the century, and *BMS* January 1999, 105, for 1998 prices (3.89 francs per liter for “reduced-fat UHT milk” and 5.81 francs for “pasteurized whole milk”).
  99. See *AR* 1966, 416, for prices at the beginning of the century, and *BMS* January 1999, 105, for 1998 prices.
  100. See *AR* 1966, 417, for prices at the beginning of the century, and *BMS* January 1999, for 1998 prices. The price of sugar, which had already fallen in half between 1875 and the early twentieth century, illustrates the case of a food product that benefited from industrial-type technical progress (the sugar-producing industry, in this case) (see Fourastié 1977, 105).
  101. See Fourastié (1977, 101).
  102. See *AR* 1966, 418, and Fourastié (1961, 67) for prices at the beginning of the century, and *BMS* January 1999, for 1998 prices.

103. See Fourastié (1977, 12).
104. See Appendix E, Table E-3, column (11) ( $34,000 / 52 = 654$ ).
105. See Fourastié and Bazil (1984, 239).
106. See Appendix E, Table E-3, column (11).
107. See, for instance, Fourastié and Bazil (1984, 259–260) for price series of electrical appliances and automobiles since the interwar period.
108. See, for example, Fourastié (1958, 456–467) and Divisia, Dupin, and Roy (1956, 1:15).
109. See *BMS* January 1999, 106.
110. In fact, taking into account the reduction in working time and the rise of social-insurance contributions, the purchasing power of the annual average net wage (or of the average income) expressed in terms of haircuts actually fell: the average price of a haircut was slightly less than 50 centimes at the beginning of the century (see, for example, Divisia, Dupin, and Roy 1956, 1:18), and it is around 100 francs in 1998 (see *BMS* January 1999, 107), an increase of a factor of around 200, rather than 100.
111. See especially Fourastié (1969, 85; 1987, 54) and Fourastié and Bazil (1984, 262–263).
112. See, for example, *AR* 1966, 417, and Divisia, Dupin, and Roy (1956, 1:18).
113. The fact that the index fluctuated between 105 and 110 before 1910 testifies to the fact that rents did not completely follow the slight inflationary burst of the years 1909–1911.
114. Except for a slight nominal decline in rents in 1935 and 1936, following the deflationary decrees carried out by the Laval government in 1935.
115. See Appendix F, Table F-1, column (9).
116. It is very difficult to say to what extent the SGF / INSEE rent index properly adjusts for the growth in the size and quality of housing over the long run. There do not seem to be any other rent indexes (Fourastié and Bazil 1984, 272); to calculate the ratio between the rent index and the overall price index, which they call the “purchasing power of rents,” it is clear that they use the SGF / INSEE index, though they do not make this explicit.
117. See Omalek et al. (1998, 12,15). The history of housing quality over the course of the twentieth century obviously far exceeds the scope of this book. For some bibliographical materials, see especially the references given in Curci (1990), Taffin (1993), and Laferrère (1999). On how INSEE’s censuses and studies have gradually made possible a better understanding of the evolution of the housing stock, see Durif (1987).
118. Here again, the available data are imperfect, but these imperfections do not seem to call into question the general trend and orders of magnitude. The estimates for 1914, 1924, 1939, and 1948 come from Taffin (1993, 407–408), and they measure the average rent share of the budget of an industrial worker in Paris. The estimates for 1970, 1984, and 1996, which come from INSEE’s studies of housing, concern all renting households and are in principle more reliable. The evolution observed would be little different if we used the average rental share of a Parisian industrial worker’s budget for the years 1970, 1984, and 1996: the share would increase to around 14 percent in 1996 (see Laferrère 1999, 334), instead of 15.9 percent for all renting households (also, it is perhaps more justified to compare the average household

from the 1990s to an industrial worker's at the beginning of the century, when blue-collar workers had incomes roughly equivalent to those of an average household). The percentages used here for the years 1970, 1984, and 1996 are "net effort rates," that is, the rental share (net of housing assistance received) in the budget; the increase in terms of "gross effort rate" (that is, without taking into account housing assistance) since 1970 would be even higher, since the gross rate would rise from 12.5 percent in 1984 to 19.6 percent in 1996, and only from 10.3 percent to 15.9 percent for the net rate (see Omalek et al. 1998, 19–20), which is explained by the strong growth in housing benefits in the 1980s–1990s (see Laferrère 1999, 334).

119. As noted by Lhomme (1968, 68), the significant reduction in working time that took place over the first half of the century would have to be taken into account before concluding that this period was characterized by a genuine stagnation in "living standards."
120. Indeed, some economists think these technological innovations (especially in computing) have made possible a significantly greater growth in purchasing power than that measured by official price indexes (see Chapter 1, section 5).

## 2. THE EVOLUTION OF THE LEVEL AND COMPOSITION OF TOP INCOMES IN FRANCE IN THE TWENTIETH CENTURY

1. See Part Three, Chapter 7, section 1.
2. See Appendix B, Table B-16, columns RF and RCM, for the years 1917 and 1945. In fact, for 1945, we also observe a very slight slowdown in the investment-income share (between the P99.9–99.99 fractile and the P99.99–100 fractile), a unique phenomenon that does not occur for any other year, and which illustrates the exceptional character of the collapse in investment income in 1944–1945, especially in dividends paid to large shareholders, to which we will return (see section 1.2.1).
3. For the exact year-by-year figures, see Appendix B, Table B-16, columns RF.
4. For the exact year-by-year figures, see Appendix B, Table B-16, columns RCM.
5. See Appendix B, Table B-17, columns RF and RCM, for P99.99–100 (we observe that the ratio between the investment-income share and the rental-income share never falls below 5.5–6, that it usually stands at around 10, and that it even reaches levels above 100 in the late 1940s and in the 1950s, when the rent freeze pushed the rental-income share down to microscopic levels (see section 1.1.2).
6. On the other hand, there is no guarantee that the overall rate of fraud and evasion (legal or otherwise) for investment income will be a rising function of income within the top decile (we will see that the opposite is probably the case, due to the very large exemptions benefiting "small" rental incomes), so there is no guarantee that accounting for it will increase the growth of the rental / investment income ratio within the top decile; but the fact is that the growth of this ratio is so large that nothing is likely to cast it into doubt.
7. In Part Three we will revisit the findings concerning inequality dynamics in the nineteenth and twentieth centuries that may be drawn from statistics derived from inheritance declarations (see Chapter 6, section 3, and Chapter 7, section 2.3).



8. See Appendix A, section 2.2.
9. The only exceptions to this general rule are the following (see Figure 2-4): in 1950, 1953, 1954, and 1955, the mixed-income share of earned income for the P99.9–99.99 fractile is very slightly above that of the P99.99–100 fractile; in 1974, 1979, 1980, 1981, 1984, and 1985, the mixed-income share of earned income for fractile P99.5–99.9 is very slightly below that for fractile P99–99.5, and in 1990 and 1992, it is very slightly above that for fractile P99.9–99.99. We may also note that all of these exceptions (which are extremely small in magnitude and could be due to slight estimation errors) can be explained by the fact that all the mixed-income shares of earned income within the top 1 percent fell back considerably after the Second World War (no exception is seen in the interwar period), and that they do not undermine the fact that the mixed-income share of earned income for the top 1 percent (taken as a whole) is always far higher than it is for the fractiles below it (see Figure 2-3).
10. See Chapter 1, section 3.1, Figure 1-4.
11. On the other hand, as is the case for investment income (section 1.1.1 of this chapter), the overall rate of fraud and evasion (legal or otherwise) for mixed incomes is probably a declining function of the income level (especially because of the standard assessment provisions benefiting “small” mixed-income-earners), so there is no guarantee that accounting for fraud and evasion would increase the rise of the mixed-income share of earned incomes within the top decile; but just as for the investment income / real-estate income ratio, the fact is that the rise in this share is so large that nothing is likely to call it into question.
12. In the tax system established in 1914–1917, profits of unincorporated businesses were also subject not only to the progressive income tax, but also to the same profit tax as incorporated businesses (at least with respect to BIC); we will return to this point when we examine the evolution of income tax legislation since the 1914–1917 reform (see Part Two, Chapter 4).
13. The way we have dealt with the various categories used in the raw tax statistics is described in more detail in Appendix A (section 2.2).
14. Transforming into an SA notably allows executives to benefit from employee status, which is generally more advantageous with respect to Social Security. Another tax advantage for incorporated businesses (SA and SARL) is that the latter can build internal reserves (only dividends distributed to shareholders, as well, of course, as compensation paid to employed executives or managers, are taxable under the progressive income tax), whereas all profits of unincorporated businesses (in particular SNCs) are subject to the progressive income tax (the very notion of undistributed profit, moreover, is unclear for unincorporated businesses, given the absence of a distinction between the company’s accounts and those of its owners). On the particular problems posed by undistributed profits for estimating the “real” level of very high incomes, see Part Two, Chapter 6, section 1.4.
15. See Appendix B, Table B-17, fractile P99.99–100, columns RF and RCM.
16. See Appendix B, Table B-17, fractile P99.99–100, column BIC. Note that the profits of *associés* of SNCs were automatically included in BIC until 1948, and that starting



- in 1948 we have also included the newly created category of RGA (*rémunérations des gérants et associés*) in BIC (see Appendix A, section 2.2).
17. For precise references to publications describing in detail the sources and methods of the national accounts, see Appendix G.
  18. Given that the capital share of income for fractile P99.99–100 was around 60 percent in the 1930s (despite the fact that the crisis had pushed business profits and dividends to levels significantly lower than they had been in the late 1920s and the early part of the century), we could even suppose that this share exceeded 60 percent in the late 1920s and on the eve of the First World War (perhaps reaching levels of around 70–80 percent). This would also be consistent with the results we have obtained on the evolution of income, wage, and wealth concentration (the absence of reliable data on the composition of income by fractile before 1917–1920 and between 1920 and 1932 unfortunately precludes greater precision).
  19. A “real,” and at first sight relatively attractive, explanation might have been the hypothesis that there was less incentive for wealth accumulation by top income earners living mainly off of earned incomes after the Second World War, due to both their financial ruin and to the system of mandatory saving via social contributions for the financing of pensions. This could explain why the capital-income share of incomes for these social groups never regained its interwar level, in contrast to what we observe for tax units of the P99.99–100 fractile, whose very high standard of living continued to depend crucially on income from wealth holdings.
  20. See Appendix B, Table B-17, fractile P90–100, column RF.
  21. This also explains why the capital-income share reached its secular trough in 1948–1949 for all fractiles except fractile P99.99–100, for which rental incomes mattered little and which saw its capital income reach its lowest point in 1944–1945.
  22. Only tax returns from the years 1934, 1936–1937, and 1945–1946 were sampled in such a way as to separate out real rental incomes (corresponding to rents actually received by their owners) and fictive rental income (corresponding to the rents that owner-occupiers are supposed to pay themselves), and the results obtained indicated a fictive-rent share of total rental income that is larger for very high income earners than for other taxpayers (see Appendix A, section 2.2).
  23. Actually, this exemption did not result in any notable discontinuity in 1964 (according to our estimates, the rental-income share of top-decile income fell from 2.2 percent in 1963 to 2.0 percent in 1964, before resuming its upward movement starting in 1965, which suggests that fictive rents represented around 10 percent of 1963 rental incomes; see Appendix B, Table B-17, fractile P90–100, column RF). This is explained by the fact that before 1964 fictive rents had benefited from very favorable estimation rules (generally speaking, after the Second World War, all rental incomes enjoyed highly favorable tax rules, such as the limitation of taxable rental income to a certain multiple of rents in 1948, the year they reached their lowest level; see Chapter 4, section 4.4).
  24. See Appendix G, section 2.
  25. See in particular Birnbaum (1978, 25–51, 170–172).

26. See Figure 2-3.
27. See Appendix B, Table B-17, fractile P90–95, column TSP.
28. See Figure 2-3.
29. See Appendix B, Table B-17, fractile P95–99, column TSP (the wage share of total income fluctuated between 65 percent and 70 percent throughout the interwar period, with the exception of 1920, a particularly dark year for high wages (see Chapter 3), when this share was barely 50 percent).
30. See Figure 2-4 and Appendix B, Table B-18.
31. See Chapter 1, Figure 1-4, and Appendix H, Table H-5, for the corresponding figures.
32. See Appendix H, Table H-2. The number of “big” entrepreneurs reached its highest level in the 1931 census (around 177,000 employers with more than 5 workers, including 92,000 employers with more than 10 workers, and 18,000 employers with more than 50 workers, in the nonagricultural sectors, and around 32,000 employers with more than 5 workers, including 8,000 employers with more than 10 workers, and 300 employers with more than 50 workers, in nonagricultural sectors), before sharply declining during the 1930s crisis, probably due to bankruptcies.
33. The publications of the SGF presenting the methodology and results of censuses from the early part of the century and interwar era are very clear on this point (see, for example, *Résultats statistiques du recensement effectué le 8 mars 1936, tome I, 3e partie (Population active, établissements)*, p. 62 (SNS, Imprimerie Nationale, 1943).
34. See Appendix H, Table H-3.
35. See Appendix H, Table H-3.
36. See Appendix H, Table H-4.
37. The INSEE publications presenting the 1982 nomenclature are very clear on this point (see, for example, “Recensement général de la population de 1982—Population active,” *Les Collections de l'INSEE* n. 472 (série D [Démographie et emploi] n. 100) (INSEE, September 1984), 48. Note, however, that the 1954 nomenclature (applied in the 1954, 1962, 1968, and 1975 censuses), in contrast to the preceding and subsequent nomenclatures, classified PDGs, directors-general, etc., as wage-workers once the individuals in question chose to declare themselves as wage-workers (see, for example, “Recensement général de la population de 1975—Population active,” *Les Collections de l'INSEE* n. 328 (série D [Démographie et emploi] n. 67) (INSEE, October 1979), pp. 50–51.
38. See Appendix H, Table H-1, column (10).
39. The total number of members of the liberal professions rose from about 50,000 in the early part of the century and interwar years to 100–150,000 in the 1950s–1960s, 150–200,000 in the 1970–1980s, and more than 300,000 in the 1990s (see Appendix H, Tables H-2, H-3, and H-4), and the BNC share of total top-decile income, which was close to 4 percent in the interwar years (6 percent for the top centile), exceeded 10 percent in the 1980s–1990s (20 percent for the top centile) (see Appendix B, Table B-17, fractiles P90–100 and P99–100, columns BNC).

40. For the way we obtained this averaged estimate for the 1900–1910 years, see Appendix I, section 2.1. In Part Three (Chapter 7, section 2.3), we will revisit the question of what can be said about the evolution of income inequality before the First World War, in the absence of statistics from tax returns.
41. All of these averaged figures for 1900–1910 and 1990–1998 are presented in Table 2-1.
42. See Table 2-1.
43. According to the censuses, the number of domestic employees was around 900,000–950,000 in the early part of the twentieth century, before falling to 750–800,000 in the 1920s, 700–750,000 in the 1930s, 500,000 in the 1950s, 300–400,000 in the 1960s–1970s, and 150–200,000 in the 1980s–1990s (see Appendix H, Table H-2 to H-4). According to the estimates undertaken by Marchand and Thélot (1997, 237) based on nineteenth-century censuses, the number of domestics was relatively stable from 1850 to the First World War (at around 900,000–1 million) and did not decline significantly until after the First World War.
44. See Appendix G, Table G-1, column (3).
45. See Chapter 1, section 3.2.
46. This idea of firms taking advantage of the war to raise their prices without increasing wages, which automatically leads to a growing profit share of firms' value-added, was extremely widespread at the time. Using statistical data derived from the exceptional tax on war profits (which was in effect at the end of the First World War), Hautcoeur and Grotard (1999) recently attempted to show that this notion was wrong, and that the value-added split had in reality been stable overall over the course of the First World War. While interesting, these results do not rule out the possibility of an increase in the capital share during the first years of the war (including 1916), a hypothesis we find relatively plausible.
47. When we examined the composition of top incomes, we did not discuss the decomposition of capital incomes into dividends and interest, for the good and simple reason that the tax-return tabulations carried out by the tax administration ignore this decomposition; this limitation also prevents us from examining more precisely the role played by inflation and fixed incomes for the various top-income fractiles in different subperiods. However, an examination of statistics derived from inheritance declarations, as well as studies of household wealth carried out by INSEE, allow us to confirm that very large wealth holdings have always been composed mainly of shares rather than bonds (see Chapter 6, section 1.1). Also note that a portion of interest payments paid by the state were exempted from tax starting with the 1923 tax collection (see Chapter 4, section 4.4), which can also help explain the decline in the P99.99–100 fractile's share of total income over the course of the 1920s (those interest payments played too limited a role in very high income-earners' incomes for their disappearance from tax returns to have led to a genuine collapse, but they are sufficiently large to have caused a decline of around 10–15 percent of total income).
48. Expressed in current francs, the average income declared by fractile P99.99–100 declined over the course of the 1930s depression from a maximum of 2.31 million

- francs in 1929 to a minimum of 1.36 million francs in 1935 (see Appendix B, Table B-8, column P99.99–100), a decline of 41 percent ( $1.36 / 2.31 = 0.59$ ). By way of comparison, according to estimates by Dugé de Bernonville, which are generally regarded as being highly reliable (and rightly so), the total amount of dividends distributed by French companies fell from a maximum of 10 billion current francs in 1929 to a minimum of 5.5 billion current francs in 1935 (see Appendix G, Table G-14, column [7]), a decline of 45 percent. Also note that, according to statistics derived from the schedular tax on BIC income, the profits generated by the 100,000 more profitable firms declined by more than 50 percent between 1929 and 1935 (see Appendix G, Table G-18, column [3]).
49. Recall that these two sources (tax returns and macroeconomic data) are highly independent of each other (see section 1.2.1.1).
  50. As with the collapse of the 1930s, the orders of magnitude are consistent with the estimates of the total volume of income from investment securities. According to the estimates from Dugé de Bernonville and de Mitzakis, this amount rose from 30 billion current francs in 1938 to 35 billion current francs in 1943 (see Appendix G, Table G-12, column [2]), an increase of just over 15 percent in current francs ( $35 / 30 = 1.17$ ), which undoubtedly would have been smaller (or even negative) if only dividends were being considered (which Mitzakis unfortunately did not separate out). Expressed in current francs, the average income declared by the P99.99–100 fractile was practically identical in 1938 and 1943 (around 2 million current francs) (see Appendix B, Table B-8, column P99.99–100).
  51. See Sauvy (1965–1975, 2:442; 1984, 2:323), who uses the estimates of total private wealth from Cornut (1963, 399), and obtains a (private wealth) / (national income) ratio of 3.5 in 1934 and 1.2 in 1949. Given the fact that 1949 incomes were barely higher than they had been in 1934 (at most 10–20 percent), this means that total private wealth was cut by nearly two-thirds between the two dates.
  52. According to Sauvy (1965–1975), who uses the estimates for total private wealth obtained by Cornut (1963, 399) based on the “rate of inheritance transfer” (we discuss this method in Appendix J, section 1.4), the ratio (private wealth) / (national income) was greater than 5 in 1908, before falling to 3.5 in 1934 (a decline of more than 30 percent relative to 1908), then falling to 1.2 in 1949 (a decline of more than 65 percent relative to 1934). According to the estimates of total private wealth obtained by Divisia, Dupin, and Roy (1956, 3:62, Figure I), based on the “direct” method (that is, asset category by asset category, using highly varied sources), losses due to the First World War (61 billion gold-francs versus 34 billion gold-francs).
  53. For example, Divisia, Dupin, and Roy (1956, 3:73–76), which is very often cited, give a series of highly interesting examples where the 1945 nationalizations were carried out at prices far below their real values, but they do not try to quantify the overall impact on stock portfolios, let alone the impact on stock portfolios as a function of the size of the portfolio or the income level. See also the studies collected by Andrieu, Le Van, and Prost (1987), which give a better understanding of the political, social, and legal context of the 1945 nationalizations, but which do

- not make possible any precise quantification of the size of the losses experienced by the various strata of individual portfolios.
54. The “national solidarity tax” instituted by the August 15, 1945, decree was made up of a one-time levy on the value of all wealth assessed on June 4, 1945, at rates of up to 20 percent on wealth holdings over 200 million francs, and a one-time tax on all nominal increases wealth holdings that had taken place between 1940 and 1945, at rates of up to 100 percent for wealth increases above 5 million. In practice, given the very high inflation (prices more than tripled between 1940 and 1945; see Appendix F, Table F-1, column [6]), this levy amounted to a 100 percent tax on everyone who had not been sufficiently impoverished—as was admitted by André Philip, who had been a socialist member of General de Gaulle’s provisional government since the time of the liberation of Paris. He explained that it was inevitable that the tax would also fall on “those who did not become richer, and perhaps even on those who, in monetary terms, became poorer in the sense that their fortune did not increase at the same rate as the overall price level, but who were able to preserve their overall fortune, while so many of the French lost everything (see *L’Année Politique* 1945, 159).
  55. According to the estimates of Divisia, Dupin, and Roy (1956, 3:70), Russian securities held in France in 1914 represented about 11 billion in gold-francs, versus a French portfolio of foreign investment securities (taken as a whole) assessed at 40 billion gold-francs.
  56. See Appendix F, Table F-1, column (7) (the coefficient for converting from (old) francs to 1998 francs was around 20 for the early part of the century, and it was around 0.1 in the 1950s).
  57. See Chapter 1, section 1.
  58. See Chapter 1, section 2.2.
  59.  $15 / 4 = 3.75$ ,  $13.5 / 4 = 3.3$ .
  60. According to Kuznets’s model, for underpaid workers in the rural sector (farm workers, farm domestic labor, etc.), moving to the urban sector should be expected to have led to a significant reduction in inequality (generally speaking, a move to the urban sector by underpaid workers and small independent peasants from the rural sector should have led to a significant reduction in earned-income inequality), and it is this phenomenon (rather than shifts arising from capital income) that should explain the decline in income inequality.
  61. See section 2.2.
  62. We will revisit this point in Part Two (see Chapter 5, section 3.2).
  63. However, several authors have defended the heterodox thesis that the 1929 crisis had not merely been imported, but also had French origins (see especially Boyer 1978; Marseille 1980). The fact that very high incomes started declining in 1929 could thus be cited in support of this thesis. However, it must be noted that the mechanism pointed to by these authors (who stress the notion of a crisis of overproduction) is hardly consistent with the available data series, which indicate that the wage share of firms’ value-added was extremely stable over the 1920s and even had a slight upward

- trend in 1928–1929 (see Chapter 1, Figure 1-5, and Appendix G, Table G-3, column [16]); in Part Three, we will return to the debates surrounding the question of the origins of the 1929 crisis and of the *Trente Glorieuses* period (see Chapter 7, section 3).
64. The profits of large companies, as measured using statistics from the schedular tax on BIC income, also seem to have experienced an initial decline starting in 1929 (see Appendix G, Tables G-18 and G-19), but here again this may be “tax illusion.” For example, according to the estimates carried out by Dugé de Bernonville using statistics from securities-tax receipts (presumably a highly reliable source), income from investment securities reached a maximum level in 1929–1930, and only start declining in 1931 (see Appendix G, Table G-12). In any event, 1929 is the only year of the entire 1915–1998 period for which we have found a significant inconsistency between the short-term changes depicted in tax returns and the short-term changes depicted in traditional macroeconomic series—with the exception of 1924, which was a year of strong growth according to the traditional macroeconomic series (see Appendix G, Table G-20 to G-22), yet it was characterized by a decline in every top-income fractile’s share of total income (except fractile P90–95); it cannot be ruled out that the traditional series, which in the interwar years were based on a relatively limited statistical apparatus, overestimated growth in 1924.
  65. See Figures 2-8 and 2-12, and Appendix B, Tables B-14 and B-15, columns P99.9–99.99 and P99.99–100, for the corresponding series.
  66.  $13.5 / 8 = 1.69$
  67. In 1932–1934, wages represented around 45 percent of the income declared by fractile P99–99.5 and around 35 percent of the income declared by fractile P99.5–99.9 (see Appendix B, Table B-16).
  68. Between 1932 and 1934, the rental-income share of total income rose from 12.8 percent to 15.4 percent for fractile P99–99.5, and from 13.9 percent to 17.5 percent for fractile P99.5–99.9 (see Appendix B, Table B-16).
  69. Detailed analysis of our estimates very clearly demonstrates the precise role played by the various top-income strata: between 1930 and 1935, fractile P90–95 saw its share rise from 10.94 percent to 13.50 percent, and fractile P95–99 saw its share rise from 14.83 percent to 17.71 percent, thus in both cases an increase of around 20 percent. Fractile P99.5–99.9 saw its share rise from 5.80 percent to 5.90 percent; thus it was practically stable. Fractile P99.9–99.99 saw its share fall from 3.86 percent to 3.57 percent, and fractile P99.99–100 saw its share fall from 1.93 percent to 1.74 percent, thus in both cases a decline of around 10 percent (see Appendix B, Table B-15, columns P90–95, P95–99, P99–99.5, P99.5–99.9, P99.9–99.99, and P99.99–100).
  70. See Figure 2-12.
  71. See Figure 2-8.
  72. The average wage per wage earner, expressed in 1998 francs, increased by around 5 percent between 1935 and 1936 (from 32,630 francs to 34,754 francs), but by 1938 fell back to 32,324 francs, a level below that of 1935 (see Chapter 1, Figure 1-8, and Appendix E, Table E3, column [12] for the corresponding series); we observe the

- same evolution for the average wage of industrial workers (see Appendix E, Table E-1, column [7]).
73. See Chapter 1, Figure 1-5, and Appendix G, Table G-3, column (17), for the corresponding series: after sharply declining between 1930 and 1935, the capital share of firms' value-added began to decline very slightly in 1936, which may be interpreted as an immediate effect of the wage increases (before they were totally wiped out by inflation), then they increased substantially in 1937–1938. According to the statistics derived from the schedular tax on BIC income, firms' nominal profits, especially for large firms, and even more particularly for very large firms, were rising very strongly by 1936, and this movement continued in 1937–1938 (see Appendix G, Tables G-18 and G-19).
  74. See Appendix G, Table G-5, column (15): the mixed-income share of household income, which had fallen from 34.6 percent in 1930 to 30 percent in 1935, rose to 33.1 percent in 1936 and 34.5 percent in 1937.
  75. On the one hand, the BIC share of total income rose from 14.8 percent in 1934 to 20.6 percent in 1936 and 25.7 percent in 1937 for the P99.9–99.99 fractile, and from 20.7 percent in 1934 to 25.2 percent in 1936, and 29.2 percent in 1937 for the P99.99–100 fractile (see Appendix B, Table B-16). On the other hand, while it is certain that fixed-income securities suffered from the rise in inflation, it is hard to say whether dividends also contributed to the recovery in the P99.99–100 share seen in 1936–1937 (unfortunately, the statistics derived from the tax-return tabulations do not make it possible to decompose investment incomes into fixed [interest] and variable [dividend] incomes).
  76. See Figure 2-6, and Appendix B, Table B-14, column P90–100, for the corresponding series.
  77. The fact that everyone (or nearly so) was willing to accept the need to tax wealthy households at the end of the First World War is confirmed by the fact that the very large increase in tax rates on very high incomes was decided on and implemented in 1920 by the *Bloc national*—that is, by the parliamentary groups which before the war had rejected the very principle of an income tax (see Part Two, Chapter 4, section 3.2).
  78. See, for example, Sauvy (1965–1975, 2:279–307; 1984, 1:312–333), Asselain (1974; 1984, 2:53–65), as well as Carré, Dubois, and Malinvaud (1972, 619–620). This interpretation of events has been very widely taken up by most textbooks of interwar history. It also seems to have been shared by many political actors who lived through the period, including actors otherwise favorable to the Popular Front (see, for example, the remarks of Pierre Mendès-France in the interview reproduced in Fourquet [1980, 16–28]). For a recent econometric analysis, see Villa (1993, 103–112), which mostly confirms the traditional interpretation (Villa insists that the negative effects of the reduction in working time were limited not only by the devaluation but also by significant productivity gains, but he does not question the idea that the overall effects of the working-time reduction on economic activity and employment were negative).



79. There were countless statements of the Communists' position on this issue, in *L'Humanité* or on the floor of the Chamber of Deputies, in this period. For an example, see the front page of *L'Humanité* reproduced in Part Two (see Chapter 5, section 2.3, Image 5-1). See also Mouré (1998, 310–311).
80. The text of this speech is reproduced by Bonnefous (1956–1967, 5:335).
81. See Figure 2-10, and Appendix B, Table B-15, columns P90–95, for the corresponding series. In fact, the trough level reached in 1944 by the P90–95 share was slightly above that of 1920 (9.24 percent versus 8.18 percent), whereas the trough level reached in 1944 by the P95–99 share was, by contrast, below the trough level of 1920 (11.81 percent versus 13.46 percent). This could be explained by the fact that mixed income, whose importance rises with income, suffered more from the Second World War than from the First World War. We may also note a very slight boost in 1940–1941, which the mediocre economic information available for those dark years do not allow us to explain (for example, as we will see in Chapter 3, it is impossible to know the precise short-term movements of wage inequality over the Second World War years).
82. See section 2.1.2 and Figure 2-8, and Appendix B, Table B-14, column P99.99–100, for the corresponding series.
83. See Figure 2-12, and Appendix B, Table B-15, columns P99–99.5, P99–99.9, and P99.9–99.99, for the corresponding series. We may also note that the shares of fractiles P90–95 and P95–99 (see Figure 2-6), like those of fractiles P99–99.5 and P99.5–99.9, experienced a very slight and transitory acceleration in 1940–1941 (unlike the shares of fractiles P99.9–99.99 and P99.99–100, which steadily declined in every year of the Second World War).
84. See Figure 2-6 and Appendix B, Table B-14, column P90–100, for the corresponding series.
85. See Figure 2-6 and Appendix B, Table B-14, column P90–100, for the corresponding series. If we take the average of the values for the years 1919–1938, we get 42.74 percent.
86. See Figures 2-8, 2-10, and 2-12. Note, however, the particular case of the highest income fractiles (fractiles P99.9–99.99 and P99.99–100), whose shares of total income, in contrast to those of lower fractiles, followed a slight downward trend over the 1945–1968 period. We have already said that this particular situation could be explained by the effects of the income tax (see section 2.1.3), an issue we will revisit in Part Two (see in particular Chapter 5, section 3.2). Thus, this is a very different situation from that of the years 1930–1935 and 1936–1938, when the fact that the highest incomes moved in opposite directions from the fractiles below them was the “natural” result of reversals in the business cycle.
87. Condemnation of the inegalitarian character of growth, for example, lay at the center of the symposium organized in 1965 at Arras, the proceedings of which were published in 1966 under the pseudonym “Darras” (see Darras 1966). We may also note that 1966 saw the creation of CERC (*Centre d'étude des revenus et des coûts*), whose mission was to “bring together the information necessary for the institution



of an incomes policy” (statement of April 18, 1966). This shows that the issue of how the fruits of growth were being shared was in the air well before May 1968.

88. See Part Three, Chapter 6, section 1.

### 3. WAGE INEQUALITY IN FRANCE IN THE TWENTIETH CENTURY

1. [Translator’s note:] The many terms associated with the French socioprofessional categories are given formal, often elaborate, definitions by France’s national statistical agencies, for which precise English equivalents are generally lacking. However, the broadest categories, such as *cadre*, *ouvrier*, and *employé*, are also used more loosely in everyday French to refer to familiar occupational types. In this translation, I have tried to avoid cluttering the text with an excessive number of untranslated French terms while also ensuring that readers are able to tell which French socioprofessional concepts the author is referencing in a given passage. Generally speaking, for *cadres*, I use terms such as “salaried white-collar managers and professionals”; for *ouvriers*, “blue-collar workers”; and for *employés*, “non-blue-collar workers.”
2. References to official publications presenting the nomenclatures used and the complete results of the censuses carried out in France since 1901 are given in Appendix H (Tables H-2 to H-4). On the history of these socioprofessional nomenclatures in France, see also Desrosières (1977, 1987) and Desrosières and Thévenot (1988).
3. Among the five-year censuses carried out from 1901 to 1936, the sole exception to this general rule is the 1911 census, whose individual bulletins were tallied using a detailed nomenclature that allowed the labor force to be classified by occupation rather than by sector. But the occupations used for the 1911 census were so numerous and so different from the CSPs used since the Second World War that it seems hopeless to try to harmonize them.
4. See Chapter 2, section 1.2.2.
5. The fact that one did not have to employ a single worker to be classified as a *chef d’établissement* and that it actually sufficed for both the husband and wife (or any two associates) to actually be working within their family operation is very clearly explained in the publications of the SGF presenting the methodology and results of the censuses of the time. See, for example, *Résultats statistiques du recensement effectué le 8 mars 1936*, vol. I, 3rd Part (Population active, établissements), p. 61 (SNS, Imprimerie Nationale, 1943).
6. *Ibid.*, 62, 64–67.
7. See Appendix H, Table H-2.
8. See Appendix H, Table H-2.
9. See Appendix H, Table H-2 (we refer here to “public-sector workers” in the broadest sense, that is, in reality all employees were classified by the censuses of the time as being in the “public services sector,” which included not only agents of the central government but also employees of local governments, public hospitals, etc.).
10. As with the results of the 1911 census, the fact that the results of the 1946 census were expressed using a nomenclature that was used only once means that these results are very difficult to use.

11. See Appendix H, Table H-3.
12. See Appendix H, Table H-3.
13. See Appendix H, Table H-3.
14. See Appendix H, Table H-4.
15. See Appendix H, Table H-4.
16. See Appendix H, Table H-4.
17. See Chapter 2, section 1.2.2.
18. See Appendix H, Tables H-2, H-3, and H-4.
19. In fact, the estimates for the interwar period are far more precise than those on the postwar years, since the postwar tables, apart from the fact that they used fewer annual wage brackets to classify workers and were marred by frequent modifications in their mode of construction by INSEE, often show only the share of workers in each bracket (rather than absolute headcounts and total wages). All of the “raw” tables compiled by the tax administration and by INSEE based on wage declarations are reproduced in Appendix D, which also contains all of the detailed results of our estimates, as well as a precise description of the methodology used in moving from the “raw” tables to the estimates presented here.
20. For the 1950–1998 period, there were also a number of “holes,” that is, years when the wage declarations were not analyzed by INSEE, but these were always isolated years, and we have thus filled these “holes” through interpolation (all of the details are in Appendix D).
21. We note, however, that the publication presenting the results of the analysis of wage declarations for 1947, after explaining that they were the first of their kind (and without referring to the statistical tables compiled for the 1919–1938 wages), also mentions (with no further explanation): “The Office of Direct Taxation performed a tally of the 1024 and 1025 statements used by employers to declare the wages paid by them in 1942 and 1946”; see “Statistiques des salaires distribués dans l’industrie et le commerce en 1947 et déclarés en 1948 à l’Administration des Contributions Directes,” *S&EF* no. 2 (February 1949), 75. After checking the statistical publications of the Finance Ministry, the SGF, and INSEE, as well as the Finance Ministry archives, we unfortunately found no trace of any such statistical analysis of the 1942 and 1946 wage declarations.
22. See Introduction, section 2.2.3.
23. For the evolution of the percentages of workers subject to the schedular wage tax between 1919 and 1938, see Appendix D, Table D-3, column (2).
24. In fact, the analyses of wage declarations for the 1947–1998 period always excluded agricultural and domestic workers (they cover only the private nonfarm and non-domestic sector), but besides the fact that these categories of workers had virtually no chance of reaching the top decile, and that they in any case practically disappeared from the social landscape of the latter part of the century (see section 1), we have sources covering all wage earners (with no exceptions) for the 1990s, which allow us to take all of these biases into account (see Appendix D).
25. See Chapter 2, Figure 2-6, and Appendix B, Table B-14, column P90–100.

26. See Chapter 1, Figure 1-8, and Appendix E, Table E-3, column (11).
27. See Chapter 1, Figure 1-6, and Appendix G, Table G-2, column (7).
28. See Figure 3-1, and Appendix D, Table D-15, column P90–100.
29. See Chapter 2, Figure 2-5, and Appendix B, Table B-11, column P90–100.
30. See Appendix E, Table E-3, columns (11) and (12).
31. See Appendix D, Table D-7, columns P99.9–100 and P99.99–100.
32. See Appendix D, Table D-16, columns P99.9–100 and P99.99–100. However, the scattered nature of the estimates, along with their very strong and suspicious volatility (due to technical difficulties in analyzing the 1990s DADS for very high wages), calls for caution.
33. See Appendix D, section 2.
34. According to the Employment studies carried out in the 1990s, the share of total wages going to the highest-paid 10 percent of workers was around 24–25 percent when only the private sector is considered, and about 23–24 percent when the public sector is included (the Employment studies are not perfectly suited for measuring wages; in particular they cause a slight underestimate in the level of top wages, but they have the immense virtue of covering all wage earners, and these results are sufficient to be assured that including the public sector does not radically change the orders of magnitude; see Appendix D, Table D-17). For the 1990s we also have estimates of the wage distribution in the public sector, based on the pay records of central government employees, and published by INSEE (see, for example, *Annuaire Statistique de la France, édition 1999*, INSEE, 1999, 188), which makes it possible to confirm these findings (wage inequality is lower in the public sector, but not enough for the inclusion of the public sector to significantly modify overall measures of wage inequality, such as the share of wages going to the highest-paid 10 percent of workers).
35. This similarity between the results obtained for incomes and for wages also shows that any distortions arising from the link between family structure (share of tax units with two earners, etc.) and income level were in any case not significant enough for this conclusion to be altered by the movement from individual workers to tax units, and the conclusion is also consistent with the fact that the average family situation varies relatively little as a function of the income level (see Appendix B, section 3.2).
36. See for example *BSGF*, vol. X (1920–1921), 339–374, where Dugé de Bernonville compares the results of studies carried out by the SGF in 1911, 1916, and 1921, and observes that the wages of the lowest-paid blue-collar occupations were increased more than those of the best-paid blue-collar occupations. See Also *BSGF*, vol. IX (1919–1920), 243.
37. See Lecaillon (1952, 243). These data are also reproduced in Jacquin (1955, 117) and in Marchal and Lecaillon (1958–1970, 1:428).
38. See Mercillon (1955, 110) ( $6,121 / 2,566 = 2.4$ ,  $15,386 / 9,407 = 1.6$ ,  $22,841 / 2,566 = 8.9$ ,  $40,436 / 9,407 = 4.3$ ).
39. See Mercillon (1955, 230) ( $12,000 / 2,600 = 4.6$ ,  $18,000 / 5,200 = 3.5$ ,  $20,000 / 2,600 = 7.7$ ,  $30,000 / 5,200 = 5.8$ ).

40. For a summary table showing the yearly evolution of annual pay in current francs for certain public-sector jobs from 1911 to 1966, see *Annuaire Statistique de la France—Résumé rétrospectif 1966* (INSEE, 1966), 438 (given the great importance of these figures, we have reproduced them in Appendix E, Table E-4, and we will refer to this table later).
41. See Appendix E, Table E-4.
42. See Appendix E, Table E-1, column (6) ( $2,047 / 1,338 = 1.53$ ).
43. See Appendix E, Table E-4.
44. See Appendix E, Table E-4.
45. See Appendix H, Table F-1, column (6).
46. See Appendix E, Table E-1, columns (6) and (7) (these series cover only blue-collar workers in industry, but the available data show that the wages of agricultural workers and domestics were increased by comparable proportions (or slightly lower); see, for example, *Annuaire Statistique de la France—Résumé rétrospectif 1966* (INSEE, 1966), 437).
47. See Appendix E, Table E-4.
48. See Appendix E, Table E-1, column (6) ( $4,653 / 3,269 = 1.42$ ).
49. See Appendix E, Table E-4. As Sauvy and Depoid (1940, 36) note: “From 1928 to 1930, successive pay increases led to a total increase of 10 percent for office boys, 35 percent for mid-level public worker and 65 percent for directors” (more generally, Sauvy and Depoid [1940, 29–50] provide a very useful description of the evolution of public-sector wages from 1928 to 1939). Numerous observers from the early 1920s on had called for the reestablishment of the 1913 wage hierarchies (see, for example, Marion 1923).
50. See Appendix E, Table E-4.
51. See Figures 3-2, 3-4 and 3-6, and Appendix D, Table D-7, columns P90–100, P95–100, and P99–100, for the corresponding series. We may also note that the year 1925 was more favorable than 1924 or 1926 for the share of total wages going to top wage earners, as was true of the general pace of public-sector wage increases.
52. See Appendix E, Table E-1, column (6) ( $7,538 / 8,664 = 0.87$ ).
53. See *Annuaire Statistique de la France—Résumé rétrospectif 1966* (INSEE, 1966), 437, and Sauvy and Depoid (1940, 27).
54. See Appendix E, Table E-4. See also Sauvy and Depoid (1940, 31–32), which gives the complete list of the many “exceptional levies” and “exceptional contributions” that were applied to public-sector workers over this period.
55. See Sauvy and Depoid (1940, 56) (these series for total wages were derived from estimates by Dugé de Bernonville).
56. See Lhomme (1968, 52); this series for the “percentage of time lost by blue-collar workers” is derived from the studies by Kuczynski (1960–1972), and we have reproduced them in Appendix E; see Table E-3, column (5).
57. More precisely, for the interwar period, the “total wages” used to calculate the “share of total wages going to the highest-paid workers” is actually the product of the total number of workers times the average wage of a full-time worker, which amounts to

- ignoring the existence of partial unemployment (for the postwar years, the statistical tables derived from wage declarations cover only full-time workers, and all such workers; thus, figures for “total wages” are taken from these tables) (see Appendix D). This methodological choice is justified by the fact that it is extremely difficult to compile consistent long-term series for partial unemployment and part-time work.
58. The trade press, including the bulletins of the USIC (Social Union of Catholic Engineers), deplored in 1935 the “*déclassement* of engineers” and the fact that “young engineering graduates complain of having made a mistake in their choice of career, and now have to accept subordinate positions” (see Boltanski 1982, 122), which suggests that technical white-collar workers were indeed affected by the industrial crisis of the 1930s, but it obviously does not allow us to precisely quantify these effects.
  59. See Appendix E, Table E-4.
  60. See Appendix D, Table D-5, column P99.5–100.
  61. The maximum wage for a director of a central administrative bureau rose from 55,240 francs in 1930 to 62,240 francs in 1931–1933, 58,040 francs in 1934, and 57,440 francs in 1935 (see Appendix E, Table E-4); the average wage of the P99–99.5 fractile of the wage distribution continually declined from 1930 to 1935, from 54,482 francs in 1930 to 44,646 francs in 1935 (see Appendix D, Table D-5, column P99–99.5) (the salary for parliamentary deputies at the time—which the Chamber of Deputies decided to increase from 45,000 to 60,000 francs in 1928, a few months after the elections, apparently to the great displeasure of public opinion [see Bonnefous 1956–1967, 4:309])—stood at approximately the same level).
  62. The maximum wage of a schoolteacher rose from 20,240 francs in 1930 to 21,240 francs in 1931–1933, 20,670 francs in 1934, and 20,290 francs in 1935 (see Appendix E, Table E-4); the average wage of the P90–95 and P95–99 fractiles of the income distribution declines continually between 1930 and 1935, from 17,126 francs in 1930 to 14,811 francs in 1935 for the P90–95 fractile and from 24,644 francs in 1930 to 21,182 francs in 1935 (see Appendix D, Table D-5, columns P90–95 and P95–99).
  63. See Appendix D, Table D-7, columns P99.9–100, P90–100, P95–100, P99–100.
  64. The average income (expressed in current francs) of the P90–95 fractile rose from 9,030 francs in 1920 to 21,050 francs in 1935 (see Appendix B, Table B-9, column P90–95), and the maximum wage of a schoolteacher rose from 8,920 francs in 1920 to 20,290 francs in 1935 (see Appendix E, Table E-4). The similarity between the two series is impressive, and the total growth over the 1920–1935 period was practically identical ( $21,050 / 9,030 = 20,290 / 8,920 = 2.3$  and  $(21,050 / 9,030) / (20,290 / 8,920) = 1.02$ ).
  65. See Appendix B, section 1.3.2.
  66. See Figure 3-2 and Appendix D, Table D-7, column P90–100, for the corresponding series.
  67. See Appendix E, Table E-4.
  68. The text of this speech, which was broadcast by radio in February 1937, is reproduced by Bonnefous (1956–1967, 6:122).

69. The share of total wages going to the highest 0.1 percent and 0.01 percent of wage earners continued to decline in 1936–1937 (or at least did not increase) (see Appendix D, Table D-7, columns P99.9–100 and P99.99–100), unlike the top 0.1 percent, or especially the top 0.01 percent share of income, which experienced a sharp recovery in 1936–1937 (see Appendix B, Table B-14, columns P99.9–100 and P99.99–100), which confirms that this recovery, which was due to the resumption of inflation, benefited entrepreneurs above all (however, we will also note that the decline in the share of total wages going to the top 0.01 percent of wage earners was interrupted in 1937).
70. See Figure 3-2 and Appendix D, Table D-7, column P90–100, for the corresponding series.
71. See Appendix E, Table E-4.
72. See Perrot (1965, 21).
73. See Chapter 2, Figure 2-10, and Appendix B, Table B-15, column P90–95.
74. See Figure 3-2 and Appendix D, Tables D-7 and D-16, column P90–100. The comparison between 1938 and 1947 obviously poses a problem, since our estimates cover all wage earners in the interwar period, whereas they exclude public-sector, agricultural, and domestic workers in the postwar years. As we saw earlier, this bias was very small for the 1990s, but only a precise study of the public-sector wage distribution in the immediate postwar years would make it possible to be certain that the same was true at that time. To a first approximation, we may nevertheless assume that excluding public-sector, agricultural, and domestic workers roughly compensates.
75. See Figure 3-2 and Appendix D, Table D-7, column P90–100.
76. On the multiple “flat-rate bonuses” instituted from 1941 to 1944 (which had the effect of compressing the hierarchy) and on the 1945 “putting back in order” and its implementation, see notably Lehoulier (1947, 1948) (who gives both a very useful description of the institutional mechanisms and a great deal of occupational and sectoral data). See Also Perrot (1965, 21–22).
77. In the insurance sector, all wages seem to have been multiplied by a coefficient of about 3 between 1938 and 1945, from the most modest to the highest, with coefficients that were just barely higher for the former (see Mercillon 1955, 112). In “Metallworking in the Paris Region,” Jacquin (1955, 117) notes that by 1945 the gap between common laborers and engineers exceeded its 1938 level, following the Parodi decrees. Wages for domestics, given in Perrot (1965, 54) suggest that the gap between the average wage (Appendix E, Table E-3, column [11]) only very slightly narrowed over the 1938–1945 years. See also Lehoulier (1947, 1948).
78. The lowest level reached by the share of total income going to the “middle classes” (fractile P90–95) was significantly higher than that of 1920 (8.18 percent) (see Appendix B, Table B-15, column P90–95), even though public-sector workers belonging to the 1920 “middle classes” had already received the pay increases of 1918–1919 (the minimum level was probably reached in 1917).
79. See Appendix D, Table D-16, column P99.9–100.
80. See Appendix D, Table D-7, column P99.9–100.

81. The average annual wage (expressed in current francs) rose from just over 10,000 francs in the late 1930s to more than 110,000 francs in 1947 (see Appendix E, Table E-3, column [11]).
82. See, for example, Figure 3-2 and Appendix D, Table D-16, column P90–100, for the evolution of the share of wages going to the top 10 percent of workers. The sizeable decline observed between 1947 and 1950 is consistent with the very numerous “flat-rate bonuses” of the 1948–1950 years, which seems to have led to a large compression in the hierarchy that was established at the time of the “reordering” of 1945 (see Lévy-Bruhl 1952, 442–443). On the other hand, the decline of 1954 seems too large not to be suspicious (especially compared to the very low volatility of the share of total income going to the “middle classes” (fractile P90–95); see Appendix B, Table B-15, column P90–95), and it is likely that some of these changes are due to technical problems arising from INSEE’s analysis of the wage declarations (see Appendix D, section 2).
83. See, in particular, Lecaillon (1952, 227–229, 243), which concludes, relying notably on the case of “Metalworking in the Paris Region” (where wage disparities between blue-collar workers and engineers are reported to have regained their 1914 levels by 1950–1951): “nothing permits us to speak of an actual flattening of the hierarchy in the French private sector”; see also Jacquin (1955, 117), as well as Laroque (1955, ix), according to which the *cadres*’ feeling of frustration was explained by the erosion of family wealth and the corresponding incomes (which before the war provided a far more substantial supplement to their incomes), rather than by any hypothetical flattening of the wage distribution.
84. See Appendix E, Table E-4, and Perrot (1965, 63).
85. See Appendix E, Table E-4, and Perrot (1965, 63–66). On the complexity of the public-sector reforms between 1945 and 1948, see also Siwek-Pouydesseau (1989, 293–328). The narrowing of wage disparities relative to the prewar period seems also to have affected the Social Security bureaucracy (see Penouil [1957, 301], whose data nevertheless indicate that the flattening of the 1944–1948 period had already largely abated by 1955) and public enterprises like the SNCF (in the late 1940s, the example of the flattening of the differential between the SNCF’s “division engineers” and its “crew men” relative to 1914 was frequently cited by the CGC; see Penouil [1957, 226]). See also in Marchal and Lecaillon (1958–1970, 1:611–612). We will revisit later the difficulties in connection with a rigorous evaluation of public-sector wage inequality over the long run.
86. See Figure 3-7 and Appendix E, Table E-2, column (9). We will revisit later the historically “exceptional” nature of this increase in the ratio between the average wage of *cadres* and that of *ouvriers*.
87. See Figure 3-2 and Appendix D, Tables D-7 and D-16, column P90–100.
88. For example, if we estimate the average wage of the highest-paid 10 percent of workers (fractile P90–100) using the maximum wage of late-career schoolteachers as an indicator of change, we get a P90–100 share of 27.4 percent in 1913 (in 1919, the P90–100 share was 21.46 percent (see Appendix D, Table D-7, column P90–100);



- the maximum wage of late-career schoolteachers multiplied by 1.95 between 1913 and 1919 ( $4,300 / 2,200 = 1.95$ ; see Appendix E, Table E-4); the average wage multiplied by 2.49 ( $3,468 / 1,393 = 2.49$ ; see Appendix E, Table E-3, column [11]); hence  $(2.49 / 1.95) \times 21.46 = 27.40$ ). Insofar as public-sector workers were particularly affected by the war (and even if the schoolteachers of 1919 had already received partial pay increases), this method probably leads to a slight overestimate of fractile P90–100's share on the eve of the war.
89. See Figures 3-4 and 3-6, and Appendix D, Tables D-7 and D-16, columns P95–100 and P99–100. In both cases, we observe a certain tapering off in the early 1960s, which gives reason to think that wage hierarchies had already started to level off. However, some suspicious movements (like the decline of 1963–1964) seem to be due to technical problems arising from the analysis of wage declarations (see Appendix D, section 2), which calls for caution: these data make it possible to observe the magnitude of the “historic” rise that took place in the 1950s–1960s, but they do not allow us to examine small, very short-term movements.
90. See Figure 3-2 and Appendix D, Table D-16, column P90–100.
91. See Figures 3-4 and 3-6, and Appendix D, Table D-16, columns P95–100 and P99–100.
92. See Bayet and Julhès (1996, 45) (the purchasing power of the net minimum wage rose from index-level 125 in 1967 to index-level 150 in 1968 (with base 100 in 1950), following the Grenelle accords).
93. See Appendix E, Table E-3, column (12) ( $75,683 / 32,630 = 2.32$ ).
94. See Appendix E, Table E-1, column (7) ( $59,087 / 26,932 = 2.19$ ).
95. See Bayet and Julhès (1996, 45) ( $289 / 125 = 2.31$ ).
96. See Appendix E, Table E-3, column (12) ( $115,215 / 75,683 = 1.52$ ).
97. See Chapter 1, section 4.3, Figure 1-8. According to our estimates, the average wage (expressed in 1998 francs) rose 7 percent between 1983 and 1998 ( $122,930 / 115,215 = 1.07$ ). According to the estimates by Bayet and Julhès (1996, 45) and Friez and Julhès (1998, 39), the purchasing power of the SMIC grew by only 3 percent between 1983 and 1996 ( $296 / 289 = 1.03$ ), but this estimate ignores the “bumps” of the years 1997–1998, and it seems (very) slightly underestimated (in any event, the gap vis-à-vis the growth of the average wage can only have been extremely small).
98. See Figure 3-2, 3-4, and 3-6.
99. According to the Employment studies, the P90 / P10 ratio of the wage distribution among full-time workers remained relatively stable over the 1990s (around 2.8–2.9), but the P90 / P10 ratio of the wage distribution among all workers (full-time and part-time combined) rose from 3.7 to 4.3 in less than 10 years; however, the P90–100 fractile was practically stable in both cases (see Appendix D, Table D-17) (the Employment studies represent practically the only source covering all wage earners, but it is far from perfect when it comes to the measurement of wages, especially for high-wage levels; see Appendix D, section 2).
100. For example, according to Trempé (1971, 1:345, 409), the highest average annual wage in 1910–1913 in the Carmaux mines was that of hewers, at nearly 2,200 francs



per year; according to the study carried out in 1891 by the Bureau of Labor, the highest average blue-collar wage was that of stone-polishers in the department of the Seine, at 2,500 francs per year (see *Salaires et durée du travail dans l'industrie française*, 1:354–355 [Office du Travail, Imprimerie Nationale, 1893]). Converted into 1998 francs, that is, multiplied by a factor of about 20 (see Chapter 1, Figure 1-2), the maximum blue-collar wage in the early part of the century was thus about 45,000–50,000 francs per year. According to our estimates, expressed in 1998 francs, the threshold that had to be exceeded to belong to the highest-paid 10 percent of wage earners was about 30,000 francs in 1919, before reaching a level of about 40,000 francs by 1922, a level that there is every reason to think prevailed in the early part of the century as well. On the wages of agricultural and domestic workers (which were barely 500 francs per year in the early part of the century), see section 3 in this chapter. It would seem that wage differentials between the various blue-collar professions also experienced a secular decline even within the industrial sector (between men and women, between Paris and the provinces, etc.) (see, for example, Morrisson 1991, 154, and Bayet 1997, 14–16).

101. See Appendix E, Table E-3, column (10).
102. See Bayet (1997, 7). We have been heavily inspired by Bayet's work compiling continuous and consistent series for the average blue-collar wage in industry and the average wage for the overall wage-earning population (see Appendix E).
103. See Bayet and Julhès (1996, 56) and Friez and Julhès (1998, 50). We find the same phenomenon in terms of incomes: the average income of *ouvrier* households rose slightly above the average income of *employé* households since the *Revenus Fiscaux* study of 1990 (see Appendix I, Table I-1).
104. The decline would have been even more considerable if we considered the ratio between the average wage of high-level white-collar workers and the average overall wage. The INSEE estimates pertain to the average income of the *cadres supérieurs* CSP until 1982, and the average wage of the *cadres et professions intellectuelles supérieures* CSP starting in 1984 (the estimate for 1983 was obtained by interpolation), but the shift to the new nomenclature does not seem to have much affected the trend (the decline had mostly already happened by 1982) (see Appendix E, Table E-2, column [9]).
105. The average income of *cadre supérieurs* households was about 3.5 times higher than the average income of blue-collar households in the 1950s, and this gap was only about 2.5–2.6 in the 1990s, a decline of around 30 percent (see Appendix I, Tables I-1 and I-2); however, the shares going to the top 10 percent of incomes, the top 5 percent, 1 percent, etc., was roughly the same in the 1950s as in the 1990s (see Chapter 2, Figures 2-6, 2-12, 2-14, etc.).
106. See Morrisson (1991, 154) (these data are partly taken up in Morrisson [2000, 246]). According to the data presented by Morrisson, the ratio between the wage of *cadres supérieurs* and the blue-collar wage was between 6 and 8 in the late nineteenth century and early twentieth century, and it was around 5 for the 1970s–1980s (for the blue-collar wage, Morrisson uses the wage for “common labor,” which poses other problems).

107. The estimates from Morrisson for the late nineteenth century and early twentieth century are essentially based on the work of Lévy-Leboyer (1979) covering the wages of *cadres* (and engineers in particular) prevailing at the time in the Saint-Gobain firm (Morrisson also cites the senior civil servant wages presented by Fourastié; we will see later on the problems posed by these data).
108. According to the data presented by Penouil (1957, 290–291), derived from analysis of employer wage declarations from 1947 to 1950, the ratio between the wage of *cadres supérieurs* and that of *ouvriers* was about 6 in the textile industry (where there was only one *cadre* for every 35 *ouvriers*), whereas that ratio was only 2 in foodstuffs trade (where there was a *cadre supérieur* for every two *ouvriers*). These statistics give an idea of the way in which the very notion of *cadre supérieur* can vary depending on the industrial sector.
109. See Morrisson (1991, 131, 142). See also Morrisson (2000, 246–247).
110. See especially Fourastié and Bazil (1984, 146–148, 303–304, and 341–346). In fact these same data had been published for the first time in Fourastié (1951, 22–26), before being used again in Fourastié (1958, xxxiii), Fourastié (1969, 75), Fourastié (1970, 624–626), Fourastié (1977, 40), Fourastié (1979, 147 and 163), and Fourastié (1987, 55).
111. In addition to the references already given in this chapter, we will mention Perroux (1933) and Tiano (1957).
112. In an article on early nineteenth-century public-sector workers, Jourdan (1991, 227) notes that “the history of compensation in the public sector is yet to be written.” It seems to us that this observation also applies for the twentieth century. On the difficulties of moving from budget documents to an overall understanding of public-sector wage inequality, as well as the reasons that led INSEE to institute a genuine “census of public-sector employees” after the Second World War, see Quarré (1987).
113. The ratio between the wage of a Counselor of State and that of a “starting mail carrier in a small city” was about 11 in 1914, and this ratio reached a level of about 9 in 1930 (see *BLC*, 4th Quarter, 1943, 487) ( $15,200 / 1,330 = 11.4$ , and  $97,860 / 10,640 = 9.2$ ).
114. To be sure of this, the various forms of supplementary pay that have come to be added to the budgetary compensation of senior civil servants since the 1950s, and which we discussed earlier, would also have to be taken into account.
115. See Chapter 1, section 5.
116. See Chapter 7, sections 2.1 and 2.2.
117. See, for example, Marseille (1996, 31–32), who, in an article published in *L'Histoire*, relied on data gathered by Fourastié in support of the notion of a “fantastic reduction of inequality in France.” Fourastié’s data were also taken up by Morrisson (1991, 131, 139) and by Bayet (1997, 15), but with greater caution.
118. See Appendix D, Table D-12, columns P10\* and P90\*.
119. Recall that all of the results given here deal solely with full-time workers: the P10 threshold thus corresponds to the full-time SMIC, and it would be lower if part-time workers were included, especially in the 1990s (see section 2.3 in this chapter).

120. See Chapter 1, Figure 1-8, and Appendix E, Table E-3, column (12) (the average wage, expressed in 1998 francs, was about 32,000 francs in 1950, versus more than 120,000 francs in the 1990s).
121. See Figure 3-1, and Appendix D, Table D-15, column P90–100.
122. See Appendix D, Table D-6, column P90 / (minimum wage).
123. See *Annuaire Statistique de la France—Résumé rétrospectif 1966* (INSEE, 1966), 437 (for the wages of domestic personnel in the provinces), and Appendix E, Table E-3, column (11) (for the average wage). On the long-term stability of the differential between the wages of domestics and of other workers over the 1913–1953 period (despite significant short-term fluctuations, especially the decline in the differential over the Second World War), see also Marchal and Lecaillon (1958–1970, 1:233).
124. See Appendix B, Table B-13, column P90, for the P90-threshold series and Appendix G, Table G-2, column (7), for the average income per tax unit series. In 1900–1910, the average annual income per tax unit (expressed in 1998 francs) was about 25,000–30,000 francs, and the P90 threshold was about 50,000 francs; in the 1990s, the average annual income per tax unit was about 130,000 francs, and the P90 threshold was about 250,000–260,000 francs; etc.
125. According to the “Family Budget” studies carried out by INSEE in 1994–1995, the ratio between the median income of households and the average income was about 0.82 (see Piketty 1997; 1997, table IV, p. 13;  $11,700 / 14,190 = 0.82$ ). According to the DGI’s tax-return files, which unlike INSEE’s studies do not take into account non-taxable social benefits, the ratio (median income) / (average income) was about 0.74–0.75 for every year from 1998 to 1995 (see Piketty 1998, table 3-1, p. 29, and tables F-1 to F-13, pp. 138–144).
126. According to the “Family Budget” studies carried out by INSEE, the ratio between the P10 thresholds and the average income was about 0.31 (see Piketty 1997; 1997, table IV, p. 13;  $4,530 / 14,190 = 0.31$ ) (the tax-return files do not make it possible to properly estimate the P10 thresholds, given the importance of social benefits at those income levels).
127. According to the “Family Budget” studies carried out by INSEE in 1994–1995, the P90 / P10 ratio reached 5.7 (see Piketty 1997; 1997, table IV, p. 13;  $25,890 / 4,530 = 5.7$ ). However, it must be stressed that, given the significant number of single individuals (especially modest retirees) at the P10 level, the ratio would be significantly lower if household size were taken into account (see Appendix I, section 1.1).
128. According to the “Family Budget” studies carried out by INSEE in 1994–1995, the P10 threshold was 4,530 francs per month and per household, and the average P0–10 income was 3,070 francs per month and per household (see Piketty 1997; 1997, table IV, p. 13) (these figures must be reduced by about 30 percent to obtain figures corresponding to average income per tax unit).
129. See Appendix I, section 1.1.
130. Analysis of these developments, and especially the slow emergence of the low-income support component of social benefits, would far exceed the scope of this book. We will simply recall that the history of Social Security does not begin in 1945.

An initial “complete” system of social insurance was established by the law of 1928 (this system was totally decimated by Second World War inflation; hence the 1945 reforms). The “pensions” component of the 1928 law succeeded the 1910 law on “ROP”s (*retraites ouvrières et paysanne*; worker and peasant pensions) (which was totally decimated by the inflation of the First World War), and the 1910 law itself emerged from the framework established by the CNRV (*Caisse Nationale de Retraites pour la Vieillesse*; National old-age pension fund) established by the law of 1850, etc., and this does not even take into account the continuous development of mutualist insurance funds (*caisses mutualistes*) (on this history, see, for example, Dumons and Pollet 1994).

131. According to a national study carried out in the late nineteenth century, whose findings were cited in the explanatory preamble to the bill introduced by Joseph Caillaux in 1907, 95 percent of farm operations generated annual incomes below 1,000 francs per month, and barely more than 1 percent generated incomes above 2,500 francs (see *BSLC* March 1907, 61:275) at a time when the average annual income per tax unit was about 1,400 francs (see Appendix G, Table G-2, column [6]), when the average annual wage of industrial workers (and also the average wage of wage earners as a whole) was about 1,100–1,200 francs (see Appendix E, Table E-1, column [6] and Table E-3, column [11]), and when the annual wage of domestics in the provinces was about 500 francs per year (see above). However, we find it hard to believe that a significant fraction of peasants could have had incomes significantly below those of farm workers or domestics in the provinces. Consequently, and given the fact that the disappearance of underpaid wage earners in the agricultural and domestic sectors did not prevent the wage hierarchy as a whole from remaining extremely stable over the long term in the twentieth century (from the first to the tenth decile), it seems improbable that the disappearance of small peasants had a large impact on inequality.
132. See Appendix I, section 1.1.
133. These allusions come from speeches delivered by Joseph Caillaux in the Chamber of Deputies (see Caillaux 1910, 65, 138–139, 174–175, 198–199, 501, 518).
134. See Daymard (1973, 96).
135. For example, in 1926, out of a total of 640,055 “individuals without a paid occupation” (outside of “housewives doing housework exclusively, children, university students, etc.,” who were counted separately), only 233,916 individuals could be placed in the category “transients, inmates, mental patients, hospitalized individuals, etc.,” and the rest (406,139 individuals, nearly two-thirds of the total) thus formed the category of “rentiers, owner-annuitants, pensioners, etc.” (see *Résultats statistiques du recensement général de la population effectué le 7 mars 1926—vol. 1, Part 3: Population active, établissements, SGF* [Imprimerie Nationale], 1931, 86).
136. The latter group is obviously a very small minority, and that is why the CSP of “inactives” is always the one whose average income is the lowest in the *Revenus Fiscaux* studies (at least with the exception of farm operators and farm workers, whose average income is even lower, at least until the late 1970s) (see Appendix I, Tables I-1 and I-2).

137. See especially Neymarck (1911), who estimates the number of high-income earners and the amount of their income solely based on bequest statistics. See also Leroy Beaulieu (1881, 171–175, 207–208, 528–538) and Colson (1903, 304–313), who both base themselves on statistics of rental values derived from the annuity and investment-income tax and the land tax (thus they also take into account high income earnings that are not capital incomes, but that did not prevent them from using a phrasing “the number of individuals with more 100,000 francs of annuities is,” clearly communicating the idea that capital incomes made it possible to attain such income levels).
138. See Chapter 7, section 2.2.
139. See Introduction, section 2.1.2, and Appendix I, Tables I-1 and I-2.
140. See Piketty (1999).
141. A systematic work of research could, however, bring about good surprises: for example, a poll carried out in May 1945 by IFOP asked what (in the respondents’ eyes) the wage received by different categories of workers ought to be (common laborer, foreman, schoolteacher, engineer, factory director, etc.), in other words, exactly the same kind of questions as those asked in the poll carried out in 1998 whose results we reported in Piketty (1999); as with the 1998 poll, the results of the 1945 IFOP poll, as they are reproduced by Chélini (1998, 306), seem to indicate that respondents wished to see a wage scale just barely narrower than the actual wage scale, even when they themselves stood at the bottom of the scale.
142. See especially Boltanski (1982, chapter 1).
143. Boltanski’s book is entirely devoted to the issue of the formation of the social identity of the “middle classes,” and more specifically of *cadres*, and he does not deal with the question of their incomes (let alone the comparison of their incomes with those standing above or below theirs).
144. See Boltanski (1982, chapter 1, and especially 72, 77).
145. See Guglielmi and Perrot (1953, 17).
146. See, for example, the financial consolidation plan debated in January–February 1933, which culminated in the law of February 28, 1933, setting the threshold for the levy on public-sector wages at a 15,000 franc annual wage (the socialists wanted a threshold of a 20,000 franc annual wage, and the Radicals wanted a 12,000 franc threshold) (see Bonnefous 1956–1967, 5:147) (the 20,000 franc threshold was slightly above the P95 threshold of the wage distribution at the time; see Appendix D, Table D-5, column P95).
147. The archetypal example is the decree of February 7, 1950, which created an “exceptional bonus” that employers had to pay all of their workers who had received a monthly wage in January 1950 of less than 14,000 francs, and which led to the resignation of the socialist ministers of the Bidault government. The socialists wanted the bonus to apply to all monthly wages below 20,000 francs and for it be extended to public workers (these demands are very clearly expressed in the resignation letter reproduced in *L’Année Politique* 1950, 280). We note the great resemblance with the 1933 episode, with the sole difference being that the MRP replaced the Radicals and that inflation changed annual wages into monthly wages.

148. See especially Colson (1903, 312) who presented his estimates for a total of 12.9 million households using four classes: the 11.5 million households with the lowest incomes were labeled “small incomes,” the next 1.3 million households were labeled “middling incomes,” the next 160,000 were “large incomes,” and the final 1,000 were “very large incomes” (the “middling incomes” thus correspond approximately to the P90–95 and P95–99 fractiles; we have reproduced this presentation in the appendixes; see Appendix I, Table I-4). See also Leroy-Beaulieu (1881, 532), who considered annual incomes between 4,000 and 6,000 francs to correspond to the “lower-middle class” (according to our estimates in current francs for 1900–1910, the P90 threshold was about 2,500 francs, the P95 threshold was about 3,800 francs, and the P99 threshold about 11,000 francs; see Appendix B, Table B-10). Leroy-Beaulieu’s “lower-middle class” thus corresponded to the lower strata of the P95–99 fractile.
149. See especially the June 25, 1907, hearing, where Joseph Caillaux reassured the deputies by explaining that the “middle classes” with 5,000 or 7,000 francs of annual income would largely be spared in his reform, but that on the other hand it should not be expected that the “middle classes” with more than 15,000 francs of annual income would be exempted, apparently to the great satisfaction of the left and far left (in other words, the “middle classes” of the P95–99 fractile deserved the deputies’ solicitude, but not those of the P99–100 fractile, who were merely disguised “middle classes”; see the P90, P95, and P99 thresholds cited in the previous note). This speech is reproduced in Caillaux (1910, 67–68). See also the January 20, 1908, hearing where Joseph Caillaux acknowledges that it was mainly the “middle classes” with annual incomes between 2,500 and 5,000 francs (which corresponded to the P90–95 and the lower part of the P95–99 fractiles; see above) who would benefit from his reform. This latter speech is reproduced in Caillaux (1910, 211–212).

#### 4. INCOME TAX LEGISLATION FROM 1914 TO 1998

1. In fact, the personal property tax was probably the most complex of the “four old ladies,” since it initially included (in addition to the tax on the rental value of the principal residence, which was its main component) a tax on domestics, a tax equal to the value of three days of work, a tax on horses, mules, etc. On the evolution of personal property tax legislation between 1792 and 1914, see, for example, Allix and Lecerclé (1926a, 1:104–118). More generally, Allix and Lecerclé (1926a, 1:79–100, 101–160, and 185–253) offers a very useful description of the evolution of the “four old ladies” legislation between the Revolution and the First World War. Apart from relatively old tax-law treatises (such as that of Allix and Lecerclé, published in 1926, which is probably the most useful, since it also describes the legislation of the new direct-tax system created in 1914–1917), there exist very few precise secondary sources on the legislation of the “four old ladies.” In particular, the very rare contemporaneous works devoted to the history of French taxation in the nineteenth century go into the “details” of the legislation relatively little and are often content to use statistics of aggregate receipts to analyze the overall evolution of the composition of taxation at the macroeconomic level (see, for example, Bouvier 1973).



2. After the law of July 31, 1917, only the real estate tax continued to apply as a central-government tax (which explains why between 1917 and 1948 there was no schedular tax on real estate incomes: the real estate tax stood in place of it, which nicely shows the continuity between the two systems), and it would not be definitively abolished (as a central-government tax) until the decree of December 9, 1948 (which incorporated real estate incomes into the proportional-tax base) (see section 4.2).
3. The license duty is calculated on the basis of the wage bill and the value of equipment; in 1998 the Jospin government announced the elimination of the wage portion of the tax base.
4. In Part Three (Chapter 7, section 2.3), we will see what information can be extracted by analyzing the statistics on the distribution of rental values that come from the “four old ladies.”
5. This speech is reproduced in Caillaux (1910, 208–209).
6. Cf. Appendix G, Table G-2, columns (6) and (7).
7. Cf. Appendix B, Tables B-10 and B-13, columns P90 and P99.
8. The slight regressivity of the tax rates for high incomes also derives from the fact that the figures provided by Caillaux took into account only the “four old ladies” in the strict sense, and not the securities-income tax (IRVM) created in 1872 (see section 1.2), for which Caillaux was admonished by the Chamber, to which he responded that his staff had been unable to determine the distribution of IRVM by income bracket (see Caillaux 1910, 208–211). However, while it is true that taking the IRVM (whose rates were 3 percent from 1872 to 1890 and 4 percent from 1890 to 1914) into account could actually eliminate this slight regressivity observed among high-income earners, the important point is that this would not change the key conclusion, namely, that the effective tax rates, even for high incomes, were always below very low levels before the First World War (at the very most, 3–4 percent of income).
9. In reality, estimates from the period were that the average tax rates on the real estate tax on built property under the old distributive system had been about 4 percent, but when the real estate tax on built property was turned into a proportional tax (law of August 8, 1890), it was decided to set its rate at 3.2 percent to “compensate” built properties for the fact that they already provide the door-and-window tax (unlike nonbuilt properties) (see Allix and Lecerclé 1926a, 1:185–205).
10. According to the tax-receipt statistics gathered by Bouvier (1973, 240), the share of the real estate tax in the total receipts of the “four old ladies” fell from about 70 percent in the early nineteenth century to around 40–45 percent on the eve of the First World War, whereas the share of the personal property tax rose from less than 15 percent to nearly 20 percent, and the license-holder share from less than 10 percent to more than 25 percent (the rest—about 5–10 percent—corresponds to the door-and-window tax).
11. For a very precise description of the IRVM tax base and its evolution since the law of 1872, see Allix and Lecerclé (1926a, 1:254–318).
12. “Unsubscribed foreign securities” were defined in opposition to “subscribed foreign securities,” a category that included securities issued by foreign companies with

- shares listed in France, or with borrowing issued there, or with assets in operation there, and which from the law of 1872 onward were taxed under the IRVM under the same conditions and at the same rates as securities issued by French companies (the great practical difficulties that would have resulted from taxing investment incomes paid by foreign companies with no operations in France had led legislators in 1872 to completely exempt unsubscribed foreign securities).
13. This habit of taxing foreign state funds and unsubscribed foreign securities at a rate slightly above the general IRVM rate was later kept, and thus the IRVM was characterized from 1914 onward as a proportional tax, but with proportional tax rates that varied slightly according to the type of securities in question.
  14. See, for example, the estimates carried out by Dugé de Bernonville (see Appendix G, Table G-14). However, as with all taxes levied at the source (see, for example, the case of the schedular wage tax from 1939 to 1948, or that of the CSG in the 1990s), the statistics produced by the IRVM are limited to the total receipts, and thus they do not make it possible to study the distribution of investment-securities incomes at the individual level.
  15. However, it should be noted that due to taxation at the source and the absence of any individual registration lists (which, alone, would have made it possible for the tax administration to take into account the individual characteristics of the holder), the IRVM has always been strictly impersonal: for example, a bond issued at 425 francs and redeemed at 500 francs means an IRVM calculated on an income of 75 francs, even if the bearer purchased the bond on the exchange at 480 francs; likewise, capital gains on shares arising from the liquidation of a company are taxed on the basis of the value of the shares at issuance, even for shareholders who purchased their shares at a higher price.
  16. See Chapter 2, sections 1.1.2 and 1.2.2.
  17. On the evolution of IRVM tax rates, see Appendix C, section 1.
  18. For a broad overview of the evolution of inheritance tax legislation between the law of 1799 and the law of 1901, see Daumard (1973, 1–40). See also Baudrin (1929).
  19. In the words used in 1872 by one of the many nineteenth-century parliamentary commissions opposing progressivity in the inheritance tax, cited by Daumard (1973, 20): “when a son succeeds a father, what takes place is not strictly speaking a transmission of goods; it is merely continued enjoyment, according to the authors of the *Code Civil*. This doctrine, if understood in an absolute sense, would exclude any tax on inheritances in the direct line; it dictates at least extreme moderation in setting the duty.”
  20. Under the auspices of the law of Year VII, the rate applicable in the direct line of succession was, in reality, 1 percent solely for buildings, and only 0.25 percent for movable property (it was only from the law of 1850 onward that movable property was taxed at the same rate as buildings).
  21. On the evolution of progressive inheritance-tax schedules, see Appendix J, section 3.
  22. See Appendix J, section 3.2.
  23. See, notably, the January 20, 1908, session, where Caillaux expresses this argument very clearly: “given that, for the last six years, we have had in our legislation a tax of



- a progressive nature, whose rate has not changed, do not tell us that the system of progressivity will have as a necessary consequence, and within a short time, increases in the rate” (this speech is reproduced in Caillaux [1910, 115]).
24. See the references given in the Introduction, section 2.2.1.
  25. We will try as much as possible to use the terms “right” and “left” in a purely descriptive fashion, that is, to designate the political parties and parliamentary groups that made up the left half and the right half of the parliamentary hemicycle in the various periods. This clarification is all the more necessary because the term “right,” which was then closely associated with currents hostile to the republican regime, was very seldom used by the parliamentary groups on the right-hand side of the parliamentary hemicycles when referring to themselves during the early part of the century and the interwar era: the few openly monarchist deputies who still used it had practically disappeared from the Chamber of Deputies before the First World War, and until 1940 we find parliamentary groups entitled (from left to right) “radical left,” “republican and democratic left,” “republicans of the left,” etc., which despite their name are all located to the right of the radical party (and therefore to the right of the Communists and Socialists).
  26. Goguel (1946, 40) goes so far as to write about the legitimists: “there was, in them, perhaps pride of caste, but certainly no selfishness of class: it was not on their side that the income tax was fought against when it was proposed to the Assembly and rejected at the request of Thiers because it was contrary to revolutionary taxation principles.”
  27. From the name of the director of the newspaper *Le Figaro*, murdered on March 16, 1914 by Joseph Caillaux’s wife, after the violent press campaign waged against her husband, the climax of which was the publication in the March 13, 1914, *Figaro* of a letter signed *Ton Jo* (“your Jo”), addressed by Joseph Caillaux to his mistress in 1901 after the failure of the first Caillaux bill, in which the latter wrote that he had “crushed the income tax by seeming to defend it” (the letter was supposed to show that the promoters of the income tax were merely opportunists who were using this harmful bill for the sole purpose of ensuring their political ascent).
  28. The law of March 29, 1914, which turned the real estate tax on nonbuilt properties into a proportional tax, set the rate on both real estate taxes at 4 percent, and broadened the base of the IRVM to include foreign state securities and unsubscribed foreign securities (see section 1.2).
  29. See Appendix G, Table G-2, column (6).
  30. In contrast, the Doumer bill (1896) was a true global income tax based on an annual declaration of income by taxpayers, which is also why Doumer had the staff of the Finance Ministry carry out estimates of the income distribution, which Caillaux was content to adopt (see Appendix I, section 2.1).
  31. The “head of family” concept was eliminated by the law of December 29, 1982, so that since then tax returns and tax assessments have been drawn up in the name of “Madame ou Monsieur” indifferently, but this change in terminology was not accompanied by any alteration in the rules on the makeup of a tax unit.

32. In fact, Article 8 of the law of July 15, 1914, was relatively imprecise about the concept of a “member of the family” whom it was possible to include in one’s tax return: “Each head of family is taxable both on his personal income and that of his wife and other family members who live with him. However, taxpayers may claim separate taxation: first, when a wife without a claim on assets does not live with her husband; second, when children or other family members, except the spouse, draw income from their own work or from wealth that is independent of the head of family.” In practice, however, only spouses, minor or infirm children, and elder family members either infirm or over the age of seventy (the age was lowered to sixty for a widow in exclusive charge of her children) could be considered “dependent individuals” and thus give entitlement to “deductions from taxable income for family dependents” (see below), so that, due to tax progressivity, it was never in the interest of a taxpayer to include other members of the family on the tax return.
33. On the taxation demands of the pro-family associations in the early part of the century, see Talmy (1962). On Caillaux’s fortune, see Allain (1978–1981, vol. 1, chap. 3).
34. See Appendix C, Table C-1.
35. See Appendix A, Table A-2, columns (1), (2), and (3). On estimates of the income distribution carried out by the Finance Ministry in the early part of the century, see Appendix I, section 2.1, Table I-3.
36.  $0.5 / 15.2 = 0.033$ .
37. See Appendix C, Table C-2.
38. The political process that led the governments of the First World War–era *Union Sacrée* (or “sacred union,” as the wartime domestic political truce was called) to adopt the law of July 31, 1917, has been studied far less than the political processes that led to the vote on the law of July 15, 1914. See, however, Serée de Roch (1999, 176), who notes that public opinion and the press, which were far more preoccupied by the war, did not seem greatly interested in the vote on the law of July 31, 1917, which passed practically unnoticed.
39. In fact, these schedular taxes applied to the profits of both incorporated and unincorporated companies, as we will see in section 4.2.
40. Taxpayers were also allowed to deduct other expenses from their taxable income, for example, some interest payments and operating losses; but the practical significance of these other deductions always remained relatively limited compared to the weight of the deduction of the previous year’s tax payment, especially for very high income levels (see Appendix A, section 2.2).
41. On the evolution of the rates of the schedular taxes, see Appendix C, section 1.
42. For a summary description of all of the statistical tables compiled by the tax administration for the schedular taxes, see Appendix A, section 4.
43. For example, a married taxpayer with one dependent child, whose taxable income was still 9,000 francs, would have received a total deduction of 3,000 francs (2,000 for the deduction for married couples, and 1,000 for the dependent child), leaving an income after deductions of 6,000 francs; of the 6,000 francs, the first 5,000 would have been subject to a marginal rate of 0 percent, and only 1,000 would have

- been subject to the 0.4 percent marginal rate, yielding a tax of four francs (0.4 percent of 1,000); finally, this taxpayer would have benefited from the 5 percent tax reduction for married couples with one dependent child, or 20 centimes (5 percent of 4 francs), so his tax would fall from 4 francs to 3.80, ultimately yielding an average tax rate of about 0.04 percent ( $3.80 / 9,000 = 0.04$  percent), even though his marginal rate was still 0.4 percent. The history of the deduction levels and the tax-reduction rates for family dependents in effect during the 1915–1944 tax years (after which the system was replaced by the family quotient) is described in Appendix C (Tables C-1 and C-2).
44. In fact, the average rate applied to income net of the 3,000 franc standard exemption (and net of any flat-rate deductions for family dependents) (see Table 4-1). The law of June 29, 1918, formulated the tax schedule in terms of income brackets net of the standard exemption (and net of any deductions), that is, with brackets of 0–5,000, 5,000–150,000, 150,000–550,000, and 550,000+, but we have modified its presentation in Table 4-1 in order to make it more directly comparable to the schedules from other years.
  45. If one wishes this joining-up to be continuous (that is, without creating regions of income where marginal rates are above 100 percent), which is obviously desirable, it is simply necessary for the average rates selected for the different target groups to be such that after-tax income is always a rising function of pretax income.
  46. For a 1,000 franc increase in income, the increase in tax is 255.20 francs ( $20 \text{ percent} \times 553,000 - 19.99 \text{ percent} \times 552,000 = 255.2$ ), a marginal rate of 25.52 percent.
  47. See section 3.3 and Table 4-3. In the 1936–1941 tax years, the average rate rose from 39.99 percent at 1,329,000 francs to 40 percent at 1,330,000 francs, an implicit marginal tax rate of 53.29 percent for incomes between 1,329,000 and 1,330,000 francs ( $40 \text{ percent} \times 1,330,000 - 39.99 \text{ percent} \times 1,329,000 = 532.9$ ).
  48. See, for example, Bonnefous (1956–1967, 3:101, 4:15).
  49. See Appendix C, section 1, Tables C-6 and C-8.
  50. See Allix and Lercerclé (1926a, 2:227–229).
  51.  $62.5 = 50 \times 1.25$ .
  52. The law of June 25, 1920, also instituted a cap on the effects of the tax reduction for family dependents: while these tax reductions could reach 50 percent of the IGR amount in the 1915–1918 tax years (without capping in terms of size), starting from the 1919 tax year the IGR reduction thus obtained could no longer exceed 2,000 francs per taxpayer (on the evolution of the rates and ceilings on these tax reductions, see Appendix C, Table C-2). When the law of June 25, 1920, was being prepared, it quickly became clear that it would be very difficult to pass such a provision without at the same time proposing a system of surtaxes for childless taxpayers. This episode illustrates the extent to which the policy of the *Bloc National* was first and foremost determined by the need to find new fiscal resources, and only secondarily by its natural ideological leanings.
  53. The 0–6,000 bracket thus became the 0–7,000 bracket for the 1922–1927 tax years, then 0–10,000 for the 1928–1935 tax years. A small *curiosum* appeared in

the 1922–1923 tax years: the standard exemption was 7,000 francs, but to calculate the tax owed by taxable units (that is, by taxpayers whose incomes, after taking into account any deductions for family dependents, was above 7,000 francs), the 0–6,000 and 6,000–20,000 brackets as defined by the law of June 26, 1920, continued to apply, which brought about a (slight) discontinuity at the level of 7,000 francs of annual income (an income of 6,999 paid no IGR, but a 7,000-franc income paid an IGR equal to 2 percent of 1,000 francs, or 20 francs, so that the marginal rate between 6,999 and 7,000 francs was above 100 percent). The law of July 13, 1925, put an end to this anomaly: for the 1924–1927 tax years, the brackets used would be 0–7,000 and 7,000–20,000.

54.  $50 \times 1.20 = 60$ .
55.  $60 \times 1.20 = 72$ .
56.  $60 \times 1.25 = 75$ , and  $72 \times 1.25 = 90$ .
57. See Figure 4-1.
58. Charles de Lasteyrie, the finance minister during the vote on the *double décime* in March 1924, and a deputy from the *Entente républicaine et démocratique* parliamentary group (the name taken in 1919 by the most right-wing parliamentary group in the *Bloc National*), was hardly more suspected of having sympathy for high marginal rates than was his predecessor, François-Marsal. Confronted with a disastrous financial situation, Lasteyrie had already tried to get the *double décime* accepted by his majority in 1922–1923, without success, before finally managing to do so in March 1924.
59. As was often the case in the interwar era, it is hard to say whether the transitional cabinet that voted the law of December 4, 1925, was on the “center-left” or the “center-right,” insofar as the transformation of the *Cartel des Gauches* majority, symbolized by the Herriot cabinet, into a National Union majority led by Poincaré, was a gradual process that took place in the 1924–1926 years (the Socialists always refused to participate in government, and by the Herriot cabinet the Radicals were bringing in ministers from parliamentary groups to their right). It can only be observed that the finance minister Louis Loucheur was from the “Radical Left” parliamentary group (which, despite its name, was on the right wing of the Radical Party), and that the Socialist deputies refused to vote for the surtaxes in the law of December 4, 1925 (see Bonnefous 1956–1967, 4:3–4, 103–104).
60. On the law of December 4, 1925, see Allix and Lercerclé (1926b, 3–18). The surtax rates instituted were 20 percent for the IGR, 25 percent for the schedular tax on BNC, and 50 percent for the schedular tax on BIC, the IRVM, and the real estate tax (the schedular tax on BA, and most importantly the schedular tax on wages, were exempt). The exceptionally late arrival of these surtaxes also explains their somewhat particular treatment in the tax statistics, which nevertheless confirm that the corresponding registries were in fact created before December 31, 1925, as specified in the law (see Appendix A, section 1.3).
61. In January 1926, Léon Blum passed the so-called Blum motion through the Chamber of Deputies finance committee, which read as follows: “In light of the

current rates of direct taxes, budgetary balance must be sought principally by overhauling these taxes' bases and coverage, without rate increases, and insofar as necessary, through increases in or the creation of indirect taxes other than on general consumption" (this text is reproduced by Bonnefous [1956–1967, 4:109]). Note also that Joseph Caillaux, amnestied in 1924 by the Cartel, and who became finance minister of the Painlevé government after the fall of Herriot, proposed in October 1925 (and again in July 1926) a "tax package" very similar to that which Poincaré passed in August 1926 (with, notably, a sharp increase in the schedular rates and a large reduction in the rates on the IGR), which shows the extent to which the Poincaré plan was in the air at the time (Caillaux, disappointed at having the honors stolen by Poincaré, criticized Blum for not supporting it, and contributed to Blum's fall in 1937).

62. On the receipts brought in by the various tax increases adopted by Poincaré in August 1926, see, for example, Bonnefous (1956–1967, 4:168–171).
63. See Asselain (1984, 2:23), which cites Sauvy and makes the same argument. For an evaluation of the volume of public debt wiped out by monetary depreciation between 1913 and 1926–1927, see Sauvy (1965–1975, 1:291–292; 1984, 2:310).
64. See Appendix C, Tables C-1, C-2, C-6, and C-8.
65. See Appendix G, Table G-1, column (2) (expressed in constant 1938 francs, GDP rose from 368.4 billion in 1913 to 473.1 billion in 1929, a 28.4 percent increase).
66. See section 4.2 and Appendix C, Table C-8.
67.  $33.33 \times 1.10 = 36.67$ .
68. More precisely, the general rate of the schedular taxes was set at 12 percent, half the 24 percent rate applicable under the IGR. It was decided that in the future the schedular rate would always be equal to half the IGR rate (except for the schedular tax on wages, whose rate was set at 6 percent, half the rate of the other schedular taxes) (see Appendix C, section 1, Tables C-6 and C-8).
69. In "exchange" for this 10 percent flat-rate deduction (which since the 1934 tax year all wage earners have been able to obtain without having to provide the slightest proof of their actual work expenses, whereas only "real expenses" were in principle accepted as deductions under the system prior to the 1934 reform), the new legislation decided in effect to restrict the scope of work expenses accepted as deductions and to harden the conditions for proving such expenses (for wage earners who wish to declare "real expenses" above the flat-rate deduction). It was in this same spirit that the 1934 reform established additional flat-rate deductions for certain specific occupations, for example, journalists.
70. The 1934 reform also eliminated the flat-rate deductions for family dependents received by wage earners under the schedular wage tax (however, those taxable under the schedular taxes kept the benefit of tax reductions for family dependents, and likewise, those taxable under the IGR kept the benefit of flat-rate deductions for family dependents) (see Appendix C, Tables C-1, C-2, and C-7).
71. These surtaxes created no discontinuity, since the surtax rates applied to the marginal rates established by the law of June 25, 1920 (see Table 4-1): for example, the marginal rate on the portion of taxable income above 550,000 francs rose to

- 36 percent ( $24 \times 1.50 = 36$ ), the marginal rate on the portion between 500,000 and 550,000 rose 34.56 percent ( $((24 / 25) \times 24 \times 1.50 = 34.56)$ ), etc.
72.  $24 \times 1.25 = 30$ , and  $24 \times 1.50 = 36$ .
73. In reality, the implicit marginal rates of the average-rate schedule established by the Popular Front exceeded 53 percent for taxpayers just below the 1.33 million franc threshold (see section 3.1).
74. As in 1917–1918, the average rates actually applied to income net of the standard exemption (and net of any deductions for family expenses) (see Table 4-3), but that made hardly any difference for recipients of very high incomes: for example, a single individual without dependent children (who was thus entitled only to the 10,000 franc standard exemption) with an income of 1,330,000 francs paid tax equal to 40 percent of 1,320,000 francs, that is, 528,000 francs, or an average tax rate of 39.7 percent ( $40 \text{ percent} \times 1,320,000 = 528,000$ , and  $528,000 / 1,330,000 = 39.7 \text{ percent}$ ).
75.  $(2 / 3) \times 40 \text{ percent} = 26.7 \text{ percent}$ .
76. In the extreme case of an IGR with a 100 percent rate, applied for the first time in an even-numbered year, the deduction of the previous year's IGR would have led, for a taxpayer with constant income, to an effective tax rate equal to 100 percent in all even-numbered years, and 0 percent in all odd-numbered years! In practice, however, these oscillations were masked in the interwar era by a different kind of fluctuation, of equivalent magnitude, related to both the tax rates and the incomes themselves.
77. See Allix and Lecerclé (1926a, 2:205–212). Allix and Lecerclé also note that the tax administration allowed taxpayers to deduct the previous year's taxes from the moment they were owed, even if they had not yet been paid: "the important thing is not to deduct the same taxes two years in a row." The *Guides Pratiques du Contribuable*, published since 1932 by the forerunner of the SNUI, confirmed this very laissez-faire regime ("the tax is deductible from the moment it is owed, even if it has not yet been cleared"). Initially, even the penalties for late payment were deductible, an anomaly eliminated by the law of March 26, 1927 (it was the only limitation on this system that Allix and Lecerclé called for).
78. This theoretical observation is confirmed by analyzing the columns "gross amount of tax" and "net amount of tax" from the "distribution" table compiled by the tax administration based on the 1936 tax returns (for a general description of these tables, see Appendix A, section 1), which shows that the amount of IGR actually owed on very high incomes (the income bracket above 1 million francs) in the 1936 tax year coincided almost perfectly (within 0.1 percent) with the theoretical amount that could be calculated by applying all of the rules under the legislation in effect (except for the "effective maximum rate" rule). The "effective maximum rate" no longer had any effect after the establishment of the 20 percent exceptional surtax in 1937, for that surtax (along with the surtaxes for childless individuals) applied on top of the "maximum effective rate" (which thus implicitly increased from 30 percent to 36 percent when the surtax was instituted). Formally, the "effective maximum rate" system was in effect only for the 1936–1937 tax years, and it was

- definitively abolished by the decree-law of November 10, 1939, and the elimination was confirmed by the decree-law of November 29, 1939, and the law of December 31, 1939, and applied retroactively from the 1938 tax year.
79. See Bonnefous (1956–1967, 4:304–305).
  80. See above. However, the 40 percent average rate in the law of July 15, 1932, only applied to incomes above a significantly higher threshold than the threshold in the law of December 31, 1936 (1.8 million francs instead of 1.33 million).
  81. See Allix and Lecerclé (1930, 194).
  82. The flat-rate deduction at the time was 5,000 francs for each of the first two dependent children, which for a taxpayer subject to the 40 percent average rate established by the Popular Front represented less than 0.4 percent of taxable income ( $5,000 / 1,330,000 = 0.38$  percent), so that an 80 percent reduction in the amount of the deductions only represented an increase of just over 0.3 percent of taxable income and just over 0.1 percent of the tax liability ( $80 \text{ percent} \times 0.38 = 0.30$ ,  $40 \text{ percent} \times 0.30 = 0.12$  percent). Also, these “reductions of deductions” initially (in the 1936 tax year) applied only to deductions for dependent children, before being extended to the additional deduction for married couples in the 1937–1939 tax years.
  83. See Appendix C, Table C-1.
  84.  $40 \times 1.20 \times 1.08 = 51.84$ .
  85.  $40 \times 1.33 = 53.2$ .
  86.  $40 \times 1.33 = 53.2$ , and  $40 \times 1.50 = 60$ .
  87. For single and divorced taxpayers, the marginal rates of the TCF were the following: 0 percent for the portion of taxable income between zero and 10,000 francs, 3 percent for the 10,000–60,000 portion, 6 percent for the 60,000–110,000 portion, 9 percent for the 110,000–210,000 portion, 12 percent for the 210,000–310,000 portion, 15 percent for the 310,000–510,000 portion, 18 percent for the 510,000–810,000 portion, and 20 percent for the portion of income above 810,000 francs. The brackets used for married couples were exactly the same, but the marginal rates were lower (0 percent, 2 percent, 4 percent, 6 percent, 8 percent, 10 percent, 12 percent, 14 percent, instead of 0 percent, 3 percent, 6 percent, 9 percent, 12 percent, 15 percent, 18 percent, 20 percent). The increase in the standard IGR deduction from 10,000 francs to 20,000 francs established by the law of January 30, 1944, also applied to the TCF: the zero-rate TCF bracket in the 1943–1944 tax years hit the portion of income between 0 and 20,000 francs (rather than between 0 and 10,000 francs), and the thresholds of all the other brackets were increased by 10,000 francs.
  88.  $40 \text{ percent} \times 30 \text{ percent} = 12 \text{ percent}$ .
  89. For example, Article 155 of the decree-law of July 29, 1939, instituted a 15 percent surtax on the inheritance tax owed by heirs aged thirty and over who still had no children, and even provided that the heirs could have the 15 percent surtax refunded if they had a child in the year following the bequest!
  90. See notably Paxton (1973, 209–212) and Muel-Dreyfus (1996, 95–96). See also Coutrot (1972), who is often cited in support of the continuity thesis, but in fact also emphasizes the more specific measures taken by Vichy concerning civil servants



(Coutrot notably cites the law of September 14, 1941, setting the general code of the civil service, which established wage reductions for civil servants still lacking children after the age of thirty-five; he also notes that Vichy probably would have raised the overall child benefits schedule had the economic and budget context been less restrictive, due to both “internal” pressures from the Finance administration and repeated pressures from the occupiers to limit this type of expenditure (see Coutrot 1972, 252–254).

91. See Talmy (1962). Talmy’s tone in the introduction to his 1962 thesis on the history of the family movement in France from 1896 to 1939 gives a rather good sense of the impassioned nature of French debates about the family quotient and natalist policies: “the attention now given to the family by the public authorities is relatively recent: throughout the nineteenth century, the family was the victim of public institutions and laws, mocked and ridiculed by novelists and dramatic authors. Its weakening would result in a slow and tragic decline in the birth rate that had no other example in the world.”
92. See *Journal Officiel—Documents de l’Assemblée Nationale Constituante*, appendix n. 71 (session of December 11, 1945).
93. The October 1945 elections were the first legislative elections in which Communists and Socialists by themselves held an absolute majority of seats, a situation that was repeated only three times in France’s parliamentary history, at the very end of the century (in the 1981, 1988, and 1997 legislative elections), and each of those times with a far weaker Communist presence than in 1945.
94. See *Journal Officiel—Débats de l’Assemblée Nationale Constituante*, 2nd session of December 21, 1945, pp. 301–306. From a reading of the parliamentary debates, however, one forms the impression that the Communist and Socialist deputies would have shown greater hostility to the family quotient had they not obtained satisfaction on the issue of the deduction of the previous year’s IGR payment (see below).
95. The full text of the PCF plan was published in the *JO* (see *Journal Officiel—Assemblée nationale—Documents parlementaires*, appendix n. 804, session of March 4, 1947).
96. For a description of the March 1947 CGT plan, which, unlike the PCF’s, obviously could not be introduced in the National Assembly, see, for example, Marquis (1947, 91–100).
97. The key difference with child benefits is obviously that only households subject to the income tax are affected by a reduction in the flat-rate tax reduction per dependent child: by definition, any system for taking into account the family situation of taxpayers subject to a progressive income tax (including the system proposed by the CGT in 1947) is “inegalitarian,” in the sense that the children of parents with incomes that are too low to be taxable do not entitle the parents to any tax advantage.
98. In a system of flat-rate deductions from taxable income, such as the family quotient, the amount of tax reduction actually obtained per dependent child is a rising function of the parents’ income, so the difference between the two systems is thus one of degree more than one of principle: the tax reduction rises slowly with the parents’



- income level in the case of flat-rate deductions (at the same pace as the marginal tax rate, which can even result in a slightly negative growth in the rare cases where marginal rates are higher for intermediate incomes than for the highest incomes, as, for example, in the case of the “average-rate” based schedules that were in effect in the 1917–1918 and 1936–1941 tax years), whereas the increase is much more rapid in the case of the family quotient. Recall, however, that in both cases, the amount of tax reduction per child, expressed as a percentage of the parents’ income (rather than in absolute terms), tends toward zero for infinitely high incomes: for the latter, average tax rates always tend toward the top marginal rate of the tax schedule, whatever the amount of the flat-rate deductions or the number of family-quotient shares (here again, the difference between the two systems is an issue of speed: the “rate of tax reduction” tends toward zero less rapidly in the case of the family quotient than in the case of flat-rate deductions).
99. For the evolution of the thresholds of the maximum tax reduction and the corresponding taxable income reduction, see Appendix C, Table C-5. In the Chapter 5 we will revisit the position of the families targeted by these provisions in terms of fractiles of the income distribution.
  100. Barring an omission on our part, the only reforms we do not mention here are those concerning the rules for assigning additional half-shares for disabled individuals, and the conditions for granting dependent status to parents or disabled adult children.
  101. See *Journal Officiel—Débats de l’Assemblée Nationale Constituante*, 2nd session of December 21, 1945, pp. 301–306.
  102. Cf. *Journal Officiel—Assemblée nationale—Documents parlementaires*, Appendix n. 804, session of March 4, 1947.
  103. See Table 4-5 for the new schedule established by the law of May 24, 1951, which went into effect with the 1950 tax year. The law of May 24, 1951, also marked the unofficial start of the rebate (*décote*), because while the upper threshold of the 0 percent rate bracket was set at 140,000 francs, the law provided that taxpayers with taxable incomes per share not exceeding 150,000 francs would not be taxed.
  104. If we estimate the income distribution separately for each group of taxpayers with the same number of family-quotient shares, we observe that the distribution for taxpayers with 1.5 shares is by far the most unequal of all of them (see Piketty 1998, 19).
  105. See Appendix C, Table C-5.
  106. See Appendix C, Table C-1.
  107. See *Journal Officiel—Documents de l’Assemblée Nationale Constituante*, Appendix n. 71, session of December 11, 1945.
  108. The law of December 31, 1945, also assigned an additional half-share to widowers with dependent children from marriages in which the spouse was now deceased (and only to them), a provision still in effect today.
  109. See Appendix C, Table C-5.
  110. See Piketty (1998, 19).
  111. See, for example, Blanchet (1992), Blanchet and Ekert-Jaffé (1994), Martin (1998), and Aubert (1999).

112. All of the available tables are described in Appendix A, where we also give exact references to the statistical bulletins where the tables were published.
113. For a detailed description of the methodology used to estimate average tax rates by fractile for an “average” family situation, see Appendix B, section 3.
114. The 60 percent rate was raised to 61.5 percent on a one-time basis in the 1963 tax year and to 65 percent for the 1966 tax year, and the 65 percent rate was increased by the same amount (see Table 4-5).
115. See previous note.
116. The practice of presenting the rate schedule using a single rate applying to increasing fractions of income within fixed brackets (see Table 4-2) was reprised in the law of December 31, 1945, but in 1946 the schedule was adjusted relatively “freely,” and this mode of presentation was definitively abandoned in 1947–1948, so that today it has been totally forgotten, along with the technique of “average-rate” based schedules.
117. See, for example, *L'Année Politique 1945* (p. 164) for a very explicit March 1945 speech by René Pleven (minister of finance in General de Gaulle's provisional government), comparing the rates of the various taxes in effect in 1918 and 1945 one by one, and concluding that it was “impossible” to increase the rates of the existing taxes in 1945.
118. One of the few relatively explicit allusions to the collapse of top incomes that we have found in the parliamentary debates of the time was from Paul Reynaud in October 1946. In the Constituent Assembly, addressing the Socialists and Communists especially, he declared: “The rentier, who since 1914 has played the role of national punching bag, has disappeared. You can no longer take from the rentier to give to the wage earner, or the civil servant, since he has nothing. You have engaged in a general soaking of the whole French people and the only result has been to cause prices to skyrocket” (see *L'Année Politique 1946*, pp. 256–257).
119. The IGR surtax rate was 20 percent for taxpayers with taxable incomes between 450,000 and 1 million francs (the 450,000 franc threshold was increased to 600,000 francs for taxpayers with one or two dependent children, to 750,000 francs for those with three or four dependent children, and to 850,000 francs for those with five or more dependent children), 30 percent for taxpayers with taxable incomes between 1 million and 3 million francs (whatever their family situation), and 40 percent for taxpayers with taxable incomes greater than 3 million francs (whatever their family situation). The law of January 7, 1948, also contained surtaxes on the schedular taxes, and all of these surtaxes applied to taxes owed in 1947, that is, to 1946 incomes.
120.  $60 \times 1.40 = 84$ , and  $70 \times 1.40 = 98$ .
121. See *Journal Officiel—Débats de l'Assemblée Nationale Constituante*, 2nd session of December 21, 1945, pp. 301–306.
122. The decree of December 9, 1948, also confirmed the provision in the law of February 23, 1942 (which went into effect from the 1941 tax year), according to which schedular taxes owed on the previous year's incomes could no longer be deducted from the taxable income subject to the current year's schedular taxes: the previous year's “proportional tax” was never deductible from taxable incomes subject to the

- current year's "proportional tax," but only from taxable incomes subject to the current year's "progressive surtax" (until the 1940 tax year, the previous year's schedular taxes were deductible from both taxable incomes subject to the current year's schedular taxes and from taxable incomes subject to the current year's IGR).
123. On a purely temporary basis, the law of December 28, 1959, allowed affected taxpayers to deduct one-third of the "proportional tax" owed on 1958 income from their 1959 taxable income.
  124. See Appendix B, section 1.4.
  125. See Appendix C, section 1, Tables C-6 and C-8.
  126. Recipients of farm profits and noncommercial profits were also entitled to an exemption at the base, which is why the sharpest conflict was between wage earners and recipients of industrial and commercial profits (although the exemption for recipients of BA and BNC was lower than for wage earners, their tax rates were higher, and only wage earners were entitled to flat-rate deductions for dependents; see Appendix C, section 1).
  127. See Appendix D, Table D-3, column (2).
  128. As a general matter, the schedular taxes on BIC, BA, and BNC incomes hit the profits of all companies, whatever their legal form. In practice, this was mainly significant for the tax on BIC income, which concerned almost all large companies (especially since the few corporations in the farm sector were typically covered by the tax on BIC income rather than the tax on BA income). This explains why BIC tax rates were set at a higher level than those on BA and BNC incomes (see Appendix C, section 1), hence the particularly intense rancor from recipients of small BIC incomes.
  129. The exemption in this special tax regime was initially 1,500 francs (versus 3,000 francs for wage earners), but it was not increased subsequently, whereas the exemption for wage earners was doubled in the 1919 tax year (see Appendix C, Table C-6).
  130. The biggest disparity was in the 1924 tax year, when the *double décime* and the "Loucheur law" surtax combined their effects (these two surtaxes applied to all the schedular taxes except that on wages): for example, whereas a married wage earner with two dependent children and an annual wage of 14,000 francs, or around twice the average income per tax unit at the time (see Appendix G, Table G-2, column [6]), found himself completely exempt from the schedular wage tax (the standard deduction was 7,000 francs, to which the 3,000 franc "married couple" deduction plus 2,000 francs for each of the two children would be added; see Appendix C, Tables C-6 and C-7), a nonwage earner with annual profits of 14,000 francs subject to the schedular tax on BIC income had to pay a schedular tax of 1,602 francs ( $0.036 \times 1,500 + 0.072 \times 3,500 + 0.144 \times 9,000 = 1,602$ ; see Appendix C, Table C-8), a tax rate of 11.4 percent ( $1,602 / 14,000 = 0.114$ ), which the artisan in question could have reduced by 10 percent, assuming he was married and the father of two dependent children (cf. Appendix C, Table C-2).
  131. See the Communist programs of the 1920s cited in Chapter 5, section 2.3. See also Delorme (1965, 197), who argues that the schedular wage tax would have been definitively abolished by 1924 if the PCF had joined the *Cartel des Gauches*.

132. See Allix and Lecerclé (1926a, 2:56, 60–61) and Bonnefous (1956–1967, 3:323).
133. See Chapter 3, section 1.
134. See Zdatny (1999, 32–38).
135. The law of December 30, 1928, instituted tax relief for “small shopkeepers”; the law of December 29, 1929, then created a “special regime” for all “small shopkeepers and manufacturers,” and the law of July 6, 1934, extended this “special regime” to all “individuals and partnerships” with profits not exceeding 10,000 francs; we may also mention the law of March 31, 1930, which instituted an additional 20 percent tax reduction for “small shopkeepers” (all of these tax rules are described in Appendix C, Table C-8).
136. On the chaotic evolution of the number of taxpayers subject to the schedular tax on BIC income, see Appendix G, Tables G-16 and G-17.
137. By 1937–1938, inflation had pushed the share of wage earners subject to the schedular wage tax above the 30 percent mark (see Appendix D, Table D-3, column [2]). Because of the shift to levying at the source, no wage-tax statistics are available for the 1939–1948 tax years; but every indication is that the share of wage earners subject to the schedular wage tax surpassed 50 percent during the hyperinflation of the immediate postwar period (for example, in the 1947 tax year, the threshold of taxation was 60,000 francs in the first quarter and then 84,000 francs in the second quarter (see Appendix A, Table A-6), at a time when nearly half of wage earners had wages above 100,000 francs (see Appendix D, Table D-8).
138. See, for example, the program adopted in November 1945 by the *Délégation des Gauches* (the committee then including the SFIO, PCF, and CGT), whose only demand concerning taxation was precisely an immediate increase in the exemption at the base of the wage tax (the program is reproduced in full in *L'Année Politique 1945*, pp. 470–475).
139. More precisely, the decree of October 1, 1948, eliminated the schedular wage tax and replaced it with a flat-rate payment by employers equal to 5 percent of their total wage bill (this “tax on wages” was later absorbed into the VAT). On the evolution to 1948 of the exemption at the base of the schedular wage tax, see Appendix C, Table C-6.
140. On the evolution of the rates and rules for the proportional tax, see Appendix C, Table C-9. Note that the proportional tax unified the old schedular taxes, and that it was constituted at the tax-unit level (like the general income tax and the progressive surtax, but unlike the schedular taxes, which were constituted strictly at the individual level), which allowed the 1948 reform to present the IRPP as a “single” tax putting an end to the dual character of the old system (in reality, the change in the unit of taxation was of no importance, given the nearly proportional nature of the “proportional tax”).
141. See Appendix C, Table C-9.
142. In 1934, the ceiling was 20,000 francs, which corresponded to an annual wage of 200,000 francs (see Appendix C, Table C-3), at a time when the P99.9 threshold of the wage distribution was barely 100,000 francs and the P99.99 threshold was barely 250,000 francs (see Appendix D, Table D-5).

143. In 1950, the deduction was capped at 500,000 francs of annual wages (see Appendix C, Table C-3), and the P95 threshold of the wage distribution was 472,000 francs (see Appendix D, Table D-14).
144. In 1951, the deduction was capped at 2 million francs (see Appendix C, Table C-3), at a time when the P99 threshold of the wage distribution was around 1.3 million francs and the P99.9 threshold was around 3.3 million francs (see Appendix D, Table D-14).
145. In fact, the additional exemption was always calculated after the deduction for work expenses, so a 10 percent flat-rate deduction and a 15 percent flat-rate exemption meant that wage earners were taxed on the basis of 76.5 percent of their income ( $0.9 \times 0.85 = 0.765$ ). Likewise, when the rate of the flat-rate exemption was increased to 20 percent (see below), wage earners were now taxed on the basis of only 72 percent of their wages ( $0.9 \times 0.8 = 0.72$ ).
146. On the way in which Edgar Faure presented this plan, see *L'Année Politique 1954*, pp. 113–114.
147. See *L'Année Politique 1955*, pp. 115–116 and 154–155.
148. See, for example, Rioux (1980, 79). This classic explanation had also been put forward by André Siegfried as early as 1955 (see *L'Année Politique 1955*, p. xiii).
149. This “existential” conflict between the world of “small employers” and that of the *cadres* is thrown into relief by a cover of the magazine *L'Express* from the time, headlined “Poujadolf” (cited by Rioux 1980, 80), in that *L'Express* presented itself as the official magazine of “Parisian *cadres*” (this obviously should not detract from Poujade’s very real anti-Semitism, notably against Pierre Mendès-France, the head of government from June 1954 to February 1955).
150. See Appendix C, Table C-9.
151. For a summary, drafted by the staff of the secretary of state of the finance ministry at the time, that reveals a great deal about the spirit of conciliation with which these compensatory measures were designed, see “La réforme fiscale,” *S&EF* n. 136 (April 1960), 349–359.
152. See Appendix C, Table C-9.
153. See Table 4-5. In 1959, the 5 percent surtax on nonwage incomes was presented as “compensation” for the 5 percent flat-rate tax on total wages owed by employers; the 5 percent surtax was abolished after the 5 percent wage tax’s permanent absorption into the VAT (starting from January 1, 1968, all employers for whom more than 90 percent of sales were subject to VAT were completely exempted from the flat wage tax).
154. In fact, the law of December 27, 1974, only covered recipients of industrial and commercial profits (BIC) and farm profits (BA) who belonged to an “authorized management center”; the law of December 29, 1976, then extended the exemption to recipients of noncommercial profits (BNC) belonging to an “authorized association.”
155. In the 1973 tax year, the cap on the 20 percent exemption corresponded to an annual wage (net of work expenses) of 280,000 francs (see Appendix C, Table C-3), at a time when the P99 threshold of the wage distribution was barely more than

- 90,000 francs (see Appendix D, Table D-14); in the 1979 tax year, the cap on the 10 percent flat-rate deduction corresponded to an annual wage of 400,000 francs (see Appendix C, Table C-3), at a time when the P99 threshold was just over 180,000 francs (see Appendix D, Table D-14) (we have no estimate of the P99.9 threshold of the wage distribution for 1973 and 1979, but based on the results for the years for which estimates are available, there is every reason to think that less than 0.1 percent of wage earners were affected by these caps).
156. In the 1998 tax year, the cap on the 10 percent flat-rate deduction corresponds to an annual wage of 774,600 francs, and the cap on the 20 percent exemption corresponds to an annual wage (net of work expenses) of 707,000 francs (see Appendix C, Table C-3).
157. In the 1990s, the P99 threshold of the wage distribution is around 450,000 francs, and the P99.9 threshold is around 950,000 francs (see Appendix D, Table D-14).
158. If we except the 10 percent flat-rate deduction for work expenses, which, as we said above, does not really represent an inequality of treatment.
159. See Chapter 3, section 4.
160. The “flat-rate” tax regimes, which since 1917 have permitted nonwage earners with small incomes not to maintain complete accounts, instead calculating their taxable profits on a flat basis by applying a fixed coefficient to their sales, the physical size of their operations, etc., and which in practice have mainly mitigated the inequality of treatment vis-à-vis wage earners, represents a sort of official legitimization of fraud (we have not attempted to retrace the complex history of these “flat-rate” tax regimes, since we are mainly interested in the profits declared by “big” nonwage earners, and such large profits have always been subject to the “real” profit tax system. This has been the case since 1914–1917).
161. See Chapter 6, section 2.
162. We may note in particular that the cap introduced in the 1970s on the 20 percent exemption, though denounced by the parties of the left at the time (which would have preferred an increase in the tax burden on very high nonwage incomes), had actually been proposed by the PCF as early as 1964: the Communists had proposed raising the rate of this exemption to 30 percent and limiting the amount of the exemption to three times the minimum wage (see *Journal Officiel—Assemblée nationale—Documents parlementaires*, Appendix n. 926, session of May 13, 1964; the full text of this bill is also reproduced in Delorme [1965, 366–375]), which means the cap would have applied to wages greater than nine times the lowest wage, that is, around 1 percent of wage earners (in 1964, the P10 threshold of the wage distribution was 4,150 francs, and the P99 threshold was 45,318 francs; see Appendix D, Tables D-11 and D-12).
163. See Caillaux (1910, 204–205, 250–251), in which Caillaux mentions the example of “blue-collar Parisian households” whose annual incomes could reach “4,000 francs,” and who at all costs must be spared “contact with the tax collector” and hence a threshold of taxation set at 5,000 francs (total income) for the IGR and 3,000 francs (individual wage) for the schedular wage tax (these fears also confirm



- what we said in Chapter 3 about the presence of “high-wage blue-collar workers” among the best-paid 10 percent of workers at the beginning of the century).
164. The old system was in effect for the last time in 1939 (1938 wages were declared by employers in early 1939, and wage earners received the corresponding tax notices over the course of 1939), and levying at the source was then instituted by the decree-law of November 10, 1939, which went into effect in January 1940 (none of the rules for calculating the schedular wage tax (tax rates, tax reductions for family dependents, etc.) were changed by the establishment of withholding).
  165. See Chapter 2, sections 1.1.2 and 1.2.2.
  166. In addition to the surtax instituted by the law of January 7, 1948 (which was in effect for the 1946 tax year) already discussed earlier, these were the surtax instituted by the law of July 16, 1974 (in effect for the 1973 tax year, with rates of up to 20 percent); the surtax instituted by the law of October 29, 1976 (in effect for the 1975 tax year, with rates of up to 8 percent); and the surtax instituted by the order of April 30, 1983 (in effect for the 1981 tax year, with a 10 percent rate) (on the amounts raised by these three “refundable surtaxes” of the 1970s and 1980s, as well as an evaluation of the amounts actually paid back, see *S&EF* n. 394 [1984], 30).
  167. To our knowledge, this is the only example of a surtax whose receipts were assigned to a specific expenditure (specific social expenditures were cited relatively frequently as justification for surtaxes, such as in 1910 when inheritance tax rates were increased (following the law on ROPs), or at the time of the “exceptional surtax” of August 1981 (whose official title referred to the deficit in the unemployment system), but these references corresponded to no formal budgetary assignment mechanisms).
  168. In the 1955 tax year the *décime* concerned all taxpayers with annual incomes greater than 600,000 (old) francs (see Table 4-6), or nearly three-quarters of taxpayers subject to tax on their 1955 incomes (see Appendix A, Table A-1).
  169. See the “Rapport sur les orientations de la réforme de l’impôt sur le revenu” presented on behalf of the government by Jacques Chirac in 1969. This report, which is reproduced in *S&EF* “supplement” n. 242 (February 1969), also announced the definitive elimination of the 5 percent surtax on nonwage incomes instituted by the reform of 1959, while “recommending” that the rate of the additional exemption for wage earners be set at 25 percent (instead of 20 percent), so as to “respect the commitment undertaken by the government in the Grenelle accords to include specific measures in the reform plan to lighten taxes on wage incomes” (this “recommendation” was not taken up).
  170. In fact, the “fever” never entirely went away, given the “refundable surtaxes” instituted in the wake of the economic crisis of 1973–1974 (see note 166).
  171. The Mauroy government also instituted a “tax on large fortunes” (IGF, or *impôt sur les grandes fortunes*) (law of December 30, 1981), to which we will return in the following chapters (see Chapter 5, section 2.3, and Chapter 6, section 3).
  172. Except for the new reduction in the threshold of the family-quotient cap instituted in 1998, an episode discussed in the Introduction.
  173. See Appendix C, Table C-4.

174. See Appendix C, Table C-4.
175. See Appendix C, Table C-4. A “rebate” had been in effect before, in the 1951–1952 and 1957–1972 tax years, and each time it was eliminated in favor of a broadening of the 0 percent bracket (the Juppé reform also envisaged abolishing the rebate in this way, but the reform did not go through and the rebate is still in effect today).
176. See Table 4-5 and Appendix C, Table C-4.
177. This prophecy came true sooner than expected, because the finance law of December 30, 2000, instituted a general reduction in the rate schedule, for the highest rates in particular: thus the top rate fell from 54 percent in the 1996–1999 tax years to 53.25 percent in the 2000 tax year (the top rate is expected to move to 52.75 percent in the 2001 tax year and 52.5 percent in the 2002 tax year).
178. The top marginal rates shown in Figure 4-1 are thus the highest marginal rates on taxpayers in the most unfavorable situation: in addition to the information from the tax schedules reproduced in Tables 4-1–4-5, we took into account all of the “exceptional surtaxes” shown in Table 4-6, as well as the surtaxes on childless taxpayers from the 1919–1938 tax years, and the family compensation tax in effect during the 1939–1944 tax years. For the rate schedules defined in “average-rate” terms from 1917–1918 and 1936–1941, we used the marginal rate for the highest incomes, so the actual top marginal rate is (slightly) higher. Note, too, that we do not take the schedular taxes, the proportional tax, or the complementary tax into account (on the other hand, we do take the 5 percent surtax on nonwage incomes into account). We have reproduced the resulting series in Appendix A, Table A-2, column (12).
179. This point, and the point that follows it, would be strengthened considerably if we took into account the rates of the schedular taxes, the proportional tax, and the complementary tax, which we have ignored here (see previous note).
180. The introduction of this sort of tax reduction mechanism dates to the 1983 tax year and the Mauroy government’s decision to transform certain deductions from taxable income into tax-reduction mechanisms; this was initially intended to make the mechanisms more “egalitarian” (deductions become more advantageous the higher the tax bracket, which in theory is not the case for tax reductions), but tax-reduction mechanisms have subsequently proliferated and have helped significantly reduce the amount of “net tax” actually paid by taxpayers (see Appendix A, section 1.3 and Table A-3, column [14]).
181. However, there were a few very rare examples of types of securities income that had been subject to the IRVM but exempted from the IGR, for example, certain types of call premiums (see Allix and Lecerclé 1926a, 2:127).
182. See Chapter 6, section 1.3. There are other categories of investment “income” that have always been exempt from income tax due to their unique form (for example, credited interest on life-insurance contracts or the undistributed profits of firms), which will be dealt with in Chapter 6 (sections 1.2–1.4).
183. See Allix and Lecerclé (1926a, 2:162–163).
184. In fact, tax returns in the late twentieth century include a line where taxpayers are in principle required to declare the amount of their income subject to the optional



- levy and therefore taxed separately. But not only is it unclear that all of the corresponding incomes are reported on that line, these incomes also, by definition, are never added to taxpayers' other incomes, and have never appeared in the statistical tables compiled by the tax administration from its tabulations of tax returns, so we have not been able to take them into account in this way.
185. The CEL was created by the law of July 10, 1965, and established the ability to open tax-exempt savings accounts, which had already granted to the *Caisses d'épargne*, and was extended to the *Crédit mutuel* by the law of November 29, 1965; the "participation" and PEE regime was instituted by the order of August 17, 1967; the PEL was created by the law of December 24, 1969; "blue-collar laborers' savings accounts" were made tax-exempt by the law of December 29, 1976, etc.
  186. The LEP was created by the law of April 27, 1982, the CODEVI by the law of July 8, 1983, the PEP by the law of December 29, 1989, and the PEA by the law of July 16, 1992. Some of these savings plans result only in total tax exemption if the account holders honor certain conditions (for example, no withdrawal before five years for PEPs and PEAs).
  187. In fact, the law of July 12, 1965, established that the tax asset would be equal to half the distributed dividend, which means the system ended up reducing the amount of company tax on distributed dividends by half (the tax rate on companies was then 50 percent); it is only since the early 1990s and the cut in the company tax rate to 33 percent that the tax asset (still equal to half the distributed dividend) has represented the entire corresponding corporate tax.
  188. The transition from the "triple taxation" regime (in effect until the 1958 tax year) to the "single" taxation regime (in effect since the 1972 tax year) was relatively complex: not only did the complementary tax and the 5 percent surtax disappear only very gradually (see below), but legislators in 1959 had effectively decided to preserve withholding at the source for dividends and to create a tax-credit mechanism corresponding to these withholdings (except for the fraction corresponding to the complementary tax payment) (this complex system disappeared at the same time as the complementary tax).
  189. For the 1998 tax year, this exemption was 8,000 francs for a single individual and 16,000 francs for a married couple. The principle of a flat-rate exemption for dividends subject to the progressive rate schedule was adopted by the law of December 29, 1976, and the level of the exemption has always been relatively modest; a similar exemption for interest income that taxpayers chose not to subject to the optional levy had been in effect before, from 1965 (law of November 29, 1965) to 1976; since the 1996 tax year (law of December 30, 1996), this exemption has been reserved for dividends.
  190. The tumultuous parliamentary debates about "the taxation of French capital income" are reproduced in Caillaux (1910, 317–410).
  191. Under the IGR, real estate owners had the choice between "real" property income and "cadastral" income as the basis for the real estate tax, but tax inspectors could substitute real income for "cadastral" income, "if they can establish that the former

is greater than the latter” (see Allix and Lecerclé 1926a, 2:139); the law of February 28, 1933, passed at a time when deflation was boosting real estate incomes, then established that such incomes would now be determined by direct assessment of “real” income on a mandatory basis.

192. Among other measures taken on behalf of real estate owners after the Second World War, we may mention the decree of December 9, 1948, limiting real estate income subject to the progressive surtax to twice the cadastral income that had been subject to the real estate tax in 1948 (the law of May 24, 1951 theoretically established the return of the “real” income regime, but multiple flat-rate exemptions continued to apply).
193. On the Chaban-Delmas affair, see, for example, the breathless account in Brie and Charpentier (1975, chap.1).
194. The corporate tax rate, which had not changed from its 50 percent level since the late 1950s, was cut in 1985 and gradually brought down to 33 percent in 1991–1992 (in such a way that the amount of the tax asset became exactly equal to that of the corporate tax paid on distributed dividends; see below); optional levy rates were gradually unified and reduced to 15 percent over the course of the 1988–1993 legislature.
195. The CSG falls both on capital incomes subject to the progressive income tax rate schedule (mainly dividends) and on incomes subject to the optional levy (on the other hand, most income from tax-exempt savings accounts and savings plans are also exempt from CSG).

#### 5. WHO PAID WHAT?

1. Average deduction rates varied a great deal depending on the years: according to our estimates the average rate by which taxable incomes of fractile P99.99–100 (in which the 550,000 franc threshold was located; see Appendix B, Table B-4, column P99.99) have to be marked up to account for the deductibility of the previous year’s taxes was 21.5 percent in 1919, 42.6 percent in 1920, 62.6 percent in 1921, 44.3 percent in 1922, etc. (see Appendix B, section 1.4, and Table B-6); using an average markup rate of 30 percent, to which a markup of around 10 percent due to work expenses must be added (see Appendix B, section 1.5, and Table B-7), one obtains:  $550,000 \times 1.4 = 770,000$ . Since 1919 francs have to be multiplied by a coefficient of around 6.58 to get 1998 francs (see Appendix 4, Table F-1, column [7]), one thus gets  $0.77 \times 6.58 = 5.067$  million francs (the coefficient of conversion would be smaller for francs in subsequent years, but the markup rate would be higher: for example, for 1921, one would get  $0.55 \times 1.726 \times 5.47 = 5.193$  million francs).
2. Applying an average markup rate of 30 percent to account for the deductibility of the previous year’s taxes, which, given the very advanced position of the 1.33 million franc threshold within the P99.99–100 fractile, is probably too low (see Appendix B, Table B-4, column P99.99, and Appendix B, section 1.4, and Table B-6), and adding a markup of around 10 percent due to work expenses (see Appendix B, section 1.5, and Table B-7), we get  $1.33 \times 1.4 = 1.862$ . Since 1936 francs must be multiplied by a coefficient of around 3.62 to get 1998 francs (see Appendix F, Table F-1, column [7]), we thus get  $1.862 \times 3.62 = 6.740$  million francs.

3. The most favorable case is where a taxpayer benefits fully from the 10 percent deduction for work expenses and the additional 20 percent deduction, in which case taxable income represents only 72 percent of fiscal income, and taxable income must be multiplied by  $1/0.72 = 1.39$  to move to fiscal income (in practice, average markup rates are significantly lower for very high incomes; see Appendix B, section 1.5, and Table B-7). We thus have:  $293,600 \times 1.39 = 408,104$ . For a married couple, this threshold must be multiplied by 2:  $408,104 \times 2 = 816,208$  (this threshold does not depend on the number of dependent children, since the thresholds for the family-quotient cap are far exceeded at these income levels; see Appendix C, Table C-5).
4. Insofar as the “average” family configuration has always been married couples with one dependent child (the average number of family-quotient shares has always gravitated around 2.5 since 1945; see Appendix B, section 3.2), it is more justified to use the 800,000 franc threshold to undertake comparisons with the interwar period.
5.  $5/0.8 = 6.25$ , and  $7/0.8 = 8.75$ .
6. See Chapter 1, Figure 1-6, and Appendix G, Table G-2, column (7).
7.  $25/0.8 = 31.25$ , and  $35/0.8 = 43.75$ .
8. Or, in 1998 francs, 25,000–30,000 francs for average income, and 5–7 million francs for the threshold of the top bracket.
9. Or, in 1998 francs, 130,000 francs for average income, and 800,000 francs for the threshold of the top bracket. The ratio between the threshold of the top bracket and the average income would be only 3 if we used the 400,000 bracket applicable to single individuals.
10. In fact, the collapse in the real level of the top bracket happened “naturally,” following the “anti-exhibitionist” measures of the Vichy regime (see section 1.1), and above all after the hyperinflation brought about by the Second World War: the law of December 31, 1945, merely increased the threshold set by Vichy from 400,000 to 500,000 francs (see Chapter 2, Tables 4-4 and 4-5), so that the real level of this threshold (expressed in 1998 francs) by 1945 stood at around 300,000 francs of taxable income per family-quotient share (1945 francs must be multiplied by a coefficient of around 0.63 to get 1998 francs; see Appendix F, Table F-1, column [7]), a level practically identical to that observed in the late 1990s (293,600 francs in 1998). Large increases took place over the 1946–1950 years (in 1950, the threshold of the top bracket reached 5 million francs (see Chapter 4, Table 4-5), the equivalent of 700,000 1998 francs (1950 francs must be multiplied by a coefficient of around 0.14 to get 1998 francs; see Appendix F, Table F-1, column [7]), but they were offset by the irregular nature of the increases carried out from the 1950s to the 1970s, so that the threshold of the top bracket regained its real 1945 level in the 1980s–1990s.
11. See Chapter 2, Figure 2-7, and Appendix B, Table B-11, column P99.99–100.
12. In the 1920s and 1930s, the P99.99 threshold of the taxable income distribution usually stood around 400,000–500,000 francs (see Appendix B, Table B-4, column P99.99), a level below the 550,000 franc threshold set by the *Bloc National* (and *a fortiori* below the 1.33 million franc threshold set by the Popular Front). Note however that the P99.99 threshold reached 600,000–700,000 francs in the late

1920s and the early 1930s (before the recession brought it back to previous levels), so that the percentage of tax units in the top bracket slightly exceeded 0.01 percent for a few years. Note also that the number of taxpayers declaring taxable incomes above 1 million francs was around 300–400 per year in the 1930s, about 0.002 percent of the total number of tax units (see Appendix A, Table A-1, and Appendix B, Table B-1); the percentage of taxpayers affected by the Popular Front's top bracket was thus significantly lower than 0.01 percent.

13. In 1945, the P99.99 threshold of the taxable income distribution was around 1.2 million francs (see Appendix B, Table B-4, column P99.99), an income level slightly above the threshold for the top bracket for married couples (1 million francs) and slightly below the threshold for married couples with one dependent child (1.5 million francs). Accounting for single individuals (for whom the threshold of the top bracket (500,000 francs) was just above the P99.9 threshold of the income distribution (469,450 francs; see Appendix B, Table B-4, column P99.9), we can estimate that the percentage of tax units in the top bracket in 1945 was slightly above 0.01 percent.
14. In 1998, the threshold for the top bracket was 587,200 francs ( $293,600 \times 2$ ) of taxable income for married couples, an income level practically identical with the P99.5 threshold of the taxable income distribution (596,788 francs in 1998; see Appendix B, Table B-4, column 99.5). Accounting for single individuals, for whom the threshold of the top bracket (293,600 francs) was between the P95 and P99 thresholds of the taxable income distribution (see Appendix B, Table B-4, columns P95 and the P99), we can estimate that around 210,000–220,000 tax units were subject to the top bracket of the income tax in the late 1990s, about 0.7 percent of the total number of tax units (see Piketty 1998, 7).
15. See Chapter 3, section 4, and Chapter 4, section 4.4.
16. The preamble of the first Caillaux bill sought to present in average-rate terms the marginal-rate tax schedule that appeared in the text of the bill, so as to make clear that the 4 percent top marginal rate (which applied to incomes above 10,000 francs) would actually be reached only for incomes above 1 million francs (see *BSLC* May 1900, 47:467).
17. Recall that francs from the early part of the century must be multiplied by a factor of around 20 to obtain 1998 francs (see Appendix F, Table F-1, column [7]). The 1 million franc threshold stigmatized by Caillaux in 1900 thus corresponds to 20 million 1998 francs, even without taking into account any deductions taxpayers might benefit from in calculating the taxable income.
18. The tax schedule proposed by Caillaux in 1907 included a 4 percent top rate on incomes above 100,000 francs (see *BSLC* February 1907, 61:286); the tax schedule ultimately adopted in 1914 by the Senate included a 2 percent top rate on incomes above 25,000 francs, but new brackets making it possible to single out the highest incomes were very quickly created (see Chapter 4, Tables 4-1 and 4-2).
19. CF Chapter 4, Table 4-3.

20. We might also point out that this symbolic definition of the “200 families” was not far from corresponding to reality: in the 1936 tax year, 402 taxpayers declared a taxable income above 1 million francs (see Appendix A, Table A-1).
21. See section 2.3 and Image 5-1.
22. The tax schedules proposed by the PCF (and never implemented) were probably more widely publicized than the tax schedule actually adopted by the Léon Blum government, but that does not change the key point that interests us here: the fact is that the very high income levels threatened by the Popular Front were highly publicized (the very high incomes in the top bracket of the PCF tax schedule were approximately the same as those in the top bracket of the schedule that was ultimately adopted, and the difference between the two schedules was simply that the PCF set tax rates that were significantly higher than those ultimately adopted) (see section 2.3).
23. On the criticisms leveled at the Popular Front’s average-rate schedule, see Chapter 4, sections 3.1 and 3.4. It goes without saying that these criticisms were leveled more against the income levels targeted by the average-rate schedule than against the technique of average-rate schedules as such: if the highest average rate had been a moderate rate on “reasonable” incomes (rather than a 40 percent rate singling out taxable incomes above 1.33 million francs), no one would have made a fuss about the excessive “discretion” made possible by the average-rate schedule.
24. See Chapter 4, Table 4-4.
25. See Figures 5-2 and 5-3, and Appendix B, Table B-20, years 1941 and 1942. As noted in Chapter 4, the caution of the Vichy regime is probably largely explained by the exceptional wartime circumstances (see Chapter 4, section 3.5).
26. See Appendix A, Table A-1, and Appendix B, Table B-1.
27. See section 2.3 and Image 5-1.
28. In 1961, the threshold of the highest bracket used in tabulating tax returns reached 500,000 francs (see Appendix A, Table A-1), even though the threshold for the top bracket of the income tax schedule was only 64,000 francs (see Chapter 4, Table 4-5).
29. See Appendix A, Table A-1. In fact, the top threshold used in tabulating tax returns even fell back to 400,000 francs from 1969 to 1984, before going back to 500,000 francs starting from 1985.
30. See Appendix F, Table F-1, column (7), and Appendix G, Table G-2, column (7).
31. See Appendix A, Table A-1, and Appendix B, Table B-1.
32. See Appendix B, sections 1.1 and 1.2.
33. See Introduction, section 2.1.2.
34. See Appendix A, section 1.4.
35. See Chapter 3, section 2.2, and Appendix D, section 2.
36. See Chapter 6, section 3.3.
37. See Chapter 3, section 4.
38. See Caillaux’s speeches cited in Chapter 3 (section 5).
39. See Figure 5-2 and Appendix B, Table B-20, column P90–95.

40. See Figure 5-2 and Appendix B, Table B-20, column P95–99.
41. In this chapter, we will be interested only in the progressive income tax strictly speaking, that is, the IGR for the 1915–1947 tax years, the progressive surtax of the IRPP for the 1948–1958 tax years, and the IRPP *tout court* for the 1959–1998 tax years. For approximate estimates of the average tax rates paid by the various top-income fractiles under the schedular taxes (1917–1947), the proportional tax (1948–1958) and the complementary tax (1959–1969), see Appendix B, section 1.4.2, Table B-6.
42. As noted in Chapter 4, in this book we have not sought to separately study the evolution of the average tax rates by fractile associated with the different family configurations (see Chapter 4, section 4.1.1). For a detailed description of the methodology used in estimating the average of the average tax rates associated with the different family configurations for each fractile, see Appendix B, section 3.
43. See Chapter 4, section 1.1.
44. See Chapter 4, Table 4-2.
45. To estimate the average tax rates corresponding to the various top-income fractiles, we have taken into account all of the exceptional surtaxes shown on Table 4-1 (Chapter 4). For a detailed description of the methodology used, see Appendix B, section 3.
46. See Figure 5-3 and Appendix B, Table B-20, column P99.99–100.
47. See Appendix B, Tables B-19 and B-20, column P99.99–100.
48. See Chapter 2, Figure 2-14, and Appendix B, Table B-14, column P99–100, for the corresponding series.
49. See Figures 5-6 and 5-7 and Appendix B, Table B-21, columns P99.5–100, P99.9–100, and P99.99–100.
50. The average tax rate for fractile P99–99.5, which was 0.2 percent in 1915, remained below 2 percent in 1916–1918; at the same time, the average tax rate for fractile P99.99–100, which was 1.7 percent in 1915, exceeded 14 percent in 1916–1918 (see Appendix B, Table B-20).
51. See Appendix B, Table B-20.
52. We will also note that, compared to previous tax schedules, the new general form of tax schedule introduced by the law of December 31, 1945, was characterized by the fact that the rate of the first bracket was immediately 10 percent or 12 percent (rather than 1 percent or 2 percent), which helped to ensure that the average tax rates to which the poorest taxable households were subject rapidly reached non-trivial levels (see Chapter 4, Tables 4-1–4-5).
53. See Figure 5-6 and Appendix B, Table B-21, columns P90–95 and P95–99.
54. This explains, for example, why the fall in the share of total taxes paid by very high incomes was so rapid over the Second World War years (see Figures 5-6 and 5-7).
55. For example, the P99–99.5 share of total income fell from about 3.5–4 percent in the interwar period to 2.5–3 percent at the end of the century (see Appendix B, Table B-15, column P99–99.5), whereas the P99–99.5 share of total tax was about 6–7 percent, both at the end of the century and in the interwar period (see Appendix B, Table B-21, column P99–99.5).

56. The P99.99–100 share of total income fell from about 2.5 percent in the 1920s to about 0.5 percent at the end of the century (see Chapter 2, Figure 2-8, and Appendix B, Table B-15, column P99.99–100), falling by a factor of 5, while the P99.99–100 share of total tax fell from about 30–40 percent in the interwar period to about 3 percent at the end of the century (see Figure 5-7 and Appendix B, Table B-21, column P99.99–100), falling by a factor of more than 10.
57. See Chapter 4, section 4.3.
58. See Chapter 4, Table 4-5.
59. See Chapter 2, Figure 2-9, and Appendix B, Table B-12, column P90–95.
60.  $8 \text{ percent} \times 300,000 = 24,000$ , and  $0.5 \text{ percent} \times 300,000 = 1,500$ .
61. See Chapter 2, Table 2-1, and Figure 2-9, and Appendix B, Table B-12, column P90–95.
62. The “middle class” share of total income (fractile P90–95) in the 1990s stood at about 11–11.5 percent, which means that those tax units have an average income around 2.2–2.3 times the average income of the overall population (see Chapter 2, section 2.4, and Figure 2-10). The net wage of minimum-wage workers in the 1990s is around 5,000 francs per month, which corresponds approximately to the average net wage of the lowest-paid 10 percent of wage earners (see Chapter 3, section 3.1), which represents an income  $1/5$  the average of the income—around 25,000 francs per month—received by tax units of the P90–95 fractile.
63. See Figures 5-2 and 5-3, and Appendix B, Table B-20.
64. See Introduction, Table I-1, Chapter 2, Table 2-1, and Appendix B, Table B-12.
65. In fact, the methodology used to account for tax assets and tax reductions results in a slight overestimate of the average tax rate on the P99.99–100 fractile in the late 1990s, which is actually just above 35 percent (rather than 39–40 percent) (see Appendix B, section 3). In any event, the tax reductions obtained in this way remain significantly smaller than those obtained through the deduction of the previous year’s taxes, which in the interwar period could result in reductions of more than 20 percentage points in the average tax rate of fractile P99.99–100 (see Appendix B, Tables B-19 and B-20, column P99.99–100).
66. See Figures 5-2 and 5-3 and Appendix B, Table B-20.
67. See Figures 5-2 and 5-3 and Appendix B, Table B-20.
68. See Chapter 4, Tables 4-1–4-5.
69. See Figure 5-1.
70. However, we should point out the increase in the general rate from 30 percent to 33.33 percent effected by the law of December 31, 1928 (see Chapter 2, Table 4-2), as well as the increase in the top marginal rate to 61.5 percent in 1963 (law of December 19, 1963) and to 65 percent in 1966 (law of December 17, 1966, and decree of December 27, 1966) (see Chapter 2, Table 4-5), which were not strictly speaking “exceptional surtaxes,” but which resembled them: the 1928 increase was not much different from the 10 percent exceptional surtax adopted by the law of February 28, 1933, and the 1963 and 1966 increases, though officially written into the tax schedule, were actually in effect for only one year. Let us also point out the very particular



case of the tax increases obtained in 1973 and 1978 through the capping of the 10 percent flat-rate deduction and the extra 20 percent deduction, as well as the tax increases obtained in 1981 in 1997–1998 through the capping of the family quotient, to which we will return shortly.

71. For the complete list of exceptional surtaxes, see Chapter 4, Table 4-6.
72. The Socialist government resulting from the May 1981 elections made extensive use of the exceptional surtax technique, notably with the law of August 3, 1981 (see Chapter 4, Table 4-6); but it also decided on the creation of a 65 percent bracket (law of December 29, 1982), which represented a permanent modification of the tax schedule, and which is especially important in that it was the one and only time since the adoption of the new form of the tax schedule by the law of December 31, 1945, in which the schedule was increased. From 1945 to 1998, with the exception of the creation of the 65 percent bracket in 1982 (and with the exception of the ephemeral increases of 1963 and 1966, which were not designed to last, and which were in effect for only one year), all modifications of the tax schedule consisted of increasing the nominal thresholds of the various brackets or eliminating brackets, never in increases in the rates applied to a given (nominal) level of income (see Chapter 4, Table 4-5).
73. All the other “exceptional surtaxes” shared the same logic, with the exception of the *décime* instituted in 1956 by the Mollet government (see Chapter 4, Table 4-6).
74. In theory, one could imagine a tax cut that benefits only “modest” taxpayers, thus forcing the government in question to draw the line between two categories of taxpayers; in practice however, it is technically very difficult to get such a result (the technique of tax schedules expressed in marginal-rate terms means that a reduction in the lowest rates also benefits the best-off taxpayers), and all tax cuts have been general cuts benefiting all taxpayers, including those for whom the income tax has some weight (with the sole exception of tax cuts that were actually tax increases beyond a certain income threshold, as was the case with the new 1936 schedule and the 1984 schedules of tax credits and surtaxes).
75. There have also been a few rare tax increases that affected all taxpayers subject to tax (such as the interwar *décimes* and *double-décimes*), in which cases no line is drawn, and tax increases become as uninformative as reductions.
76. See section 2.3.
77. See Chapter 4, section 3.4.
78. A copy of the original version of the “Program of Popular Unity” (four pages), which the political forces that organized the great rally of July 14, 1935 (SFIO, Radical Party, PCF, but also CGT, Ligue des Droits de l’Homme, etc.) had been busy drafting since July 1935, and which ultimately emerged in January 1936, has been preserved at the Bibliothèque Marxiste de Paris (the “democratic reform of the tax system” is announced on page 4 of this document). This program was also taken up in many flyers and press articles of the period, for example, in the May 16, 1936, *L’Humanité* (see also Image 5-1). On the way the tax portion of the program fits within the history of Socialist and Communist party programs in twentieth-century France, see section 2.3.



79. This 75,000 franc threshold of taxable income (after taking into account deductions and exemptions and notably after accounting for deductions of the previous year's taxes and deductions for work expenses), which fell between the P99.5 and P99.9 levels of the income distribution of the time (see Appendix B, Table B-4), must be marked up by at least 25 percent to obtain a threshold expressed in terms of fiscal income (before any deductions or exemptions) (see Appendix B, Tables B-6 and B-7). Since 1936 francs must be multiplied by a factor of about 3.62 to get 1998 francs (see Appendix F, Table F-1, column [7]), we get:  $3.62 \times 1.25 \times 75,000 = 339,375$  francs.
80. See Chapter 1, Figure 1-6, and Appendix G, Table G-2, column (7).
81. See Chapter 3, section 3.1.
82.  $30,000 / 2500 = 12$  and  $30,000 / 1200 = 25$ .
83. The 75,000 taxable income threshold was slightly higher than the P99.5 threshold of the 1936 taxable income distribution (which was 67,257 francs; see Appendix B, Table B-4).
84. For example, the maximum annual salary of a late-career schoolteacher working in Paris in 1936 was about 19,000 francs, and the maximum annual salary of a late-career *attaché d'administration centrale* (senior civil servant) was about 20,000 francs (see Appendix E, Table E-4). In fact, only a few very senior civil servants were at risk of being affected by the Popular Front tax increases: for example, the maximum salary of a late-career *chef de bureau d'administration centrale* in 1936 was around 56,000 francs (see Appendix E, Table E-4), a level significantly below the 75,000 franc threshold (especially since all salaries are expressed before accounting for deduction of the previous year's taxes and the deduction for work expenses).
85. See Figure 5-1 and Appendix A, Table A-2, column (3).
86. Between the 1935 and 1936 tax years, the average tax rate on the P90–95 fractile remained stable at 0.1 percent, the average tax rate on fractile P95–99 remained stable at around 0.4–0.5 percent, and the average tax rate on fractile P99–99.5 rose from 1.3 percent to 1.9 percent (see Appendix B, Table B-20). The disparity between the results expected by the Popular Front and the results ultimately obtained is explained by the fact that taxable households were also subject to the effects of the surtax decided in July 1937 by the Chautemps government, which applied retroactively from the 1936 tax year, and which affected all annual incomes above 20,000 francs (after accounting for deductions for family dependents), which was nearly half of taxable tax units (900,000 tax units out of a total of 1.6 million taxable tax units; see Appendix A, Table A-1, year 1936).
87. See Figures 5-2 and 5-3 and Appendix B, Table B-20.
88. See section 2.3.
89. See Chapter 4, Table 4-6.
90. The 1980 taxable income threshold that had to be exceeded to owe tax above 100,000 francs was about 290,000 francs for married couples with one dependent child (the family situation which since 1945 has always represented the average family situation; see Appendix B, section 3.2); the corresponding threshold was lower for single individuals (about 220,000 francs), and higher for large families

- (about 340,000 francs for a married couple with four dependent children); this 290,000 franc threshold was slightly higher than the P99.5 threshold of the 1980 taxable income distribution (which was 283,343 francs; see Appendix B, Table B-4).
91. See Chapter 2, section 1, and Appendix B, Tables B-16–B-18.
  92. See Chapter 4, section 3.4.
  93. The 290,000 franc taxable income threshold of 1980 (see above) must be marked up by about 30 percent to account for deductions and exemptions (see Appendix B, Table B-7), and 1980 francs must be multiplied by a factor of around 2.13 to get 1998 francs (see Appendix F, Table F-1, column [7]), hence:  $2.13 \times 1.30 \times 290,000 = 803,010$  francs. The average income per tax unit, expressed in 1998 francs, has been stuck at around 130,000 francs since the late 1970s (see Chapter 1, Figure 1-6, and Appendix G, Table G-2, column [7]).
  94. Expressed in 1998 francs, the P99.9 threshold of the 1980 income distribution was about 1.44 million francs (see Appendix B, Table B-13), a level slightly less than 12 times the average income ( $12 \times 130,000 = 1,56$  million francs).
  95. See Chapter 4, Table 4-4.
  96. On the total number of tax units, see Appendix H, Table H-1, column (10).
  97. As noted above (see section 1.1), the P99.99 threshold of the 1936 taxable income distribution was very slightly below the threshold of the top bracket of the Popular Front schedule: 485,053 francs (see Appendix B, Table B-4), versus 1.33 million francs, and only 402 taxpayers (about 0.002 percent of the total number of tax units at the time) declared incomes above 1 million francs (see Appendix A, Table A-1, and Appendix B, Table B-1).
  98. See Chapter 4, Table 4-6.
  99. Between the 1935 and 1936 tax years, the average tax rate on fractile P99.5–99.9 rose from 3.0 percent to 4.2 percent, the average tax rate on fractile P99.9–99.99 rose from 8.9 percent to 14.2 percent, and the average tax rate on fractile P99.99–100 rose from 19.3 percent to 26.8 percent, an increase of more than 7 percentage points (see Appendix B, Table B-20). Between the 1979 and 1980 tax years (to which the law of August 3, 1981, applied), the average tax rate on fractile P99.5–99.9 rose from 29.9 percent to 32.2 percent, the average tax rate on fractile P99.9–99.99 rose from 41.0 percent to 48.6 percent, and the average tax rate on fractile P99.99–100 rose from 49.9 percent to 61.4 percent, an increase of more than 11 percentage points (see Appendix B, Table B-20). Let us also point out that if the Senate had not prevented the Léon Blum government from eliminating the deduction of the previous year's taxes, the increase in the average tax rate on fractile P99.99–100 between 1935 and 1936 would have been more than 20 percentage points (rather than more than 7 percentage points): expressed as a percentage of fiscal income (before any deductions or exemptions), the average tax rate on fractile P99.99–100 in 1935 was 19.3 percent (see Appendix B, Table B-20); expressed as a percentage of taxable income (after deductions for work expenses, etc., and most importantly after deduction of the previous year's taxes), the average tax rate on fractile P99.99–100 in 1936 was 40.2 percent (if the deduction of the previous year's taxes had been eliminated,

- the average tax rate on fractile P99.99–100, expressed as a percentage of fiscal income, would have been above this 40.2 percent rate, given progressivity and the limited importance of other deductions).
100. The 65 percent bracket for per-share taxable income over 195,000 francs (see Chapter 4, Table 4-5), which for a married couple with one dependent child (which since 1945 has always been the average family situation; see Appendix B, section 3.2) corresponds to a threshold of nearly 500,000 francs ( $2.5 \times 195,000 = 487,500$ ), lying between the P99.5 (341,322 francs) and P99.9 (669,523 francs) levels of the 1982 taxable income distribution (see Appendix B, Table B-4). We may also note that the threshold of this 65 percent bracket was less than 15 percent higher than the threshold previously in effect for the 60 percent bracket (in the 1982 tax year, the threshold was 172,040 francs for the 60 percent bracket, and 195,000 francs for the 65 percent bracket [see Chapter 4, Table 4-5], and  $195,000 / 172,040 = 1.13$ ): the long-term collapse in the threshold of the top bracket could be affected only marginally by this Mauroy government initiative (recall that the real level, in constant francs, of the top bracket has fallen by a factor of 9 since the Popular Front era; see section 1.1), which shows how far this long-term change reflects a relatively consensual shift in representations of inequality (from this point of view, the Socialists of 1981 were closer to the other postwar governments than to the Socialists of 1936—who themselves were closer to the other interwar governments than to the Socialists of 1981).
  101. The “exceptional surtaxes” instituted by the laws of December 30, 1981, December 29, 1982, December 29, 1983, and December 29, 1984, hit taxpayers with tax liabilities greater than 25,000, 28,000, 20,000, and then 32,080 francs (see Chapter 4, Table 4-6); for a married couple with one dependent child (which since 1945 has always been the average family situation; see Appendix B, section 3.2), the taxable income threshold that had to be exceeded to be affected by these surtaxes was around 130,000 francs in 1981, 138,000 francs in 1982, 130,000 francs in 1983, and 169,000 francs in 1984, which correspond to income levels slightly above the P95 threshold of the taxable income distribution for the years in question (except in 1983, when the threshold for the surtax was slightly below the P95 threshold, though significantly above than the P90 threshold) (see Appendix B, Table B-4).
  102. In 1981, the family-quotient cap applied to taxable incomes above 228,550 francs (for married couples with one dependent child), and to slightly higher income levels for large families (238,870 francs for married couples with two dependent children, etc.; see Appendix C, Table C-5); this threshold of application of the new mechanism was almost identical to the P99 level of the 1981 taxable income distribution (which was 237,885 francs; see Appendix B, Table B-4).
  103. We noted above that the *Bloc National* tax increase was actually a tax cut up to the level of P99–99.5 fractile, and that only tax units of the P99.99–100 fractile experienced a significant increase (see section 1.2 and Figures 5-1 and 5-2, and Appendix B, Table B-20). As for the Laval government’s “exceptional surtax,” it applied to all incomes above 80,000 francs (see Chapter 4, Table 4-6), practically identical to the threshold used by the Popular Front (75,000 francs), and it thus affected only a bit

- more than 0.5 percent of tax units: in practice, the increase in average tax rates was practically insignificant for the P99.5–99.9 and P99.9–99.99 fractiles, and it assumed some importance only at the P99.99–100 level, while remaining more moderate than that of 1936 (see Appendix B, Table B-20).
104. The surtax instituted by the law of July 31, 1968, applied to taxpayers whose tax liabilities in the 1967 tax year were more than 5,000 francs (see Chapter 4, Table 4-6), which for a married couple with one child corresponded to a taxable income of around 29,000 francs, a level slightly above the P95 threshold (26,308 francs) of the 1967 taxable income distribution (see Appendix B, Table B-4).
105. In fact, given the establishment of indexation for tax brackets, in a context of stagnating (or even slightly falling) top incomes, and given the low levels of the “exceptional surtax” rates affecting them (see Chapter 4, Table 4-6), the average tax rates on fractiles P95–99 and P99–99.5 experienced practically no increase: the average tax rate on fractile P95–99 rose from 16.1 percent in 1980 to 16.9 percent in 1981, 16.4 percent in 1982, 16.7 percent in 1983, and 15.7 percent in 1984, and the average tax rate on fractiles P99–99.5 rose from 23.4 percent in 1980 to 25.6 percent in 1981, 24.3 percent in 1982, 23.9 percent in 1983, and 22.7 percent in 1984 (see Figures 5-2 and 5-3, and Appendix B, Table B-20). We will also note that the average tax rate on fractile P99.99–100, after experiencing a very sharp increase in the wake of the 25 percent surtax established by the law of August 3, 1981, rapidly returned to its previous levels: the average tax rate on fractile P99.99–100 rose from 49.9 percent in 1979 to 61.4 percent in 1980, 54.8 percent in 1981, 57.6 percent in 1982, 54.7 percent in 1983, and 52 percent in 1984 (see Figure 5-3 and Appendix B, Table B-20). We find a practically identical scenario with the surtaxes of 1968–1971, with the difference that the initial increase in average tax rates had some importance (5 percentage points) starting from the P99–99.5 level (see Figures 5-2 and 5-3 and Appendix B, Table B-20).
106. See Chapter 4, section 4.3. Even more than the repeated “exceptional surtaxes” discussed in Chapter 4, the government initiative that was probably most negatively received by public opinion was the “compulsory loan” adopted by the ordinance of April 30, 1983, within the framework of the “austerity plan” of spring 1983: all taxpayers whose tax liabilities in the 1981 tax year were greater than 5,000 francs had to pay the state an amount equal to 10 percent of that tax, with the amount being fully repaid to them after three years. Thus, it was not a genuine tax increase, and we have not taken it into account in our estimates of average tax rates—as with the few other “refundable surtaxes” in the history of the income tax (see Chapter 4, section 4.3, and Appendix B, section 3), but it was felt as such, especially since it affected more than 20 percent of the total number of tax units (the 1981 taxable income threshold that had to be exceeded to be affected by it was about 62,000 francs for a married couple with one child), a threshold below the P90 level of the 1981 taxable income distribution (see Appendix B, Table B-4); according to official estimates at the time (see *S&EF* no. 394 [1984], 30), more than 6 million tax units were

- affected, in other words, between 20 percent and 30 percent of the 24 million or so tax units at the time (see Appendix H, Table H-1, column [10]).
107. The new cap on the effects of the family quotient adopted in 1998 concerned taxable incomes above 313,620 francs (for married couples with one child), above 334,600 francs (for married couples with two children), etc. (see Appendix C, Table C-5), which corresponds to income levels lying between the P95 threshold (234,971 francs) and the P99 threshold (428,044 francs) of the 1998 taxable income distribution (see Appendix B, Table B-4).
  108. For example, the surtax established in July 1937 by the Chautemps government affected all taxable incomes above 20,000 francs (after taking into account deductions for family dependents), which was nearly 900,000 tax units (see Appendix A, Table A-1, 1936 year) out of a total of about 17 million tax units (see Appendix H, Table H-2, column [10]) (in other words more than 5 percent of the total number of tax units), and it is likely that the Léon Blum government would also have made use of this type of measure if it had stayed in power.
  109. See Chapter 2, section 3.1, and Chapter 3, section 2.3.
  110. All of the electoral programs released by the SFIO (and then by the new Socialist Party, starting from 1971) over the twentieth century, or at least all of the programs released for the occasions of legislative or presidential elections (we have not tried to consult programs released for local elections), have been preserved and may be consulted at the OURS (*Office universitaire de recherches socialistes*); all of the legislative and presidential programs released by the PCF since 1920 have been preserved and may be consulted at the *Bibliothèque marxiste de Paris*.
  111. See *Programme d'action du Parti socialiste adopté par le Congrès tenu en avril 1919* (Librairies du Parti socialiste et de l'Humanité réunies, 1919, 23 pp.), p. 14.
  112. See especially *La politique financière du Parti socialiste* (speech delivered by Léon Blum in the Chamber of Deputies, June 26, 1925, Editions de la Nouvelle Revue Socialiste, 1925, 40 pp.), pp. 14–18; *Le programme d'action immédiate du Parti socialiste, voté au Congrès national extraordinaire de Paris (décembre 1927)* (Librairie Populaire, 1928, 51 pp.), pp. 28–30; *Pour les élections législatives de mai 1928 (V)—Le Parti socialiste et la politique financière* (J. Moch, Librairie Populaire, 1928, 104 pp.), pp. 75–77 and 83; *Pour les élections législatives de mai 1928 (VI)—Le programme du Parti socialiste* (Librairie Populaire, 1928, 64 pp.), pp. 35–37. The 1932 program no longer even refers to the income tax; see *Programme du Parti socialiste (SFIO) (élections législatives de 1932)*, Librairie Populaire, 1932, 36pp. No specific program seems to have been published for the 1924 elections (the 1919 program still stood as the official program).
  113. See section 2.2. Note however that the “Program of Popular Unity” was not strictly speaking a Socialist program, and that in view of the 1936 elections the SFIO also adopted its own program, in which it was content merely to discuss its intention to establish an income tax characterized by “low rates at the base and higher rates for big incomes,” with no further detail given concerning the notion of “big incomes”;

- see *Programme du Parti socialiste (SFIO) (élections législatives de 1936)* (Librairie Populaire, 1936, 24 pp.), p. 18.
114. See especially *Programme d'action du Parti socialiste* (1946) (Editions de la Liberté, 1946, 76 pp.), p. 26; *Programme d'action du Parti socialiste SFIO* (élections législatives du 17 juin 1951) (SFIO, 1951, 15 pp.), p. 7; *Programme d'action du Parti socialiste SFIO* (élections législatives du 2 janvier 1956) (SFIO, 1955, 15 pp.), p. 5; *Programme d'action du Parti socialiste SFIO* (élections législatives du 23 novembre 1958) (SFIO, 1958, 7 pp.), p. 5; *Programme de la FGDS* (élections législatives des 23–30 juin 1968) (FGDS, 1968, 13 pp.), p. 8 (no specific program appears to have been published by the Socialist Party for the 1962 or 1967 legislative elections).
115. See *Changer la vie—Programme de gouvernement du Parti socialiste et Programme commun de la gauche* (PS, Flammarion, 1972, 349 pp.), pp. 135 and 222.
116. See *Changer la vie—Programme de gouvernement du Parti socialiste et Programme commun de la gauche* (PS, Flammarion, 1972, 349 pp.), pp. 304–305.
117. See *Le programme commun de gouvernement de la gauche—Propositions socialistes pour l'actualisation* (PS, Flammarion, 1978, 128 pp.), p. 84.
118. See *Projet socialiste pour la France des années 80* (Club socialiste du livre, 1980, 380 pp.), p. 217.
119. See *Manifeste et 110 propositions adoptées par le Congrès extraordinaire de Créteil (24 janvier 1981)* (PS, 1981, 8 pp.), proposal n. 35.
120. See *Changer la vie—Programme de gouvernement du Parti socialiste et Programme commun de la gauche* (PS, Flammarion, 1972, 349 pp.), p. 9.
121. See *Cadres: l'alternative socialiste* (Club socialiste du livre, 1981, 100 pp.), pp. 33–34 and 78–81.
122. *Ibid.*, p. 11.
123. See especially *Que veut donc ce Parti communiste auquel toute la réaction déclare la guerre?* (PCF, Editions de l'Humanité, 1924, 16 pp.), p. 10; *Le programme du Parti communiste* (élections législatives de 1928) (PCF, 1928, 22 pp.), p. 11. The 1926 and 1932 programs are even more sober about the income tax; see *La crise financière, la faillite du Cartel: le programme communiste* (PCF, 1926, 31 pp.) and *Programme du Parti communiste pour les élections législatives de 1932* (PCF, 1932, 31 pp.).
124. Later, we will refer to the second edition of the “Economic and Financial Program Proposed by the Communist Party”; see *Les riches doivent payer! Pourquoi? Comment?—Programme économique et financier proposé par le Parti communiste* (deuxième édition, revue et augmentée), (PCF, 1936, 44 pp.). The first edition, published under the same title in 1935, was slightly thinner (32 pages instead of 44 pages), but it contains exactly the same proposals and the same schedules for the “progressive levy on large fortunes” and the “exceptional tax” (all of the rates and wealth and income thresholds are strictly identical).
125. The schedule for the “exceptional tax” shown on the front page of the September 27, 1936, *L'Humanité* (see Image 5-1) is strictly identical to that which had been proposed before the elections (see *Les riches doivent payer! Pourquoi? Comment?*, p. 13). On the other hand, slight modifications were made to the schedule of the “progressive levy



- on large fortunes,” which, on the front page of the September 27, 1936, *L’Humanité*, included a 1 million franc exemption at the base and a 25 percent top rate (see Image 5-1), whereas the schedule proposed before the elections included a 500,000 franc exemption at the base (the rates were 3 percent for fortunes between 500,000 and 1 million francs, and then were the same as the schedule in *L’Humanité*) and a 20 percent top rate; the 15 percent rate applied to fortunes between 20 and 50 million francs (rather than 20 and 30 million francs), and the 20 percent rate applied to fortunes above 50 million francs (rather than between 30 and 50 million francs) (see *Les riches doivent payer! Pourquoi? Comment?*, p. 10).
126. This bill introduced by Jacques Duclos, the entire text of which was publicized by the PCF in the form of a brochure (see *Faites payer les riches!* [PCF, Editions du comité populaire de propagande, 1936, 29 pp.]), contained exactly the same tax schedules (down to the last figure) as those published on the front page of the September 27, 1936, *L’Humanité* (see Image 5-1), with respect to both the “progressive levy on large fortunes” (article 3 of the bill) and the “exceptional tax” (article 8 of the bill).
127. See *Démocratiser les impôts, faire payer les riches—Voilà ce que veut la France laborieuse, voilà ce qu’a demandé Jacques Duclos au nom du Parti communiste* (PCF, Editions du comité populaire de propagande [L’Humanité supplement of December 22, 1936], 1936, 16 pp.).
128. See *Justice fiscale—Proposition de réforme fiscale du Parti communiste, précédée d’une lettre de Jacques Duclos à Vincent Auriol* (PCF, Editions du comité populaire de propagande, 1937, 30 pp.). The tax proposals in this brochure were slightly different from those made before the elections and reiterated over the course of autumn 1936 (in particular, the idea of the “progressive levy on large fortunes” had disappeared), but they were also characterized by the idea of an income-tax “surtax” for incomes above 100,000 francs, such as the “exceptional tax” previously advocated (see Image 5-1).
129. See especially *Les riches peuvent payer—Il faut les faire payer* (PCF, Editions du comité populaire de propagande [La Brochure Populaire, 2e année, n. 9, avril–mai 1938], 1938, 32 pp.), where the PCF took up the same proposals as those from early 1937.
130. See section 2.2. The PCF seemed to experience some embarrassment about the idea that it had adopted a higher fateful threshold than that which appeared in the “Program of Popular Unity”: in 1937, the Communists explained that this increase from 75,000 to 100,000 francs had been decided by the party “in order to take into account the devaluation” (see *Justice fiscale—Proposition de réforme fiscale du Parti communiste*, pp. 23–24), a retroactive explanation of obvious bad faith, since the 100,000 franc threshold proposed in 1937 had already been adopted within the framework of the “exceptional tax” proposed in 1935, and also since the same threshold had appeared in the “exceptional tax” schedule published in *L’Humanité* on the eve of the devaluation (see Image 5-1).
131. In the mid-1930s, the P99.5 threshold of the taxable income distribution was about 65,000 francs, and the P99.9 threshold was about 150,000 francs (see Appendix B, Table B-4).

132. The average income per tax unit in the mid-1930s was about 8,000 francs (see Appendix G, Table G-2, column [6]); also, it must be taken into account that the incomes mentioned in tax proposals are always taxable incomes (after accounting for deductions and exemptions): in reality, the “average” incomes of around 30,000–50,000 francs mentioned by the PCF, which approximately correspond to the average taxable incomes of fractiles P95–99 (about 30,000 francs) and P99–99.5 (about 50,000 francs) in the mid-1930s (see Appendix B, Table B-3), represented average fiscal incomes (before accounting for deductions and exemptions) of about 35,000 francs (for the P95–99 fractile) or 65,000 francs (for the P99–99.5 fractile) (see Appendix B, Table B-9).
133. See, for example, *Justice fiscale—Proposition de réforme fiscale du Parti communiste*, pp. 19–22.
134. All these “details” were often omitted by the PCF when giving simplified presentations of the “exceptional tax” (as, for example, on the front page of *L’Humanité*; see Image 5-1), but they had been very clearly laid out in the brochures published before the elections (see *Les riches doivent payer! Pourquoi? Comment?*, pp. 13–14).
135. We may also note that even the idea of subjecting labor incomes above 100,000 francs to the “exceptional tax” (on the basis of their “fictive” capital) apparently could not be taken for granted among Communists, as indicated by the fact that the editors of the second edition of the PCF’s “economic and financial program” felt the need to provide a justification: “It has been objected that for the senior civil servant or business executive, whose compensation, for example, is 100,000 francs, the capital is fictive. He earns 100,000 francs, but he has no capital. That is correct. However, the levy on the rich must nevertheless also hit large compensation packages, whose beneficiaries are often in a situation far above that of many small capitalists” (see *Les riches doivent payer! Pourquoi? Comment?*, p. 14).
136. The “exceptional tax” would have led to a more than 40 percentage point increase in the average tax rate on fractile P99.99–100, which is very significantly above the increase actually obtained by the Popular Front (more than 20 percentage points if the deduction for the previous year’s taxes had been eliminated, and more than 7 percentage points in practice; see section 2.2).
137. According to our estimates, the total fiscal income of French households in 1936 was around 150 billion francs (see Appendix G, Table G-2, column [4]) ( $2 / 150 = 1.33$  percent). The tax reform actually instituted by the Popular Front in the framework of the law of December 31, 1936, led to an increase in IGR receipts of around 0.7 billion francs; they rose from about 1.3 billion in 1935 to more than 2 billion in 1936, so that the average tax rate (all tax units included) rose from 1.0 percent in 1935 to 1.4 percent in 1936 (see Appendix A, Table A-2, columns [5] and [7], and Figure 5-5). The PCF’s “exceptional tax” thus would have led to an increase in tax receipts nearly three times larger than the increase actually obtained by the Popular Front.
138. The top 1 percent (fractile P99–100) share of total income was about 15 percent (see Chapter 2, Figure 2-14), so redistributing 1.3 percent of total income to the rest of



- the population would have made possible an average increase in living standards of about 1.6 percent (1.33 percent / 85 percent = 1.56 percent).
139. The detailed calculations leading to this forecast of about 2 billion in tax receipts for the “exceptional tax” had been published before the elections, and they were based on statistics derived from the 1932 tax returns (which the PCF calls “statistics from 1933”); see *Les riches doivent payer! Pourquoi? Comment?—Programme économique et financier proposé par le Parti communiste (deuxième édition, revue et augmentée)* (PCF, 1936, 44 pp.), p. 13.
140. See Chapter 2, Figure 2-8, and Appendix B, Table B-14, column P99.99–100.
141.  $15 / 150 = 10$  percent.
142. In contrast to what had been done with the estimate of tax receipts from the “exceptional tax” (2 billion), the PCF did not lay out in detail how it had gone about obtaining its assessment of tax receipts for the “progressive levy on large fortunes”: the 15 billion figure had been published as such before the elections (see *Les riches doivent payer! Pourquoi? Comment?*, p. 10), and was taken up on the front page of *L’Humanité* after the elections, with no further details given (see Image 5-1). However, we can point out that the PCF publicly expressed its satisfaction after Vincent Auriol’s staff estimated the potential of their “progressive levy on large fortunes” at 7 billion (see *Démocratiser les impôts, faire payer les riches—Voilà ce que veut la France laborieuse, voilà ce qu’a demandé Jacques Duclos au nom du Parti communiste* (PCF, Editions du comité populaire de propagande [*L’Humanité* supplement of December 22, 1936], 1936, 16 pp.), pp. 15–16, which suggests that no one actually took this 15 billion estimate seriously (the PCF had probably estimated the number and the amount of fortunes liable to be taxed by on the basis of declared incomes and applying particularly “optimistic” adjustment rates to them to account for fraud).
143. See especially *La politique financière du Parti socialiste* (speech delivered by Léon Blum in the Chamber of Deputies, June 26, 1925, Editions de la Nouvelle Revue Socialiste, 1925, 40 pp.), pp. 14–18, in which Léon Blum explains: “Last night I read a book by M. Keynes, in which he explains that there are only two solutions: either gradual depreciation, or a capital tax”; “every time M. François-Marsal or M. de Lasteyrie issued a banknote without metallic cover or a treasury bond whose redemption at maturity was uncertain, they carried out a capital levy.” Vincent Auriol was just as clear: “The capital tax must not hit wealth in formation, which is productive, but constituted wealth, upon which the axe of a capital tax must be brought down: to combat inflation, an extraordinary contribution on acquired wealth, which would be lost once and for all, would rule out a return to new taxes” (speech cited by Bonnefous, 1956–1967, 4: 237 and onward). The details of the Socialist plan still had not been presented in a perfectly precise way, but the rate usually mentioned for this one-time capital levy was 10 percent (see, for example, *Pour les élections législatives de mai 1928 (V)—Le Parti socialiste et la politique financière* [J. Moch, Librairie Populaire, 1928, 104 pp.], pp. 75–77); a plan for a forced loan that would resemble a compulsory 10 percent levy on wealth was also how Herriot fell to the Senate on April 10, 1925.

144. See Chapter 4, section 3.3. The irony of the story is that the “tax package” that Poincaré passed in August 1926, in addition to an increase in schedular taxes and indirect taxes, included the creation of a relatively heavy tax on capital (in the form of a 7 percent tax on the first recorded property transfer), which the Left probably would not have managed to impose (see Sauvy 1965–1975, 1:85; 1984, 1:61).
145. See Chapter 2, section 2.3.
146. In fact, though the Socialist program of 1972 had mentioned the creation of a wealth tax (see *Changer la vie—Programme de gouvernement du Parti socialiste et Programme commun de la gauche* [PS, Flammarion, 1972, 349 pp.], p. 136), the “Common Program,” in its initial 1972 version, was silent on this point (only an increase in inheritance tax was briefly mentioned; *ibid.*, pp. 304–305). The Socialists then announced in 1978: “the tax on large fortunes will target fortunes above 2 million francs at a rate of 0.5 percent to 2 percent, with a higher rate for fortunes above 10 million, and reaching 8 percent above 50 million francs” (see *Le programme commun de gouvernement de la gauche—Propositions socialistes pour l’actualisation* [PS, Flammarion, 1978, 128 pp.], p. 84). Mention of this 8 percent top rate, which in practice was never implemented, and which was even more explicit in the Communist version of the “updated common program” (“the tax on fortunes will have progressive rates, from 1.5 percent to 8 percent, with the wealth bracket above 15 million francs being taxed at 8 percent”; see *Programme commun de gouvernement actualisé* [PCF, Editions sociales, 1978, 192 pp.], p. 103), shows that there was still a certain ambiguity between two possible concepts of a capital tax (a permanent tax at moderate rates, which would then play a complementary role to the income tax, or an exceptional tax at a high rate, which would make possible a complete and rapid expropriation of the wealthiest taxpayers). The “Socialist plan” published in 1980, and the “110 proposals” of candidate Mitterrand, opted for less binding formulations; “taxation of large fortunes will make it possible to attenuate, in particular via a progressive rate schedule, the unequal distribution of wealth” (see *Projet socialiste pour la France des années 80* [Club socialiste du livre, 1980, 380 pp.], p. 217); “a tax on large fortunes, using a progressive rate schedule, will be established” (see *Manifeste et 110 propositions adoptées par le Congrès Extraordinaire de Créteil [24 janvier 1981]* [PS, 1981, 8 pp.], proposal n. 34).
147. The top bracket of the “progressive levy on large fortunes” affected fortunes above 50 million francs (see Image 5-1), the equivalent of nearly 200 million 1998 francs (1936 francs must be multiplied by a factor of about 3.6 to obtain 1998 Francs; see Appendix F, Table F-1, column [7]), whereas the top bracket of the “tax on large fortunes” instituted by the law of December 30, 1981, affected fortunes greater than 10 million francs, the equivalent of just over 20 million 1998 francs (1998 francs must be multiplied by a factor of about 1.9 to obtain 1998 francs; see Appendix F, Table F-1, column [7]). However, the threshold was lower in the 1930s (1 million francs for the “progressive levy on large fortunes” [see Image 5-1], which is 3.6 million 1998 francs, and 3 million francs for the IGF in 1981, which is 5.8 million 1998 francs), which shows that putting very large fortunes (or very high incomes) on

- display is a choice rather than a constraint dictated by budgetary necessity: nothing prevents starting the rise in rates at a lower point and pursuing the rise higher.
148. See Chapter 6, section 3.3.
149. See *Programme d'action gouvernementale du Parti communiste Français* (PCF, 1946, 24 pp.), *Comment sortir de l'abîme? Programme d'indépendance nationale, de progrès social, de démocratie et de paix du Parti communiste Français* (PCF, 1951, 29 pp.); *Que proposent les communistes?* (PCF, 1958, 16 pp.); *D'aujourd'hui à demain . . . Programme du Parti communiste Français* (PCF, 1966, 16 pp.); *Programme du Parti communiste Français* (PCF, 1968, 8 pp. and 14 pp.); *Changer de cap—Programme pour un gouvernement démocratique d'Union Populaire* (PCF, Editions Sociales, 1971, 251 pp.). The contrast with the 1935–1938 years is all the more striking since the programs from 1946–1971 contain no hard numbers about either taxation of “top” incomes, or about taxation of “large” fortunes. The 1971 program, which was far more detailed than preceding ones, includes an important section devoted to the theme of “Finding Resources or a Democratization of Taxes” (pp. 194–199), but does not see fit to give the slightest figures.
150. We have already cited the bill introduced by the PCF in March 1947, which envisaged a reduction in the number of family-quotient shares for dependent children (see Chapter 4, section 4.1.1, and *Journal Officiel—Assemblée nationale—Documents parlementaires*, Annexe n. 804 [session of March 4, 1947]), but which left unchanged the top rate of 60 percent (70 percent for single individuals); the bill introduced by the PCF in May 1964 (see *Journal Officiel—Assemblée nationale—Documents parlementaires*, Annexe n. 926 [séance du 13 mai 1964]; the full text of this bill is also reproduced by Delorme [1965, 366–375]) greatly resembles that of 1947 (if we except the issue of the flat-rate deduction mentioned in Chapter 4, section 4.2): it would have sharply reduced the effects of the family quotient (which would have continued to apply only at the level of the deduction at the base), but would have left the top rates practically unchanged (the top rate would have been 67 percent for taxable incomes above 60,000 francs, compared with a 65 percent top rate on taxable incomes above 70,000 francs in the tax schedule actually in effect at the time; see Chapter 4, Table 4-5). The fact that these reform proposals were not taken up in the programs of the era suggests that the PCF saw them as of limited importance—only the idea of “reserving the advantages of the family quotient to the lowest income levels,” with no further details given, appeared regularly in the programs, and it was taken up in the program of the PS and in the “Common Program” of 1972; see *Changer la vie—Programme de gouvernement du Parti socialiste et Programme commun de la gauche* (PS, Flammarion, 1972, 349 pp.), pp. 135 and 304–305). The fact that Henri Delorme, the author in 1965 of *L'impôt à l'époque du capitalisme d'Etat* (The Income Tax in the Era of State Capitalism), which included a preface by Jacques Duclos and long represented the PCF's quasi-official “Bible” on the subject of taxation, cites no other Communist income tax reform plan (Delorme cites only these 1947 and 1964 plans, as well, obviously, as the “tax the rich” campaign led by Duclos in 1935–1938 (see Delorme 1965, 197 and onward) also suggests that no significant plans have escaped us.

151. See *Changer la vie—Programme de gouvernement du Parti socialiste et Programme commun de la gauche*, pp. 304–305.
152. See *Le programme commun de gouvernement de la gauche—Propositions socialistes pour l'actualisation* (PS, Flammarion, 1978, 128 pp.), p. 84.
153. See *Programme commun de gouvernement actualisé* (PCF, Editions sociales, 1978, 192 pp.), p. 102.
154. See “Ce que pourrait être en 1978 le budget du changement,” *France nouvelle* n. 1666 (October 17, 1977), pp. 39–47. See also *L'Humanité* of October 14, 1977, February 5, 1978, and February 20, 1978. Over the following years, the PCF continued to distribute tracts based on these same proposals for reforming the income tax schedule (see, for example, *Impôts: à l'Assemblée nationale Giscard et Barre reculent* [PCF, November 1979, 2 pp.]).
155. On this battle of amendments between the National Front and PCF, see especially *Journal Officiel—Débats Parlementaires—Assemblée nationale*, hearings of October 15, 1986, and October 14, 1987 (these debates are reproduced in Martinez 1989, 335–344).
156. As noted above (see Chapter 4, section 4.3), since the mid-1980s the income tax has become a “tax to cut,” and no electoral programs mention the possibility of an increase any longer. For example, the 1997 Socialist program merely notes that “taxes weigh too heavily on the middle classes”; see *Changeons d'avenir—Nos engagements pour la France* (PS, 1997, 16 pp.), p. 7.
157. Above, we mentioned the case of the Socialist as well as the Communist thresholds of 1935–1938. In 1977–1978, the schedule proposed by the Communists consisted of increasing the levels of the lowest brackets in effect at the time, supplemented by the creation of top brackets at 65 percent (applied above 220,000 francs of taxable income for two family-quotient shares), 70 percent (above 260,000 francs), 75 percent (above 300,000 francs), 80 percent (above 360,000 francs), and 85 percent (above 420,000 francs). The tax burden only started to increase from 220,000 francs of taxable income for two family-quotient shares, which corresponds to 275,000 francs of taxable income for 2.5 shares (which since 1945 has always been the average family situation; see Appendix B, section 3.2), an income level lying between the P99.5 threshold (200,576 francs) and the P99.9 threshold (394,434 francs) of the 1977 taxable income distribution (see Appendix B, Table B-4). In 1986–1987, the schedule proposed by the Communists proceeded in the same fashion: the lower brackets were reduced, the 65 percent bracket created by the Socialists was preserved, and the PCF added brackets at 70 percent (applied above 450,000 francs of taxable income for two family-quotient shares), 80 percent (above 475,000 francs), 90 percent (above 500,000 francs), and 100 percent (above 518,400 francs). The tax burden only started to increase from 450,000 francs of taxable income for two family-quotient shares, which corresponds to 562,500 francs of taxable income for 2.5 shares, an income level lying between the P99.5 threshold (455,229 francs) and the P99.9 threshold (890,688 francs) of the 1986 taxable income distribution (see Appendix B, Table B-4); in fact, given the cap on the family

quotient established in 1981 (see Appendix C, Table C-5), it is likely that nearly 0.5 percent of tax units (even slightly more) would have actually experienced a tax increase if this schedule had been adopted.

158. See Introduction, section 1.1.
159. See Chapter 3, section 5. Note, however, that the PCF, in the “Updated Common Program” published in 1978, promised to reduce wage disparities: “by the end of the legislature, the maximum wage gap—necessarily varying between industries—should develop around a ratio of about 1 to 5”; see *Programme commun de gouvernement actualisé* (PCF, Editions sociales, 1978, 192 pp.), p. 19. This promise had not appeared in the “Common Program” of 1972, and the Socialists, who were silent on this point in their 1978 “updated proposals,” also started to mention the idea of a wage scale running from 1 to 5 in their 1980 “plan,” though in a relatively vague way; see *Projet socialiste pour la France des années 80* (Club socialiste du livre, 1980, 380 pp.), p. 218. But this was actually a very modest promise: in addition to the fact that this “ratio of about 1 to 5” corresponds very precisely to the ratio around which the average wage of the lowest-paid 10 percent of workers and the average wage of the highest-paid 10 percent of workers gravitated in France throughout the twentieth century (see Chapter 3, section 3.1), the formula used by the PCF was so cautious (“by the end of the legislature,” “necessarily varying between industries”) that one may doubt the reality of the threats that this promise represented for recipients of high wages (it is likely that only the upper strata of the top 1 percent of the wage hierarchy were genuinely threatened).
160. The threshold for the top bracket of the “exceptional tax” proposed in 1935–1936 (see Image 5-1) was slightly lower than the threshold for the top bracket of the schedule established by the Popular Front (1 million francs of taxable income versus 1.33 million), but the threshold of the top bracket of the “surtax” proposed in 1937–1938 was significantly higher (2 million francs). See *Justice fiscale—Proposition de réforme fiscale du Parti communiste, précédée d’une lettre de Jacques Duclos à Vincent Auriol* (PCF, Editions du comité populaire de propagande, 1937, 30 pp.), p. 24; *Les riches peuvent payer—Il faut les faire payer* (PCF, Editions du comité populaire de propagande [“La Brochure Populaire”], 2e année, n. 9, 1938), pp. 21–32.
161. The threshold of 420,000 francs of taxable income must be marked up by around 28 percent to get fiscal income (see Appendix B, Table B-7), and 1977–1978 francs must be multiplied by a coefficient of about 2.7 to get 1998 francs (see Appendix F, Table F-1, column [7]); hence:  $1.28 \times 2.7 \times 420,000 = 1.45$  million francs.
162. The threshold of 518,400 francs of taxable income must be marked up by about 28 percent to get to fiscal income (see Appendix E, Table B-7), and 1986–1987 francs must be multiplied by a coefficient of about 1.3 to get 1998 francs (see Appendix F, Table F-1, column [7]); hence:  $1.28 \times 1.3 \times 518,400 = 863,000$  francs.
163. See Chapter 4, section 1.
164.  $0.93 \times 32 = 29.8$ , and  $0.93 \times 33 = 30.7$ .
165. To calculate the various top-income fractiles’ shares of disposable income, we merely subtracted the income tax from the numerator and the denominator, and

- we have not tried to take into account any transfers that the income tax finances (see Appendix B, section 3.1). Our estimates for the concentration of disposable income thus take into account only those social benefits that were already considered at the level of pretax income—that is, taxable social benefits (essentially retirement pensions, as well as part of unemployment benefits), which exclude, notably, family benefits and social minima (see Chapter 1, section 4.1).
166. Such a study has not to our knowledge ever been carried out in France. Malan (1966) tried to obtain an approximate evaluation of the long-term evolution in the distribution of the tax burden (all taxes included), but the distribution proposed was expressed only in terms of social categories (whose definitions vary strongly over time), rather than in terms of income fractiles. Delorme and André (1983) studied the long-term evolution in the structure of public spending, but they did not seek to assess who benefited from the spending (either in terms of social categories, or in terms of income fractiles).
167. Apart from the fact that the best-off tax units are not always the last to benefit from public spending (this is the case not only for the police, higher education, roads, etc., but also for healthcare and pensions, taking into account, among other things, their longer life expectancy), most taxes other than the income tax tend to weigh more heavily on high incomes than on others (that is especially the case with consumption taxes and payroll taxes). Thus, it is not certain that the share of “total living standards” going to the best-off 10 percent of tax units in the late twentieth century, defined in the broadest sense (that is, after taking into account all taxes and spending), is significantly lower than the share of total disposable income that would be estimated simply by taking the income tax into account. On the other hand, with respect to the reduction in disparities of living standards within the lower 90 percent of tax units, it is likely that the growth of spending and social benefits has played a far greater role than the income tax: as noted above, the growth of social transfers targeted at the poorest households, and especially the minimum pension, has probably brought about a significant reduction in the income gap between the lowest deciles of the social hierarchy and average and median incomes, at least since the 1950s (see Chapter 3, section 3.2).
168. See Appendix B, Tables B-15 and B-23, columns P90–95 and P95–99.
169. See Chapter 4, section 1.
170. See Chapter 2, sections 2.2 and 2.3.
171. See Chapter 2, section 3.1.
172. Also recall that these average tax rates do not take into account the rates owed under the schedular taxes (for approximate estimates of average tax rates by fractile associated with the schedular taxes, see Appendix B, Table B-6).
173. See Chapter 2, section 2.2, Figures 2-7 and 2-8.
174. See Appendix J, section 3. These are approximate estimates, which cover the P99.99–100 fractiles of the distribution of wealth at death (which coincides only imperfectly with the P99.99–100 fractile of the income distribution), but the orders of magnitude may be seen as significant. The increase in the 1980s and 1990s is ex-



plained by the creation in the early 1980s of a 40 percent top bracket for very large bequests through the direct line of succession (law of December 29, 1983). Also note that, given the poor quality of the available data (see Chapter 6, section 3.1), we have not tried to estimate the extent to which the taxes on wealth in place in the 1980s and 1990s (the IGF and then the ISF) offset the decline in average tax rates owed by high income recipients under the income tax.

175. According to the estimates carried out by Perrot (1960) and based on account books provided to him by “bourgeois” families, it would seem that the savings rates of the wealthiest families declined considerably following the shocks of 1914–1945, notably due to the increase in the tax burden (see Perrot 1961, 236–254). The results of this study are thus consistent with our thesis. However, it must be emphasized that they were based on only a limited number of observations (338 account books for the 1873–1913 period, 156 for the 1920–1939 period, and only 53 for the 1946–1953 period), and they concerned the “mid-level bourgeoisie” more than the “high bourgeoisie.”
176. In principle, current inequality of disposable income can have an impact on the relative ability not only to save and invest in traditional assets (both real estate and investment assets) and companies, but also to carry out investments in human capital (the cost of tuition, the opportunity cost of education, etc.), to cope with the opportunity cost of jobs that provide experience but pay little in the short term, etc., which can have an impact on future wage inequality. Still, in practice, the effects connected with the accumulation of physical wealth seem to be far larger.

#### 6. WAS THE “END OF THE *RENTIERS*” A TAX ILLUSION?

1. See Chapter 2, section 1 (and in especially section 1.2.1.2).
2. See Chapter 4, section 4.4.
3. In the late 1990s, total fiscal income (all tax units included) was about 4 billion francs (see Appendix G, Table G-2, column [4]), and the investment income share of total fiscal income (all tax units included) fluctuated between 2.5 percent and 3 percent (see Appendix G, Table G-10, column [2]), hence a total of about 100 billion francs of investment income declared under the progressive income tax.
4. According to the Conseil des Impôts (see *La fiscalité des revenus de l'épargne*, 17e Rapport au Président de la République, Conseil des Impôts, 1999, 128 pp.), the total volume of income taxed under the optional levy system is 63 billion francs (this figure is for 1996, and the corresponding figures for adjacent years would be very slightly different).
5. According to the Conseil des Impôts (see *La fiscalité des revenus de l'épargne*, 17e Rapport au Président de la République, Conseil des Impôts, 1999, 128 pp.), the total volume of income from the *livret A*, *livret bleu*, *livret jeunes*, CODEVIs et LEPs was 43 billion francs, and the total volume of income from PELs, CELs, and PEAs was 83 billion (this figure includes only incomes that are actually exempt, that is, which fulfill the conditions associated with the various plans: no withdrawal before five years for PEAs, etc.), a total of 126 billion, without even taking into account incomes

- from PEPs (these figures again are for the year 1996, and the corresponding figures for adjacent years would be very slightly different).
6. See Appendix B, Table B-17, column RCM (P99.99–100).
  7. The caps on savings accounts other than the livret A are less than or equal to those of the livret A (100,000 francs for livrets bleus, 40,000 francs for LEPs, 30,000 francs for CODEVI, etc.).
  8. It is even possible to exceed this sum slightly, for example, in the case of a tax unit in which both spouses opened a PEP and a PEA in their names.
  9. 5 percent  $\times$  2 million = 100,000
  10. See Chapter 2, Figure 2-7.
  11. 100,000 / 7 million = 1.4 percent, and 100,000 / 8 million = 1.2 percent.
  12. As with all studies based on surveys, the wealth studies are based on too few observations to allow a fine-grained analysis of the situation of wealthy households. For example, the published results from the 1992 “Actifs financiers” study, the 1996 “Détention d’actifs” study, and the 1999 “Patrimoine” study present estimates of the wealth structure only for each of the 10 deciles of the income distribution, and thus do not make it possible to show the declining rates of ownership for exempt savings plans and savings accounts within the top decile (see “Revenus et patrimoine des ménages, édition 1996,” *Synthèses* n. 5, août 1996, p. 161; Martinez and Roineau 1999, 48); the results published by wealth bracket based on the 1998 “Patrimoine” study do, however, make it possible to see a significant decline in the rates of ownership for wealth holdings greater than 3 million francs (see Martinez and Roineau 1999, 57), and there is every reason to think that the same would be true for very high incomes.
  13. This “liquidity-real estate-securities” profile (in which each of these three investment types is, in its turn, predominant, according to the level of total wealth) is found particularly clearly in the wealth composition estimates in the 1998 “Patrimoine” study (see “Revenus et patrimoine des ménages, édition 1999,” *Synthèses* n. 28, September 1999, p. 92), as well as the 1998 “Patrimoine au décès” study (see Laffèrère and Monteil 1994, 12) and Accardo and Monteil (1995, 61); we find the same type of profile with the ownership rates in the 1992 “Actifs financiers” and 1996 “Détention d’actifs” studies (see “Revenus et patrimoine des ménages, édition 1996,” *Synthèses* n. 5, August 1996, pp. 161–162) (although the ownership rates are less significant than the composition in value terms); the 1984 and 1994 “Budgets des familles” studies also show that securities are the form of investment whose incomes are the most strongly concentrated, followed by real estate, then savings plans (see “Revenus et patrimoine des ménages, édition 1996,” *Synthèses* n. 5, août 1996, p. 42); all of these studies based on surveys do, of course, suffer from their limited number of observations when one is looking specifically at wealthy households, but the excellent consistency of the profiles obtained in the different studies shows that, qualitatively, there is no doubt about this regularity.
  14. For example, in the 1998 “Patrimoine” study, we see that the percentage of households owning bonds rises relatively slowly with the wealth or income level, whereas the percentage of households owning stocks rises much more rapidly (see Martinez and



Roineau 1999, 49 and 58); we see the same phenomenon in the 1992 “Actifs financiers” and 1996 “Détenion d’actifs” studies (See “Revenus et patrimoine des ménages, édition 1996,” *Synthèses* n. 5, août 1996, p. 162); here again, whatever imperfections there are in these survey-based studies, qualitatively there is no doubt about this regularity.

15. See Appendix J, Table J-3. Compared to the survey-based studies cited earlier, the enormous advantage of these bequest statistics is that they are based on a complete tabulation of all bequest declarations (or at least on all declarations of very large bequests, as in 1994), so this source makes it possible to study very large wealth holdings in extremely fine detail (we will return below to the advantages and limits of these bequests statistics).
16. In 1994, stocks and bonds as a share of investment securities was 19.2 percent for bequests between 10 million and 20 million francs, and 13.2 percent for bequests greater than 20 million francs (see Appendix J, Table J-3); the number of bequests greater than 10 million francs was about 500, roughly 0.1 percent of the some 500,000 annual deaths (see Appendix J, Table J-1); thus it is likely that stocks and bonds as a share of total securities held by the wealthiest 0.01 percent of tax units is actually less than 15–20 percent.
17. See Appendix B, Table B-17, column RCM (P99.99–100).
18. If we assume that incomes subject to the optional levy were distributed in the same way as investment incomes declared under the progressive income tax (an assumption that, as we have seen, necessarily results in an overestimate of the markup to be applied to very high incomes), then the markup to be applied to incomes of fractile P99.99–100 would be about 30 percent (income subject to the optional levy rises to 60 billion, versus 100 billion for declared RCM income, and RCM income as a share of total income declared by tax units of the P99.99–100 fractile is about 50–55 percent), a markup more than ten times greater than the 400 percent markup necessary to validate the “tax illusion” theory.
19. Besides the fact that the interest generated by sums invested in this way has never been taxable, the taxpayers concerned have often been able to deduct part of the payments on their life insurance contracts from their taxable income.
20. After eight years, anticipated withdrawals are generally subject to no penalty.
21. See Appendix G, Table G-8, column (2).
22. The retrospective series of the “official” national accounts have broken out interest credited on life insurance contracts only since 1959, and for the period 1949–1958 they merely distinguish “interest” from “dividends” (see Appendix G, Tables G-7 and G-8); for the interwar era and pre-World War I era, the estimates from Dugé de Bernonville also merely distinguish “interest” from “dividends” (see Appendix G, Table G-14) (in addition, given the method he used, it is not certain that interest credited on life insurance contracts was actually taken into account). The fact that the amounts passed on via life insurance contracts were taxable under the bequest tax before 1930 should in principle allow us to obtain statistics, but unfortunately it was only after 1945 that the tax administration carried out “complete” tabulations

- of bequest declarations—that is, not only by bequest bracket but also by category of asset bequeathed (see Appendix J, Table J-3).
23. The share of interest credited on life insurance contracts in total investment income attributed to households by the national accounts rose from barely 2 percent in the early 1960s to 5 percent in the late 1970s and finally reached 10–15 percent in the late 1980s and 20–25 percent in the late 1990s (see Appendix G, Table G-8, column [7]).
  24. The mere fact that legislators in 1930 wanted to make a gesture in favor of life insurance suggests that this form of investment already had a certain importance.
  25. According to the 1994 “Budgets des familles” study, which INSEE analyzed by “adjusting” wealth incomes declared by households so that the overall aggregates corresponded to those from the national accounts, the share of investment incomes held by the top quartile of the income distribution was 38 percent for savings accounts, 54 percent for life insurance, and 74 percent for securities (for the 1984 “Budgets des familles” study, these figures were, respectively, 37 percent, 51 percent, and 69 percent) (see “Revenus et patrimoine des ménages, édition 1996,” *Synthèses* n. 5, août 1996, p. 42) (the concentration of securities would be even greater if we could break out stocks). The 1994 “Budgets des familles” study also shows that the share of life insurance in household investment income was about 20 percent for all fractiles of the income distribution, but with a slight decline at the top 1 percent level, with the life insurance share falling to about 15 percent (see *La fiscalité des revenus de l'épargne*, 17e Rapport au Président de la République, Conseil des Impôts, 1999, p. 37, figure 9; this figure pertains to all wealth incomes, thus real estate incomes must be subtracted from it).
  26. See especially the 1998 “Patrimoine” study, which shows the same kind of property as the 1994 “Budgets des familles” study: the life insurance share of total household wealth varies relatively little with the level of overall wealth, but with a slight decline for the biggest wealth holdings (the life insurance share falls from about 20 percent for wealth holdings between 3 and 8 million francs to about 15 percent for wealth holdings greater than 8 million francs; see “Revenus et patrimoine des ménages, édition 1999,” *Synthèses* n. 28, September 1999, p. 92). See also Arrondel and Masson (1997), which, based on an original analysis of the 1992 “Actifs financiers” study, also supports the idea that within the spectrum of investments, life insurance holds an intermediate position between the two extremes represented by savings accounts on the one hand (a “popular,” risk-free investment meeting precautionary needs) and on the other hand stocks (an investment chosen by the wealthiest groups and motivated by returns).
  27. As with all survey-based studies, the studies cited in the notes above do not make it possible to break out the case of the P99.99–100 fractile, which makes this estimate relatively uncertain (and, in contrast to what we did with bonds, it is impossible to appeal to bequest statistics, since life insurance contracts do not appear in them); but the fact that the life insurance share of investment income falls from about 20 percent at the P90–95 and P95–99 level to about 15 percent at the top 1 percent level (taken as a whole) suggests that the life insurance share is probably significantly

- below 20 percent at the P99.99–100 level (see *La fiscalité des revenus de l'épargne*, 17e Rapport au Président de la République, Conseil des Impôts, 1999, p. 37, graphique 9).
28. See Appendix B, Table B-17, column RCM (fractile P99.99–100).
  29. See Appendix B, Table B-17, column RCM (fractile P99.99–100).
  30. See Appendix B, Table B-17, column RCM (fractile P90–95).
  31. According to the 1994 “Budgets des familles” study, at the P90–95 level, incomes from savings accounts, savings plans, and life insurance contracts represent an aggregate amount equivalent to that of incomes from investment securities (see *La fiscalité des revenus de l'épargne*, 17e Rapport au Président de la République, Conseil des Impôts, 1999, p. 37); given the fact that the latter also include income subject to the optional levy, there is reason to think that if all these incomes were declared under the income tax, then the investment income share of total income for the P90–95 fractile in the 1990s would be at a minimum about 4 percent, and probably around 5 percent (rather than 2 percent).
  32. In the late 1990s, these three forms of income totaled about 350 billion francs of annual income (nearly 200 billion for the optional levy and savings accounts and savings plans, and 150 billion for life insurance), thus almost 9 percent out of some 4 trillion of annual fiscal income (see Appendix G, Table G-2, column [4]); according to the 1994 “Budgets des familles” study (see “Revenus et patrimoine des ménages, édition 1996,” *Synthèses* n. 5, août 1996, p. 42), we can estimate that about 50 percent of this approximately 9 percent of additional income is held by tax units in the top decile; hence  $(32 + 0.5 \times 9) / (100 + 9) = 33.5$  and  $(33 + 0.5 \times 9) / (100 + 9) = 34.4$ .
  33. In 1996, INSEE published a study based on the 1984, 1989, and 1994 “Budgets de familles” studies, concluding that if one “adjusts” the wealth incomes declared by households so that the overall aggregates correspond to those from the national accounts, one finds significantly higher income inequality (see “Revenus et patrimoine des ménages, édition 1996,” *Synthèses* n. 5, août 1996, p. 36; we describe the results obtained in Appendix I, section 1.1.3); however, it should be noted that INSEE uses only inequality measures of the P90/P10 type, which by definition cannot take into account the evolution of top incomes; we should also make clear that quantifying this expansion in inequality in the 1980s and 1990s is complicated by the fact that the distribution of tax-exempt capital incomes depends not only on overall income but also on age, occupational status, etc., so that it is very difficult to say anything precise in the absence of systematic annual data (see, for example, “Revenus et patrimoine des ménages, édition 1995,” *Synthèses* n. 1, June 1995, p. 92, in which INSEE, by combining the 1990 “Revenus fiscaux” study and the 1992 “Actifs financiers” study, estimates that the ratio between “real” capital incomes and capital incomes declared to the income tax is a strongly declining function of age (which is explained particularly by the fact that young people own more savings accounts); see also “Revenus et patrimoine des ménages, édition 1999,” *Synthèses* n. 28, September 1999, p. 30, in which INSEE notes that a sharp increase in capital income does not necessarily bring about an increase in inequality, insofar as the first beneficiaries are often retired households rather than working households).

34. See Kuznets (1953, 110–115 and 253–262).
35. Stock options pose particularly acute problems of interpretation: for example, according to the magazine *L'Expansion*, 28,000 “super managers” in large French companies collectively earned stock options with a total value that reached 45 billion francs following the late 1990s’ stock market boom, about 1.6 million francs of unrealized capital gains per super manager (see *L'Expansion* n. 604 [September 9–22, 1999], pp. 42–62); but, beyond the general problem mentioned above (if everyone tried to realize their capital gains, capital gains would disappear), these sums correspond to capital gains accumulated over several years, and it is very difficult to convert them in terms of average flows of annual income. Assuming an average holding period of five years, which is in fact the minimum required to benefit from tax advantages, these stock options would correspond to an average annual income per super manager of about 300,000 francs, barely more than 10 percent of the average annual income declared by the 30,000 tax units with the highest declared incomes; in the 1990s, the average income of tax units in the P99.9–100 fractile was between 2.5 and 3 million francs (see Appendix B, Table B-11).
36. However, recapitalized dividends lose the benefit of the tax asset.
37. See Allix and Lecerclé (1926a, 2:65).
38. See Allix and Lecerclé (1926a, 1:382), who approved of this legislation (like Kuznets, they saw capital gains as representing a “gain in capital” rather than an “income,” so they should not have to be taxed).
39. It is by definition impossible to assess precisely the amount of capital gains “exercised on a regular basis” and declared to the IGR, since those incomes were added to other BNC incomes; however, it can be pointed out that the BNC share of total income has always been sharply declining within the top 1 percent (see Appendix B, Table B-16, column BNC), which suggests that there are very few “big speculators” who failed to escape this tax regime.
40. In the framework of the legislation that emerged from the 1914–1917 reform, capital gains realized by businesses were taxed under the schedular tax on BIC income, and thus could be taxable under the IGR in the case of unincorporated businesses, which by definition make no distinction between the accounts of the company and those of its owners, with the latter in principle having to declare all BIC income declared by their company, under the schedular tax, to the IGR (see Allix and Lecerclé 1926a, 1:381–383); furthermore, capital gains that are realized when a company is liquidated have always been subject to the IRVM, and thus potentially to the IGR (Allix and Lecerclé 1926a, 1:262). See also Plagnet (1987, 192–197).
41. Here again it is impossible to assess precisely the volume of these capital gains subject to the IGR since they were declared as BIC (in the first case) or as investment incomes (in the second case) (see preceding note); but the important point is that capital gains realized by companies could be part of the IGR tax base only in very specific situations, and capital gains realized by individuals were not affected.
42. Other mechanisms were introduced before the reform of 1976–1978 to tax capital gains in certain cases (the laws of March 15, 1941, and July 22, 1941, instituted a

- fleeting “exceptional tax on investment gains”; the decree of December 9, 1948, and the law of December 28, 1959, permitted the taxation of certain professional capital gains; the law of September 19, 1963, dealt with cases of “speculative” profits resulting from sales of real estate; etc.), but the important point is that in all of these cases, these were very specific measures that did not deal with the general case of investment gains realized by individuals (on the episodic appearance of capital gains in the tax statistics before the reform of 1976–1978, see Appendix A, section 3).
43. This letter is reproduced in *L'imposition des plus-values—Rapport de la commission d'étude*, vol.1, p. 2 (La Documentation Française, 1975).
  44. In practice, however, capital gains on real estate benefited from multiple exemptions (notably the complete exoneration of capital gains realized in the sale of a principal residence), as well as the apportionment mechanism (gains can be split up into several taxable fractions for different years, to attenuate the effects of progressivity).
  45. In fact, the income brackets used by the tax administration in the 1990s do not go high enough for these annual statistical tables on capital gains to allow us to study precisely how the weight of capital gains evolved within the top 1 percent of the income distribution (see Appendix A, Table A-11); but fortunately, we have estimates derived from computer samples of income tax returns from the DGI, and the samples include almost all very large tax returns, thus allowing us to assess the weight of capital gains for the topmost incomes in the 1990s in an extremely precise way (see Appendix A, Table A-12).
  46. The total number of capital gains taxed at the proportional rate rose from barely 200,000 per year in 1991–1992 to nearly 300,000 in 1993, more than 400,000 in 1994, and about 600,000–700,000 per year since 1995 (see Appendix A, Table A-11).
  47. Expressed as a percentage of the total taxable income of households subject to tax, the total amount of capital gains taxed at the proportional rate was about 3–3.5 percent until 1992, and it has once again been about 3–3.5 percent (or very slightly more) since 1993 (see Appendix A, Table A-11). We observe the same stability if we express the total amount of capital gains as a percentage of total fiscal income for all tax units (both those subject to tax and those not subject to tax); see Appendix A, Table A-12.
  48. See Chapter 4, section 4.4.
  49. See Appendix A, Table A-13, line P0–100 (all of the figures appearing in Table A-12 are expressed as a percentage of fiscal income, that is, income before any deductions or exemptions; furthermore, the figures in Table A-12 cover only the years 1992–1995, but the raw statistics compiled by the tax administration show that the weight and distribution of capital gains experienced no notable structural transformation over the years 1988–1997) (see Appendix A, Table A-11).
  50. See Appendix A, Table A-12.
  51. In the 1990s, the weight of capital gains in overall income rose from just over 1 percent at the level of the “middle classes” (fractile P90–95) to about 25 percent at the level of the “200 families” (fractile P99.99–100) (see Appendix A, Table A-12), and the weight of investment income rose from barely 2 percent at the level of the

- “middle classes” (fractile P90–95) to about 50–55 percent at the level of the “200 families” (fractile P99.99–100) (see Appendix B, Table B-16).
52. In the 1990s, the additional income obtained through capital gains taxed at the proportional rate reached 25 percent at the level of the “200 families” (fractile P99.99–100) (see Appendix A, Table A-12), and the weight of investment income in the total income declared by these tax units for the progressive income tax reached 50–55 percent (see Appendix B, Table B-16).
53.  $0.25 \times 8$  million = 2 million, and 8 million + 2 million = 10 million.
54. See Appendix A, Table A-12, line P99–100.
55.  $400 / 25 = 16$ .
56. In particular, our conclusions would hardly be different if we took into account the estimates recently obtained by INSEE in a study carried out by merging the files for the wealth tax (ISF) and the income tax (for the year 1996); according to these estimates the share of capital gains in overall income reached 50 percent for tax units that were subject to the ISF and had wealth holdings within the top decile of those subject to the ISF (this top decile includes about 17,000 tax units, out of a total of about 170,000 tax units subject to ISF) (see “Revenus et patrimoine des ménages, édition 1997,” *Synthèses* n. 11, September 1997, p. 75; slightly lower estimates—with a maximum share of about 40 percent for capital gains—were published in *L'imposition du patrimoine*, 16e Rapport au Président de la République, Conseil des Impôts, 1998, p. 236). In reality, the conflict with the figures we have used here (according to which capital gains represent an additional income of “only” 25 percent at the level of the P99.99–100 fractile of the income distribution, which includes just over 3,000 taxpayers out of a total of about 30 million tax units, both taxable and nontaxable; see Appendix A, Table A-12) is only apparent, and it is probably explained by the fact that the top decile of the ISF is by definition made up solely of people who depend mainly on their wealth, whereas the P99.99–100 fractile of the income distribution also includes people living on very high earned incomes who have not yet had time to accumulate such considerable wealth and potential capital gains; we may also note that the average income declared by tax units in the top decile of the ISF is “only” 3.3 million (taking capital gains into account) (see “Revenus et patrimoine des ménages, édition 1997,” *Synthèses* n. 11, September 1997, p. 75), which confirms that the two distributions (that of wealth subject to the ISF and that of income subject to the income tax) coincide only imperfectly.
57. See Appendix A, Table A-11.
58. See, notably, Decencière-Ferandière (1936).
59. In the United States, capital gains were among the incomes subject to the progressive federal income tax in the interwar era, and the figures cited here thus come from the statistical tables compiled by the American tax administration on the basis of tax returns; these figures were reproduced by Kuznets (1953, 256–257): capital gains represented up to 19 percent of total income in the late 1920s, before collapsing to less than 5 percent in the midst of the crisis of the 1930s (in fact, the figures Kuznets reproduced apparently covered all taxable households, about 10–15 percent



- of the American population at the time (see Kuznets 1953, 252), so it is likely that the capital-gains share far exceeded 20 percent for the wealthiest taxpayers of the era; however, these figures seem highly exaggerated).
60. See Appendix C, section 1.
  61. See Appendix C, Table C-8.
  62. See Chapter 4, Figure 4-1.
  63. Although the rate of the company profit tax was gradually reduced from 50 percent in the early 1980s (the level at which it had stood since the late 1950s) to 33 percent in the early 1990s, various exceptional surtaxes instituted since 1995 have actually kept the rate close to its “normal” level of 50 percent.
  64. See Chapter 4, Figure 4-1.
  65. See Allix and Lecerclé (1926a, 2:147–158).
  66. In particular, it is impossible to rely on macroeconomic estimates of the split between distributed and undistributed profits discussed in Chapter 1 (section 3.2): besides the fact that the available estimates for the interwar era are not entirely satisfactory, these estimates by definition cover all profits earned by all firms (including public enterprises), so it is impossible to identify those undistributed profits that actually correspond to a tax strategy (as opposed to undistributed profits explained by “legitimate” motives such as building up reserves, responding to the vagaries of the business cycle, etc.).
  67. In the 1930s, BIC income (which notably includes partnerships) as a share of the total income declared by the “200 families” (fractile P99.99–100) was between 20 percent and 30 percent, below the level observed in the 1950s, and barely 10 percentage points higher than the level observed in the 1980s (see Appendix B, Table B-17, fractile P99.99–100, column BIC); on the other hand, the BIC share was significantly higher in 1917 and 1920 (see Appendix B, Table B-17, fractile P99.99–100, column BIC), which was mainly due to the business cycle, but also perhaps because very large unincorporated businesses had not yet had time to change their legal form.
  68. For specific references to publications describing the sources and methods of the national accounts in detail, see Appendix G.
  69. In the 1990s, aggregate investment income (including interest credited on life insurance contracts) attributed to households by the national accounts stood at around 500 billion francs per year (slightly less in the early 1990s, slightly more in the late 1990s) (see Appendix G, Table G-6, column [2]), which was about five times greater than the approximately 100 billion francs per year declared to the progressive income tax (see above).
  70. With the exception of interest credited on life insurance contracts, these income categories are not broken out as such in the annual series of the national accounts (see Appendix G, Table G-8), and thus we have to fall back on estimates undertaken by other organizations (as we have done above). According to the Conseil des Impôts (see *La fiscalité des revenus de l'épargne*, 17e Rapport au Président de la République, Conseil des Impôts, 1999, p. 128), out of a total of 526 billion francs of investment income estimated by the national accounts, only 104 billion (less than

20 percent of the total) is neither investment income declared to the progressive income tax (90 billion), nor income from *livrets A, bleus, jeunes, Codévi*, LEP, PEL, CEL, or PEA (the exempt portions) (126 billion), nor incomes subject to the optional levy (63 billion), nor interest credited on life insurance contracts (143 billion) (these figures are for the year 1996). According to the similar decomposition carried out ten years earlier by the Conseil des Impôts (see *L'impôt sur le revenu*, 11<sup>eme</sup> Rapport au Président de la République, Conseil des Impôts, 1990, p. 135), the share of “hidden income” in total investment income (that is, the share corresponding to neither declared income nor to legally exempt incomes) was barely more than 10 percent (40 billion out of 341 billion) (these figures are for the year 1988). For other similar decompositions, see also *La contribution sociale généralisée*, 14<sup>e</sup> Rapport au Président de la République, Conseil des Impôts, 1995, p. 58; *L'impôt sur le revenu*, 7<sup>e</sup> Rapport au Président de la République, Conseil des Impôts, 1984, pp. 57–58; *L'impôt sur le revenu*, 2<sup>e</sup> Rapport au Président de la République, Conseil des Impôts, 1974, pp. 74–75; *L'impôt sur le revenu*, 1<sup>er</sup> Rapport au Président de la République, Conseil des Impôts, 1972, pp. 76–83

71. This 10 percent estimate is an upper-bound estimate, because—in addition to the fact that it is difficult to take all incomes from exempt savings accounts and savings plans into account—the national accounts count as part of investment income distributed to households certain categories of income that are not among the three exemptions considered here, and that do not appear within investment income declared to the progressive income tax for perfectly normal reasons (for example, the national accounts include within investment income compensation paid to managers of SARLs and partners in SNCs, even though these “RGAs” are dealt with separately in tax returns [see Appendix A, section 2.2]; it is also likely that the national accounts attribute to households a significant share of the interest and dividends that are directly recapitalized by OPCVMs and exempted from tax).
72. It is extremely difficult to use an analogous method for prior periods, notably due to the imperfections in the historical series of the national accounts (which make it difficult to break out the amount of legally exempt capital incomes for each period); we will return to the interwar case below, when exemptions were extremely rare.
73. See Appendix A, section 1.3. The French tax administration also seems to have gotten up to speed very quickly with respect to processing delays for tax returns and tax assessments (see Appendix A, section 1.5).
74. Since illegally hidden incomes come on top of other incomes and are taxed at the marginal rate for the tax bracket of the taxpayer in question, rather than the taxpayer’s average tax rate, tax adjustments necessarily represent a significantly higher percentage in terms of additional receipts than in terms of additional incomes (as we saw in Chapter 5, there is a considerable gap between marginal tax rates and average tax rates); in addition, the additional receipts amounting to roughly 5–10 percent also include penalties incurred by fraud perpetrators.
75. The complete results of the 1972 study were published in *L'impôt sur le revenu*, 4<sup>e</sup> Rapport au Président de la République, Conseil des Impôts, 1979, pp 157–177 (this report was published in *S&EF* “série bleue,” n. 361–362 [November–December 1979]).



76. See *L'impôt sur le revenu*, p. 160.
77. *Ibid.*, p. 160 (the frequency of adjustments was especially high for profits taxed under the flat rate regime, which is hardly surprising).
78. *Ibid.*, p. 160 (the overall markup rate reaches 14 percent in terms of additional receipts, which is explained by the fact that illegally hidden incomes come on top of other incomes and are thus taxed at the marginal rate corresponding to the tax bracket of the taxpayer in question).
79. *Ibid.*, p. 165.
80. *Ibid.*, p. 161 (on the other hand, the average markup rate for real estate income (17 percent) is far closer to the markup rate for professional profits).
81. The results published by the Conseil des Impôts (see preceding notes) unfortunately do not allow us to estimate average markup rates by fractile, since the tables published by tax bracket never cover all taxpayers (the tables cited above do, however, allow us to be certain that the 5 percent average markup rate is a declining function of the overall income level, which is the key point).
82. This ill will appears very clearly when one examines statistics from the “compulsory tax” regime, which was frequently used in the 1920s and 1930s for taxpayers slightly above the threshold of taxation who had “forgotten” to file an income tax return, and on whom the administration possessed information showing that they had incomes above the threshold of taxation (see Appendix A section 1.2).
83. See Chapter 4, section 4.2.
84. The results of this 1953 study are cited by Marchal and Lecaillon (1958–1970, 2:47–48).
85. The results of this 1948 American study are described by Kuznets (1953, 462–466).
86. See especially the study by Bishop, Chow, Fornby, and How (1994), who, in analyzing files from tax audit activities by the American tax administration from 1979, 1982, and 1985, concluded that tax fraud is of practically negligible significance when the issue at hand is vertical income inequality. See also *L'impôt sur le revenu*, 7e Rapport au Président de la République, Conseil des Impôts, 1984, p. 67, in which the Conseil des Impôts cites a study carried out between 1973 and 1981 by the American tax administration, according to which the average markup rate was between 5 percent and 6 percent for wages, and between 16 percent and 21 percent for self-employment profits; the Conseil des Impôts does not give the results by income bracket, but the results cited by Kuznets (1953) and Bishop, Chow, Fornby, and How (1994) show that average markup rates always tend to decline (at least slightly) with the taxpayer’s income level).
87. Although the published results cited in the previous notes do not make it possible to say precisely, it would seem that the frequency of tax adjustments larger than 50 percent for certain categories of French self-employed in 1972 had no equivalent in the United States (even though greater fraud was observed in the United States among the self-employed).
88. For two fairly representative examples from this vast pamphlet literature, written nearly half a century apart, see Piétri (1933) and Brie and Charpentier (1975).

89. For a detailed analysis of the 1970–1996 period and estimates of the “elasticity” of taxable income vis-à-vis marginal tax rates, see Piketty (1998).
90. See Chapter 4, Table 4-2. If we take into account the maximum surtax rate for childless taxpayers, that is, the rate applicable to unmarried childless individuals, we observe that the top marginal rate fell from 75 percent in the 1925 tax year to 37.5 percent in the 1926 tax year (see Chapter 4, Figure 4-1).
91. See Chapter 2, Figure 2-8, and Appendix B, Table B-14, column P99.99–100.
92. See Chapter 4, Tables 4-1 and 4-2. In fact, given the increase in the surtax rates on childless taxpayers, and, most importantly, the establishment of an “exceptional surtax” for the highest incomes, the true “top marginal rate” for the 1934 tax year was slightly higher than it had been in the 1926 tax year (42 percent versus 37.5 percent) (see Chapter 4, Figure 4-1); but it must be noted that the “exceptional surtax” was decided only on in July 1935 (see Chapter 4, Table 4-6), that is, after the 1934 tax returns had been filed.
93. According to our estimates, the share of total income going to fractile P99.99–100 rose from 1.69 percent in 1933 to 1.71 percent in 1934 (see Chapter 2, Figure 2-8, and Appendix B, Table E-14, column P99.99–100).
94. See Chapter 2, section 3.1. According to our estimates, the share of total income going to fractile P99.99–100 rose from 1.74 percent in 1936 to 1.83 percent in 1937 (see Chapter 2, Figure 2-8, and Appendix B, Table B-14, column P99.99–100), and this was despite the very rapid increase in top IGR rates in 1936–1937 (see Chapter 4, Figure 4-1).
95. See, for example, Piétri (1933), who does have the merit of attempting to go beyond a mere recounting of individual anecdotes (which is what this literature often amounts to), but whose attempt at an overall estimate of fraud nevertheless remains highly insufficient: Piétri notes that in France there are about 5 million households whose primary residences have a rental value greater than 1,500 francs per year; he “concludes” from this that there are about 5 million households with annual incomes greater than 10,000 francs; he then “concludes” from this that the IGR should have about 5 million taxpayers (instead of 2 million) (see Piétri 1933, 67–68). This “estimate” is even more unconvincing given that Piétri offers no further details to justify the various steps in his reasoning (in fact, among other things, he “forgets” to take into account deductions for family dependents, which means that the era’s threshold of taxation was actually significantly greater than 10,000 francs: 20,000 francs for a married couple with one child, 25,000 francs with two children, etc. [see Appendix C, Table C-1]; thus, even accepting that there were 5 million households with incomes greater than 10,000 francs, there would be nothing surprising about the fact that the number of households subject to the IGR barely exceeded 2 million).
96. Using the estimates by Dugé de Bernonville, which, in the case of investment incomes, were based on IRVM receipts, we can estimate that the investment income share of total household income (all households included) in the interwar period was barely more than 10–12 percent (see Appendix G, Table G-9, column [2]); at

- the same time, the investment income share of total income declared by the wealthiest 10 percent of tax units was about 15–20 percent (see Appendix B, Table E-17, fractile P90–100, column RCM); since the top decile share of total income at the time was about 40–45 percent (see Chapter 2, Figure 2-6), this means that the investment income declared by the top decile within the IGR framework alone represented a very significant proportion (probably more than two-thirds) of the total volume of investment income subject to the IRVM.
97. The coupon worksheet was adopted initially by the *Bloc National* on the eve of the 1924 elections (law of March 22, 1924), but the *Cartel des Gauches*, which was wary of the reaction from financial circles, refused to implement it, and the worksheet was definitively eliminated by the law of July 13, 1925 (in a famous speech delivered February 16, 1925, Herriot came to the defense of “Mélanie, the cook, who has a few investments, who wants to collect her coupons, and who has the right to be unable to read”; see Sauvy 1984, 3:84), which more or less buried the coupon worksheet system; generally speaking, the theme of defending the millions of small-holders who risked being subjected to all manner of administrative hassles played a key role in these debates (see, for example, Allix and Lecerclé 1926a, 2:192–195); the fact that the *Cartel des Gauches* could not embrace the *Bloc National*'s decision calls to mind the controversy over abandoning the gold-franc: it is structurally more difficult for the Left, which is automatically suspected of seeking to “ruin savers,” to carry out these kinds of measures. The coupon worksheet was adopted a second time in 1933 (law of December 28, 1933), but this second law was again not carried out.
98. It is difficult to answer this question precisely, insofar as the change in the relationship between the tax administration and the banks depended far more on practices adopted by the tax auditors and banks than on legal texts (with the latter merely setting the overall legal framework governing the activity of the auditors). Let us simply note that, contrary to the expectations expressed at the time (see, for example, Trotabas 1938, 556)—which were even greater because the decree-law of July 31, 1937, had decided that tax returns revealing sharp increases in investment incomes would not be subjected to “requests for clarification” concerning prior years (other amnesty measures of the same kind were adopted throughout the history of the income tax, notably by Pinay in the framework of the law of April 14, 1952)—the creation of the coupon worksheet by the decree-law of July 8, 1937, does not seem to have had an immediate, palpable impact on declared incomes: the new system perhaps contributed to a momentary increase in the relative position of very high incomes in 1937 (although, as we have seen, this increase is explained more by the increase in very large BIC incomes than by increases in very large investment incomes, which tends more to support the hypothesis of an inflationary upsurge; see Chapter 2, section 3.1), but it had no effect on the collapse in investment income witnessed over the course of the Second World War—which suggests, here again, that strictly economic forces are far more important than issues of tax fraud.
99. Indeed, let us recall that the taxable income subject to the progressive schedule has always included tax assets (tax assets are then subtracted from the tax thus obtained);

- therefore, it makes perfect sense that the tax administration chose to include tax assets in the statistical tables derived from tax returns (in practice, these statistical tables always included tax assets within investment income and never sought to break them out within the latter category, even though they are declared separately).
100. Investment income represented up to 50–55 percent of the total income declared by tax units in fractile P99.99–100 in the interwar era (see Appendix B, Table B-17, fractile P99.99–100 column RCM); assuming that this income was made up mainly of dividends (which, as we saw earlier, is consistent with all of the information we have), and assuming a tax asset equal to half of distributed dividends (as has been the case since the law of July 12, 1965), we would conclude that, if the tax asset had existed in the interwar era, then the average income declared by tax units in fractile P99.99–100 would have been around 25 percent higher than we estimated (without even taking into account the impact on fraud).
  101. The statistics we used to estimate the levels of the various top-income fractiles since 1915 cover only tax units subject to tax; thus, very wealthy taxpayers who managed to receive enough tax reductions so as not to owe any tax could escape our estimates; but we also have tax-return files for the years 1980–1990 that cover all tax units (taxable and nontaxable), allowing us to confirm that this bias was practically negligible (see Appendix B, section 1.2).
  102. The average income per tax unit (expressed in 1998 francs) was barely 30,000 francs per year in the 1930s, and it was around 130,000 francs per year in the 1990s (see Chapter 1, Figure 1-6, and Appendix G, Table G-2, column [7]).
  103. See Chapter 1, section 3.2.
  104. To our knowledge, only wealth declarations from the years 1982–1985, filed under the IGF (see *L'imposition du capital*, 8e Rapport au Président de la République, Conseil des Impôts, 1986, pp. 101–137 and 359–391), as well as 1996 wealth declarations filed under the ISF (see “Revenus et patrimoine des ménages, édition 1997,” *Synthèses* n. 11, September 1997, pp. 69–79; see also *L'imposition du patrimoine*, 16e Rapport au Président de la République, Conseil des Impôts, 1998, pp. 234–246), have really been subjected to thorough statistical analysis (for other years, only overall statistics—number of taxpayers, total receipts, etc.—are available). Using these statistics would also pose difficulties of a technical kind, given, for example, the exemption for professional assets. For all of these reasons, we have not sought to use statistics derived from the IGF and ISF in this book.
  105. The wealth rankings that have appeared in magazines in the 1990s seem to sin more by omission. For example, according to the 1999 edition of the “Top 500,” published by the magazine *Challenges*, it is “sufficient” to own more than 141 million francs of wealth in order to be among the 500 largest fortunes in France (see *Challenges* n. 138, July–August 1999, pp. 51 and 88–105); assuming a 5 percent average return, 141 million francs of wealth would correspond to about 7 million francs of annual income, the equivalent of the average declared income of the 0.01 percent of tax units with the highest declared incomes in the 1990s—that is, more than 3,000 tax units (see Chapter 2, Figure 2-7, and Appendix B, Table B-11, column P99.99–100),

and just over a third of the average income declared by the 0.001 percent of tax units with the highest declared incomes in the 1990s—that is, more than 300 tax units (all of these tax units declare more than 10–11 million francs, and their average declared income is 18–20 million francs; see Piketty 1998, 29 and 138–144). In addition, the rankings in *Challenges* cover “family” fortunes (with the term “family” used in its broadest sense: a single dynasty that includes twenty to thirty of households can correspond to a single “family” and a single overall wealth holding): thus, the lower threshold of the “Top 500” individual or household fortunes lies very significantly below 141 million francs (these differences in coverage also explain why it is impossible to carry out precise comparisons between these different studies or with income per tax unit). The sociological literature on large fortunes is no more helpful here: for example, Pinçon and Pinçon-Charlot (1989, 1996, 1997, 1999) offer a great deal of fascinating information about the lifestyles and mores of large fortunes and the *grande bourgeoisie*, but they do not attempt to quantify the wealth holdings in question, let alone study the long-term evolution in the level of large fortunes.

106. In 1826, the overall volume of assets passed on by inheritance was 1.34 billion francs, including 0.46 billion francs of movable property (34 percent) and 0.88 billion francs of immovable property (66 percent); in 1908 (the last year before the First World War for which this overall decomposition is available), the total volume of assets passed on by inheritance was 7.43 billion francs, including 4.09 billion of movable property (55 percent) and 3.34 billion in immovable property (45 percent). Movable property includes securities and other movable assets (the bequest statistics began to carry out this decomposition only from 1850, when securities represented less than 2 percent of total movable property [0.014 / 0.805], versus 56 percent in 1908 [2.31 / 4.09]), and immovable property includes both built property (houses, buildings, etc.) and nonbuilt (agricultural land, etc.). All of these aggregate bequest statistics have been collected and published in *Annuaire Statistique de la France 1966—Résumé Rétrospectif*, INSEE, 1966, p. 530.
107. Several scholars have nevertheless tried to get to the bottom of these difficulties (see notably Daumard 1973), and in Chapter 7 we will revisit the conclusions that may be drawn from such studies of the evolution of inequality in the nineteenth century (see Chapter 7, section 2.3).
108. The raw tables compiled by the tax administration based on tabulations of bequest declarations are reproduced in Appendix J, which also contains a detailed presentation of both the methodology used to analyze these data as well as all of the results obtained.
109. In fact, in the 1980s and 1990s, we no longer even had annual statistics on the volume of declared bequests: the only statistics compiled annually pertain to the number of bequests and the amount of corresponding tax (see, for example, *L'imposition du patrimoine*, 16e Rapport au Président de la République, Conseil des Impôts, 1998, p. 63).
110. Similar studies were also carried out in 1977 and 1987, but statistical tables of the kind that interest us here, or at least those with sufficiently high bequest brackets, were not compiled for those studies (see Appendix J, section 1.1).

111. See Appendix J, section 1.1.
112. See Appendix J, section 2.
113. On the evolution of the number of bequest declarations filed in France since 1902, see Appendix J, Table J-1.
114. In fact, in the appendixes we give estimates of the shares of the various large-bequest fractiles in the total volume of bequests (see Appendix J, Tables J-11 and J-12), but we emphasize that these are “raw” estimates; no attempt was made to obtain a consistent denominator, so they must be used with caution.
115. See Appendix J, section 3.4.
116. The national accounts have included estimates concerning wealth since the 1970s, but no one seems to have tried to compile continuous historical series using the concepts from these “national wealth accounts.” For prior periods, we have only isolated estimates carried out using disparate methods; in addition, the creation of consistent series would far exceed the scope of this book.
117. See section 1.1.
118. We have limited ourselves to reproducing the raw tables compiled by the tax administration in the appendixes (see Appendix J, section 1.2, and Table J-3).
119. See Appendix J, section 3.
120. We have limited ourselves to undertaking approximate estimates of the average tax rates on very large bequests from various periods (see Appendix J, section 3). The list of years for which tables on bequest shares have been compiled is also shown in the appendixes (see Appendix J, section 1.4).
121. On the years for which tables by age group have been compiled and the uses that could be made of them, see Appendix J, section 1.4.
122. See Appendix J, Table J-9, line 1994 / 1902–1913.
123. See Chapter 2, Table 2-1, and Figure 2-9.
124. See Chapter 2, Figure 2-9.
125. See Appendix J, Table J-9, line 1994 / 1902–1913.
126. See Appendix J, Table J-9, line 1902–1913.
127. See Appendix J, Table J-9, line 1994 / 1902–1913. Having only isolated estimates for the final third of the century is potentially more problematic for fractile P99.99–100 than for fractile P90–95, given that the average bequest naturally experiences more erratic movements when it comes to small groups of very large bequests rather than when it comes to large groups of “middling” bequests; however, we may note the very steady nature of the growth observed since the early 1950s (see Figure 6-2), from which we can conclude that the average value of the fifty largest annual bequests in the 1990s could hardly exceed 60 million (even in that decade’s best years).
128. According to our estimates, the average ratio was 628.5 for the years 1902–1913, and it was only 52.8 in 1994 (see Appendix J, Table J-9, lines 1902–1913 and 1994) ( $628.5 / 52.8 = 11.9$ ).
129. See section 1.2. This figure is obviously approximate, especially because the estimate given above pertained to fractile P99.99–100 of the income distribution, not fractile P99.99–100 of the hierarchy of wealth at time of death. Note, however,



that the 20 percent maximum proportion given above was expressed as a percentage only of investment income, so it would be lower if it were expressed as a percentage of overall wealth. Let us add that the exemption for life insurance was capped: in the 1980s and 1990s, transfers made by individuals more than seventy years in age were subject to the bequest tax after they exceeded an extremely modest threshold (100,000 francs, then 200,000 francs) (see *L'imposition du capital*, 8e Rapport au Président de la République, Conseil des Impôts, 1986, p. 46, and *L'imposition du patrimoine*, 16e Rapport au Président de la République, Conseil des Impôts, 1998, p. 68). In addition, exempt assets—mainly life insurance contracts, but also woodlands and forests, certain new buildings between 1947 and 1973, certain public debts (such as the Pinay loan of 1952), etc.—should in principle be listed in the bequest declarations, and the corresponding statistics confirm their limited importance for very large bequests (in 1984, the amount of exempt assets was less than 5 percent of the amount of taxable assets for the highest bequest brackets; *L'imposition du capital*, 8e Rapport au Président de la République, Conseil des Impôts, 1986, p. 81).

130. This is especially clear given that the “middle classes” (fractile P90–95) also make use of exempt assets to pass on their wealth, probably in greater proportions than the top fractiles (*L'imposition du capital*, 8e Rapport au Président de la République, Conseil des Impôts, 1986, p. 81).
131. See, for example, Séailles (1910, pp. 25–33), who does not, however, venture to give an estimate of the magnitude of tax fraud prevailing in his era. See also Sauvy and Rivet (1939, 382–383) and Daumard (1973, 36–39). Colson (1918, 408) goes so far as to mark up bequest statistics from the early years of the century by 80 percent to account for evasion.
132. On the investigative powers possessed by the administration in the 1990s in auditing the amounts of bequest declarations, see, for example, *L'imposition du patrimoine*, 16e Rapport au Président de la République, Conseil des Impôts, 1998, p. 78.
133. In practice, the way “backdated” gifts have been accounted for by the tax administration in the statistical tables on bequests is relatively ambiguous, so it is not certain that our estimates for the period 1942–1994 actually account for all gifts; in any case, since the 1942 reform we have also had statistical tables compiled separately for gifts, which show that, however large they may be, gifts are in no way capable of significantly mitigating a phenomenon as massive as the collapse in the level of very large bequests that we have evidenced (see Appendix J, section 1.3).
134. At the beginning of the century, the annual volume of gifts was about 1 billion francs, roughly 15–20 percent of the annual volume of bequests (6–7 billion) (see *Annuaire Statistique de la France 1966—Résumé Rétrospectif*, INSEE, 1966, p. 530).
135. See, for example, Séailles (1910, 25–33), who, as was the case with fraud, does not venture any estimate of the magnitude of the bias introduced by gifts at the level of very large wealth holdings. The aggregate statistics cited above show that there was actually nothing exceptional about the annual volume of gifts at the beginning of the century (gifts have always represented between 15–20 percent and 30–35 percent of the annual volume of bequests throughout the 1826–1964 period; see *Annuaire*

- Statistique de la France 1966—Résumé Rétrospectif*, INSEE, 1966, p. 530; on the evolution since 1964, see Appendix J, section 1.3), so it is likely that the notion that owners of very large fortunes hurriedly shifted to donations after the vote on the law of February 25, 1901 (an idea embraced by Séailles, among others, and very widespread at the time) is highly exaggerated.
136. In analyzing the 1986 and 1992 “Actifs financiers” studies and the 1996 “Détentions d’actifs” study, INSEE was also led to conclude that wealth inequality had (slightly) declined over the 1990s (see “Revenus et patrimoine des ménages, édition 1996,” *Synthèses* n. 5, August 1996, pp. 83–90; see also *L’imposition du patrimoine*, 16e Rapport au Président de la République, Conseil des Impôts, 1998, p. 22); these results cannot really be compared with those from our analysis of bequests statistics (besides the fact that these studies do not make it possible to investigate very large wealth holdings, they cover the entire population, not the deceased); however, they do confirm that the trends in wealth inequality always run somewhat behind trends in income inequality (indeed, INSEE attributes them to “generational effects”).
137. The average age of the tax units making up the P99.99–100 fractile of the income distribution is probably rather high, and the disparity between their wealth (from which they draw the majority of their income) and the wealth of fractile P99.99–100 of the hierarchy of deceased could not exceed certain limits.
138. The average value of the fifty largest annual bequests (expressed in 1998 francs) was about 50 million francs in 1925–1926, versus 220 million on average over the years 1902–1913 (see Figure 6-2 and Appendix J, Table J-9); given the very strong growth observed between 1925–1926 and 1928–1929, it is likely that the average value of the fifty largest annual bequests in the early 1920s was even lower than in 1925–1926.
139. See Chapter 2, sections 2.1 and 2.2.
140. In 1929–1930 the ratio between the average bequest of the “200 families” (fractile P99.99–100) and the average bequest of the “middle classes” (fractile P90–95) had regained a level of around 500, barely below the average ratio of approximately 630 observed over the years 1902–1913 (see Figure 6-3 and Appendix J, Table J-9, column P99.99–100 / P90–95). The increase observed over the years 1925–1930 is even more impressive given that it had probably begun by the early 1920s.
141. The average value of the fifty largest annual bequests (expressed in 1998 francs) approached 100 million francs in the 1930s, versus around 220 million francs on average in the years 1902–1913, thus falling by a factor of just above 2; the average value of the fifty largest annual bequests (expressed in 1998 francs) was just over 10 million francs at the end of the Second World War, thus falling by a factor of around 10 relative to the 1930s. It would not be until the late 1950s that the average value exceeded 25 million francs (falling by a factor of 4 relative to the 1930s) (see Figure 6-2 and Appendix J, Table J-9, column P99.99–100).
142. It is especially revealing that the value of bequests (expressed in 1998 francs) reached its absolute minimum in 1948–1949 (see Figures 6-1 and 6-2 and Appendix J, Table J-9), not in 1944–1945 (that is, when production and incomes reached their abso-



- lute minimum): it was at the end of the 1944–1948 hyperinflation that asset prices (notably real estate) reached their lowest level (relative to consumer prices).
143. See Chapter 2, section 2.3.
  144. See Chapter 4, section 4.4.
  145. See Chapter 5, section 1.1.
  146. For a succinct summary of the evolution of bequest tax legislation since 1901, especially the tax schedules applicable to the direct line of succession and between spouses, see Appendix J, section 3. On the schedules in effect at the beginning of the century, see Appendix J, section 3.2.
  147. See Appendix J, section 3.2. It is also interesting to note that as with the income tax, supporters of the progressive bequest tax initially had to accept a tax schedule whose rates stopped rising at “reasonable” levels of wealth, and that it was only after a few years that additional brackets were added to it.
  148. See Chapter 1, Figure 1-2, and Appendix F, Table F-1, column (7).
  149. See Appendix J, section 3.1.
  150. See Appendix J, section 3.4.
  151. See Chapter 4, section 1.3, Chapter 5, section 3.2, and Appendix J, section 3.
  152. See Appendix J, sections 3.2 and 3.4. We are referring here to the rates applicable to the direct line of succession.
  153. See Appendix J, section 3.2.
  154. The coefficient to convert 1981 francs into 1998 francs is about 1.9; see Appendix F, Table F-1, column (7).
  155. The threshold of the top IGF bracket was changed to 20 million francs by the law of December 30, 1985 (the top rate rose from 1.5 percent to 2 percent), and the law of December 30, 1988, which created the ISF, kept this threshold (with a top rate of 1.1 percent). Then the law of December 29, 1989, created a bracket applicable to fortunes larger than 40 million (with a rate of 1.5 percent), and this threshold (with a slight inflation adjustment) was in effect until the late 1990s, before the law of December 30, 1998, established a new top bracket applicable to fortunes larger than 100 million francs (with a 1.8 percent rate). This latter episode perhaps attests to the return of “large” fortunes in the late twentieth-century fiscal imagination; however, it should be noted that this 100-million-franc threshold remains at one-tenth the level of the top bequest-tax bracket from the beginning of the century (1 billion 1998 francs), not counting the fact that this threshold applied to bequest shares rather than to the total bequest, that the bequest tax is, by its nature, more “universal” than a tax specifically intended to tax “large” fortunes, and that the considerable increase in wealth in France over the twentieth century should have “normally” led to an increase in the size of fortunes considered “large.”
  156. See Appendix J, section 3.3.
  157. The coefficient to convert 1936 francs into 1998 francs is about 3.6 (see Appendix F, Table F-1, column [7]), and  $3.6 \times 150 = 540$ .
  158. See Appendix J, section 3.3.

159. See Appendix J, Table J-1. We may note that the 1902 bequest declarations were not tabulated using the 50-million-franc top bracket, even though the latter had been in effect since the law of March 30, 1902; the finance ministry apologized for it, explaining that the law had been adopted “too late” for the staff in charge of the tabulation to have time to “modify the accounting framework” (see *BSLC* October 1903, 54:378). We should also make it clear that these tables cover the total amount of bequests (before division among heirs), so the number of bequests shares greater than 50 million francs and actually subject to the top bracket of the schedule was even smaller.
160. See Appendix J, Table J-1. We may note that the new top bracket for bequests greater than 150 million francs instituted by the Popular Front was adopted by the tax administration starting from the tabulation of 1938 declarations.
161. See Appendix J, Table J-1.
162. See Appendix J, Table J-1. The number of bequests greater than 10 million francs was 138 in 1984 and 537 in 1994, which might seem far too little to estimate the average value of the fifty largest annual bequests. In fact, the excellent reliability of the technique for approximating the wealth distribution using a Pareto law, as well as the existence of complementary data derived from computer files from the 1994 study, make such estimates possible. On the methodology used and the reliability of the estimates thus obtained, see Appendix J, section 2.
163. See, for example, Colson (1903, 276–292), Levasseur (1907, 608–616), d’Avenel (1909, 10 and 367–671), Séailles (1910, 25–33), Neymarck (1911), and Colson (1918, 407–411).
164. See Introduction, section 2.2.4. In the interwar era, bequest statistics were still the subject of a few analyses (see, for example, Bouton 1931, 272–275), who, in comparing the 1913 and 1925 bequest statistics, noted that the First World War had led to a collapse in very large wealth holdings).
165. See *BSLC* July 1927, 102:65.
166. See *S&EF* “supplément” n. 204 (December 1965), p. 1688.
167. See, for example, *L’imposition du capital*, 8e Rapport au Président de la République, Conseil des Impôts, 1986, p. 43. According to Adeline Daumard, the fact that small bequests had been exempted from the requirement to file a declaration in 1956 (we discuss this episode in Appendix J, section 3.4) is reported to have also led the finance ministry to see “less interest” in these statistics (see Daumard 1977, 385); this explanation is potentially more convincing, but it does not seem capable of explaining the lack of interest in rankings of large bequests.
168. See *BSMF* n. 2 (2e trimestre 1947), pp. 317–321. This new analysis technique also made it possible to increase the number and sophistication of the statistical tables compiled on the basis of tabulations of bequest declarations.
169. See section 3.1.
170. See Chapter 5, section 1.1.

## 7. HOW DOES FRANCE COMPARE WITH FOREIGN EXPERIENCES?

1. See Appendix B, Table B-14.
2. See Chapter 2, sections 2.1 and 2.2, and Chapter 7, section 3.2.
3. See Chapter 2, Figure 2-14, and Chapter 5, Figure 5-9. The estimates cited below for foreign countries are almost all expressed in terms of pretax income (with very few exceptions, which we will point out), so our comparisons will be carried out (for the most part) in terms of shares of total pretax income.
4. According to the estimates for Saxony from Jeck (1970) (see also Jeck 1968), and reproduced in Kaelbe (1986, 32–33), the top 1 percent share (fractile P99–100) in the years 1901–1913 was about 19–20 percent, the share going to the top half-decile (fractile P95–100) was about 34–35 percent, the share going to the top decile (fractile P90–100) was about 45 percent, and the share going to the top 0.1 percent (fractile P99.9–100) was about 7–8 percent; all of these shares are practically identical to those we estimated for France in the years 1900–1910 (see Appendix B, Table B-14) (these estimates for Saxony were also reproduced (partially) by Morrisson [2000, 233]). The estimates for Prussia from Mueller and Geisenberger (1972), and reproduced by Dumke (1991, 133) show for the years 1901–1913 a share of total income of about 18–19 percent for the top 1 percent (fractile P99–100), and for the lower fractiles shares that were also close to French levels (or very slightly lower). See also Kraus (1981, 216) and Morrisson (2000, 234).
5. In fact, the raw data from the “super tax” of 1911–1912 seem to have hardly been analyzed since the studies by Bowley (1914, 1920); Lindert (2000, 175) gives an estimate for the share going to fractile P95–100 of the British income distribution for the year 1911 (about 38–39 percent of total income), which Lindert attributes to Bowley, while clarifying that he “adjusted” it (without giving further details); the raw tax data reproduced by Bowley (1914, 264), relating to the 1911–1912 incomes subject to the “super tax,” indicate a Pareto coefficient of about 1.8–1.9 for the highest brackets ( $12,177 / 66 = 185$ ), a level close to (or even slightly below) that of the Pareto coefficients for France (see Appendix B, section 1.1.2, and Table B-1). The raw tax data reproduced by Stamp (1936, 636) for the 1928–1929 incomes subject to the “super tax” also show Pareto coefficients for the highest brackets of about 1.9 ( $24,866 / 130 = 191$ ); given that a 3.4 percent share for fractile P95–100 corresponds to a 19 percent share for fractile P99–100 for France in the years 1900–1910, we may estimate that the share going to fractile P99–100 was about 20–22 percent in the United Kingdom in 1911–1912 (only a new analysis of the raw tax data could reduce this margin of error).
6. In Holland, according to an estimate from Hartog and Veenbergen (1978), and taken up by Morrisson (2000, 230), the top-decile share of total income was 42 percent in 1914, a level slightly below the 45 percent level estimated for France in the years 1900–1910 (in addition, it is possible that the concentration of income prevailing in the years immediately prior to 1914 was slightly greater—the Dutch series unfortunately begins only in 1914). In Sweden, according to a study published in 1953 (in Swedish), which we have not attempted to consult, and whose results

were taken up by Kraus (1981, 217) and partially by Morrisson (2000, 228), the top-decile share in 1935 was 39.5 percent, and the share going to the top half-decile was 28.1 percent, which suggests that the corresponding levels on the eve of the First World War were of the same order as those estimated for France in the years 1900–1910 (45 percent and 34 percent, respectively) (no estimates for Sweden at the beginning of the century appear to exist). In Denmark, according to a study published in 1928 (in Danish), which we have not sought to consult, and whose results are taken up in Kraus (1981, 215) and partially by Morrisson (2000, 221), the top 1 percent share in 1908 was 39 percent, and the share going to the top half-decile was 30 percent, which seems to indicate a concentration of income closer to French interwar levels than those from the beginning of the century. In Finland, according to a study published in 1974 (in Finnish), which we have not attempted to consult, and whose results are taken up in Kraus (1981, 215) and in Morrisson (2000, 228), the top-decile share in 1900 was 50 percent, and the share going to the top half-decile was 40 percent, which suggests a concentration of income even greater than in France in the years 1900–1910. In Norway, according to a study published in 1950 (in Danish), which we have not attempted to consult, and whose results are taken up by Morrisson (2000, 224), the share going to the top half-decile in 1900–1910 was 30 percent (the same as in Denmark), which suggests a lower concentration of income than in France in the years 1900–1910 (however, it should be noted that this Norwegian estimate covers only urban areas, which may give a downward bias to the concentration measure).

7. See Daumard (1973, 25–26).
8. We also find the same type of argument in the United States, for example, from Seligman, author of the principal American treatise on the income tax of the period, which was translated into French and published in France on the eve of the war (see Seligman 1913). Seligman explains that the failure of the German system in Switzerland was largely predictable, since that country, “like the United States,” is accustomed to living “in a democratic spirit”; Seligman also pays homage to the “happy mixture” of the Caillaux bill, which was presented at the time as a kind of ideal compromise between the “liberal” English-style system (based solely on schedular-type taxes, at least until the introduction of the “super-tax” in 1910) and the “authoritarian” German-style system (based on the obligatory declaration of overall income by a significant share of the population, a significantly greater share than envisioned by Caillaux’s IGR or the “super-tax” of 1910).
9. See Chapter 2, section 1.1.1, and Chapter 6, section 3.1.
10. For a useful recapitulation of the date that income taxes were introduced in the various European countries, see Kraus (1981, 191). Kraus does not, however, give any information about the tax rates in effect in the different countries, and as we saw in Part Two of this book, the introduction of a new tax (or a change in the official title of a tax) can often have very limited impact on the average tax rates actually owed by different groups (it all depends on the rate schedules). It is not clear, however, that the schedular taxes in force in England since 1842 (or even the progressive taxes on overall income in force in several German states from the 1870s) led to a genu-

inely greater tax burden for wealthy taxpayers compared to the “four old ladies” (supplemented by the IRVM, starting from 1872) in France: this question deserves to be studied in its own right.

11. See Caillaux (1910, 530–532).
12. The estimates carried out by Atkinson and Harrison (1978) based on British bequest statistics from the years 1923–1972, which have been taken up by all subsequent authors (see, for example, Lindert 2000, 181–182), unfortunately begin only in 1923. In addition, Atkinson and Harrison estimate the share of large wealth holdings in total wealth for the overall population, using the “rate of bequest devolution” method, whereas we restricted ourselves to the distribution of wealth at time of death (see Appendix J, section 2), which means that comparisons must be made with caution; we will note, however, that the estimates obtained by Atkinson and Harrison for the 1920s (about 55–60 percent of total wealth held by the top 1 percent; see Atkinson and Harrison 1978, 159) are very close to the estimates we obtained for France at the beginning of the century (about 55 percent of wealth at time of death held by the top 1 percent; see Appendix J, Table J-11), and slightly greater than the estimates we obtained for the late 1920s (about 50 percent of wealth at time of death held by the top 1 percent; see Appendix J, Table J-11). Atkinson and Harrison (1978, 139) also give an estimate for the years 1911–1913, with a top 1 percent share of about 65–70 percent, which suggests that the gap between the two countries was greater at the beginning of the century than in the 1920s; Atkinson and Harrison make clear, however, that this estimate for the years 1911–1913 is relatively uncertain. According to an estimate by King (1915), and taken up by Williamson and Lindert (1980, 52), the share of wealth at time of death held by the top 1 percent was about 60 percent in the United Kingdom in 1907–1911; in any case, the British concentration of wealth does not appear to have been radically different from the French concentration of wealth: we are very far from the “country of small property-owners.”
13. See the preceding notes.
14. Apart from problems of fraud and evasion, the taxable incomes appearing in the tax statistics may also be artificially reduced through various perfectly legal mechanisms (for example, in the case of interwar France, the deduction of the tax paid on the previous year’s income), and it is essential to have a good understanding of the tax legislation in force in the various countries in order to carry out the necessary adjustments in a completely consistent way.
15. Tax sources never tell us about total income at the national level (even in the German states, where a significant fraction of the population had to submit a tax return), and estimating total income requires the use of macroeconomic series from the national accounts, which, for periods prior to the First World War, are even more uncertain and discontinuous than those for the interwar period, and which can be used only with the greatest caution (it would probably be preferable to start by comparing the levels of the various top income fractiles, and to worry about the denominator afterwards).
16. See the references cited in section 1.1.

17. See Kuznets (1953, table 118, 596).
18. See especially the very clear article by Procopovitch (1926), who, using British, Prussian, and Saxon tax statistics from the years 1900–1913, and comparing the results with an American estimate for the year 1910 from King (1915) and an Australian estimate from a study covering the years 1914–1915, concluded that the concentration of income was practically the same in the United Kingdom as in the German states (slightly greater in the United Kingdom), but significantly greater in those European countries than in the United States or Australia. However, the figures Procopovitch (1926, 72–75) provides suggest that this held more for the very new country of Australia than it did for the United States.
19. The most important difference is that Kuznets tried to take into account changes in the size of the households that made up the various income brackets (he tried to estimate the share of income per person going to the top fractiles of the American income distribution; for a detailed example of the method he followed, see Kuznets 1953, 302), whereas we did not take those changes into account (we estimated the share going to the top fractiles of the French income distribution, all households included, whatever their size); however, given that average household size changes only moderately within the top brackets, both in the United States (see Kuznets 1953, table 68, 249) and in France (see Appendix B, section 3.2), it is likely that applying the method followed by Kuznets to the French data would have a limited impact on our estimates. Note, also, that the deductions Kuznets carried out when moving from the macroeconomic series to an estimate of total fiscal income (all household combined) (see Kuznets 1953, 260) seem relatively limited compared to those we carried out, which is perhaps justified (given the differences between the macroeconomic series available in the two countries, and above all, the differences in the socioeconomic structures of the two countries—at the beginning of the century and in the interwar era, the share of self-employed was significantly lower in the United States), but which might also have caused Kuznets to underestimate the top-income share of total income (at least in comparison to our estimates).
20. According to the estimates by King (1915), and taken up by Williamson and Lindert (1980, 50–52), the share of wealth at time of death held by the top 1 percent of the American distribution of deceased in 1912 was about 50–55 percent, a level extremely close to what we estimated for France and slightly below estimates for the United Kingdom (see section 1.1). (King [1915] also provides an estimate for France in 1909, which is very close to our own estimates, and to our knowledge he is the only author to have analyzed French bequest statistics in this way.) However, according to the estimates carried out by Lampman (1962), and taken up and (slightly) adjusted by Williamson and Lindert (1980, 54) and Wolff (1994, 62–63; 1995, 78–79), it would seem that the share of total wealth held by the top 1 percent was closer to 45 percent than 50–55 percent in the United States in the early twentieth century. In any case, these figures demonstrate unambiguously that the United States at the start of the century was very far from the egalitarian model of a “settler state.”
21. See section 2.1.

22. See Kuznets (1953, table 118, 596).
23. *Ibid.*
24. Kuznets (1953, 285) justifies this methodological choice by discussing the problems posed by capital gains, which were of considerable importance for American recipients of top incomes in the interwar era, but which Kuznets chose to exclude from his concept of “income.” Given the importance of these capital gains (see Chapter 6, section 1.3), the contrast between the 1920s and the 1930s would be even greater if Kuznets had chosen to take them into account.
25. See especially Williamson and Lindert (1980, 315–316), who refer to the series published by Kuznets (1953, table 118, 596, and table 122, 635). See also Lindert (2000, 198–199), who reproduces the same series. The raw interwar tax data have sometimes been reanalyzed, for example, to study how American recipients of top incomes reacted to changes in marginal tax rates (see Saez 1999), but apparently never to reestimate the shares of total income going to the various top-income fractiles. This also explains why we do not have homogenous series for the United States going from 1913–1914 to the final decades of the twentieth century, as we will see in section 1.3.
26. See Kuznets (1953, table 118, 597–598).
27. The share going to fractile P99–100 fell from about 14–15 percent in 1913–1914 to about 8–9 percent in 1947–1948 (see Kuznets 1953, table 118, 596), a decline of about 6 percentage points; the share going to fractile P95–99 fell from about 10–10.5 percent in 1917–1918 to about 9–9.5 percent in 1947–1948 (see Kuznets 1953, table 118, 597–598), which corresponds to a decline of barely 1 percentage point, slightly more than 10 percent of the total decline of roughly 7 percentage points registered by fractile P95–100 (Kuznets’s estimates for fractile P95–99 only began in 1917 (only the top 1 percent was estimated for the years 1913–1916), but, given the very small decline for the top 1 percent between 1913 and 1917 (the top 1 percent share was 14 percent in 1917), there can be no doubt that the share going to fractile P95–99 could not have been greater than 10–10.5 percent in 1913–1914).
28. The P90–95 share usually stood at about 10–11 percent over the 1918–1948 period (see Kuznets 1953, table 118, 600–602) (the share going to fractile P90–95 was not estimated for the years 1913–1917), though with slightly lower levels at the beginning and the end of the period. The very rapid recovery over 1945–1948, however, shows that this decline in the position of the “middle classes” (fractile P90–95) was purely temporary, which corresponds very precisely to what we observed for France (see Chapter 2, Figure 2-10).
29. According to the so-called OBE-Goldsmith series, which come from income studies carried out in 1929, 1935–1936, and then regularly starting in 1941, the share going to fractile P95–100 fell from 30 percent in 1929 to 21 percent in 1946–1947, and the share going to fractile P80–100 fell from 54 percent in 1929 to 46 percent in 1946–1947 (see Lindert 2000, 198–199); in other words, the share going to fractile P95–100 declined by 9 percentage points, but the share going to fractile P80–95 did not decline at all (it even rose by 1 percentage point).



30. See especially the results presented by Kuznets (1953, table 123, 646), which indicate that the top 1 percent of the income distribution usually took almost 75 percent of the total dividends. However, since Kuznets's estimates do not go above the top 1 percent, they do not show to what extent capital incomes become preponderant within the upper strata of the top 1 percent. Generally speaking, there are very few estimates of the composition of income for the various top-income fractiles, so it is difficult to make a precise comparison between the results we obtained for France and the profiles observed in other countries. However, in all studies of incomes carried out in "capitalist" countries, we observe that the capital-income and mixed-income share is a rising function of the overall income level (see, for example, Atkinson, Rainwater, and Smeeding 1995, 99–101), and although these survey-based studies do not make it possible to specifically study the case of top incomes, there is no doubt that the profile observed in France is extremely general (only new analyses of the tax statistics available in the various foreign countries would be able to reveal any differences).
31. See Kuznets (1953, table 118, 596–601).
32. See Chapter 2, section 3.1.
33. See especially Kuznets (1953, 36–38) and Williamson and Lindert (1980, 86–88). Kuznets also made use of multiple studies, notably the 1948 study of tax fraud that we cited in Chapter 6 (section 2) to show that problems of evasion (legal or otherwise) could not explain the changes observed (see Kuznets 1953, chapter 11, 435–468), where Kuznets concludes that evasion is practically null for wages and dividends, and that the problem arises more for small incomes, especially after the very large decline in the real threshold of taxation that took place in the 1940s.
34. For series illustrating the very high degree of long-term stability in the labor and capital shares of business value-added in the United States and the United Kingdom (with a roughly one-third share for capital and a two-thirds share for labor, as in France), see, for example, Atkinson (1983, 201–202).
35. See Kuznets (1953, 36–38).
36. See Chapter 1, Figure 1-5.
37. See the estimates for large wealth holdings' share of total wealth carried out by Lampman (1962), based on American bequest statistics from the years 1922–1956, which were adjusted by Williamson and Lindert (1980, 54), Lindert (2000, 188), and Wolff (1994, 62–63; 1995, 78–79), and which we will revisit in section 1.3.
38. All the factors mentioned in this section have obviously been cited by American authors, but no one seems to have tried to precisely quantify their exact role.
39. According to our estimates for France, the share of total bequests accounted for by the top 1 percent of the distribution of wealth at time of death was about 55 percent in the early twentieth century, before returning to a level of about 50 percent in the late 1920s, then standing at about 30 percent after the Second World War (see Appendix J, Table J-11, column P99–100); according to the estimates from Lampman (1962), taken up and adjusted by Williamson and Lindert (1980, 54), Lindert (2000, 188), and Wolff (1994, 62–63; 1995, 78–79), for the United States, the share of total



wealth held by the top 1 percent of the wealth distribution was barely 40 percent in the late 1920s (a level probably about 5 percentage points below what it had been at the beginning of the century), and it was about 30 percent at the end of the Second World War. The levels are not strictly comparable (our estimates cover only wealth at time of death, whereas American estimates, along with the British estimates from Atkinson and Harrison [1978] were extended to the entire population), but the gap between the changes observed over time (a 20–25 percentage point decline in France, and only 10–15 percentage points in the United States) seems significant.

40. According to the estimates carried out directly by the British tax administration, and reproduced by Lindert (2000, 176), the share of total income going to fractile P80–100 fell from 52.4 percent in 1938 to 45.3 percent in 1949, and the share going to fractile P95–100 fell from 31.5 percent to 23.1 percent, which means that the P80–95 share did not decline at all (21.9 percent in 1938, 22.2 percent in 1949); likewise, since the share going to fractile P99–100, by the same estimates, fell from 17.1 percent in 1938 to 10.6 percent in 1949, this means that the P95–99 share declined by barely more than 10 percent (14.4 percent of total income in 1938, 12.5 percent in 1949). The estimates available for 1911–1912 are far more uncertain, but they also indicate that the decline in the shares going to fractiles P80–95 and P95–99 between 1911–1912 and 1949, assuming they are correct, was in any case significantly smaller than the decline in the P99–100 share (see the estimates reproduced by Lindert 2000, 175–177).
41. For the estimate from Bowley for 1911–1912, see the references given in the notes of section 1.1. The estimates for the years 1938 and 1949 were both carried out by the British tax administration; they are reproduced by Lindert (2000, 176–177), so it may be assumed that they are more or less consistent. For 1929, we have an estimate from Clark (1937), and taken up by Kuznets (1955, 4–5) and Kraus (1981, 218), according to which the share going to fractile P90–95 in 1929 was 33 percent; given the level estimated for 1938 for the P95–100 share (31.5 percent), we can infer that the P99–100 share was about 18 percent in 1929. Seers (1951) also estimated the P95–100 share in 1947, and the result (2.4 percent), which was also cited by Kuznets (1955, 4–5) and Kraus (1981, 218), is very close to the estimate for the year 1949 (23.1 percent).
42. The isolated estimates cited above for the top 1 percent share (20 percent in 1911–1912, 18 percent in 1929, 17 percent in 1938, and 10–11 percent in 1949) do not allow us to measure the magnitude of the collapse brought about by the First World War, but the fact that the 1929 level was only just below that of 1911–1912 suggests that the collapse was limited. See also the estimates for 1913–1914 and 1919–1920 carried out by Procopovitch (1926, 75) based on the statistics from the “super-tax,” according to which the ratio between the average income of fractile P99.9–100 of the British income distribution and the average income for the overall population fell from 122 in 1913–1914 to 115.5 in 1919–1920, which represents a relatively small decline.
43. According to the estimates from Atkinson and Harrison (1978, 139 and 159), the share of total wealth held by the top 1 percent of the British wealth distribution

- experienced a collapse on the order of 15–20 percentage points over the 1914–1945 period (from about 65–70 percent of total wealth at the beginning of the century to about 55–60 percent in the 1920s and about 50 percent at the end of the Second World War), which stands in an intermediate position between the drop of roughly 10–15 percentage points observed for the United States and that of roughly 20–25 percentage points observed for France (see later in this section).
44. These estimates, taken up by Kraus (1981, 216) and partially reproduced by Morrisson (2000, p. 233), were compiled and published by the German authorities in 1939 (for the years 1913, 1926, 1928, 1932, 1934, and 1936) and in 1954 (for the years 1936 and 1950); and no estimates other than these “official” estimates appear to exist.
45. According to the estimates published by the German tax administration, the share going to fractile P90–100 fell from 40.5 percent in 1913 to 31.7 percent in 1950, and the share going to fractile P95–100 fell from 31 percent in 1913 to 21.5 percent in 1950 (see Kraus, 216) (the series published in 1939 and the series published in 1954 were joined together at the year 1936), which means that the “middle-class” share (fractile P90–95) did not decline at all (9.5 percent in 1913, 10.2 percent in 1950). In fact, the estimates published by the German tax administration (and taken up by Kraus [1981, 216]) show that the share going to fractile P90–95 stood at about 10 percent not only in 1913 and 1950, but also all of the years in between (1926, 1928, 1932, 1934, and 1936); the French and American “middle classes” (fractile P90–95), though also characterized by a very high degree of stability (with a share of total income usually gravitating to around 10–11 percent), experienced far more marked short-term fluctuations; see Chapter 2, Figure 2-10, and Appendix B, Table B-15, column P90–95 (for France) and Kuznets (1953, table 118, 600–602) (for the United States) (the extreme stability of the German “middle classes” seems almost “too” great, and here again the raw tax data warrant reanalysis to clarify this point).
46. Unfortunately, the estimates published by the German administration, as they are reproduced in Kraus (1981, 216), do not go above fractile P95–100, and only a new analysis of the raw tax data would make it possible to study precisely the evolution of these percentiles, tenths of a percentile, and hundredths of a percentile at the top of the German income distribution. However, given that the P90–95 share did not decline at all between 1913 and 1950, and given what we have observed in all the other countries, it is legitimate to suppose that most of the decline in the P95–100 share was due to fractile P99–100. Furthermore, given that the top 1 percent share on the eve of the First World War was about 19 percent (or slightly more) in the various German states (see section 1.1), it is reasonable to use this as a starting point for Germany in 1913, along with a 32 percent share (or slightly more) for fractile P95–100; the 31 percent share given by Kraus (1981, 216) seems too low in light of the roughly 34 percent share given by Kaelble (1986, 32–33) for the Saxon fractile P95–100 in the years 1911–1913. Since the P95–100 share then went on to be 24.8 percent in 1926, 26.3 percent in 1928, 23.2 percent in 1932, 23.5 percent in 1934, 25.2 percent in 1936, and 21.5 percent in 1950 (see Kraus 1981, 216) (the 1939 series and the 1954 series were joined together at the year 1936), it may thus be supposed

- that the top 1 percent share of the German income distribution fell from 19 percent (or slightly more) in 1913 to 11.8 percent in 1926, 13.3 percent in 1928, 10.2 percent in 1932, 10.5 percent in 1934, 12.2 percent in 1936, and 8.5 percent in 1950.
47. Recall that the share of total income going to the top 1 percent reached its absolute lowest level in 1944–1945 in France (7.5 percent in 1945), before recovering very rapidly and stabilizing at around 9 percent by 1946–1947 (see Chapter 2, Figure 2-14, and Appendix B, Table B-14, column P90–100). Likewise, it is very surprising that the capital share of value-added within German business did not experience as large a collapse in 1944–1945 as we observed in France (see Chapter 1, Figure 1-5).
  48. Unfortunately, we do not have any estimates for the evolution of wealth concentration in Germany (German bequest statistics have apparently never been analyzed).
  49. See the series reproduced by Kraus (1981, 216) and cited in notes 41 and 44–46.
  50. As noted in section 1, it appears that no historical study exists of income inequality in the countries of southern Europe. For Switzerland, Austria, and Belgium, it would also appear that no estimates are available for periods prior to the Second World War (see, for example, Kraus [1981, 218], whose series for Switzerland begins in 1949), with the exception of a few rare local studies (see, for example, Kaelble [1986, 34–35], who cites a study on income inequality in Graz in the early twentieth century).
  51. Besides the fact that these estimates never go above the top half-decile, and as noted in the notes of section 1.1, available estimates for the Nordic countries, taken up by Kraus (1981) and Morrisson (2000), are usually from relatively old studies published only in the languages of the countries in question; here again, it would be necessary to go back to the raw tax data produced by the governments of the different countries to have any hope of arriving at reliable comparisons.
  52. In Holland, according to the series from Hartog and Veenbergen (1978), and taken up by Morrisson (2000, 230), the top-decile share of total income fell from 42 percent in 1914 to 34 percent in 1950. In Sweden, according to estimates taken up by Kraus (1981, 217) (see also Morrisson 2000, 228), the top-decile share fell from 39.5 percent in 1935 to 30.3 percent in 1948. In Denmark, according to the estimates taken up by Kraus (1981, 215) (see also Morrisson 2000, 221), the top-decile share fell from 39 percent in 1908 to 29.5 percent in 1949. In Finland, according to the estimates taken up by Kraus (1981, 215) (see also Morrisson 2000, 228), the top-decile share fell from 50 percent in 1900 to 29 percent in 1952. In Norway, according to the estimates taken up by Morrisson (2000, 224), the top-decile share fell from 30 percent in 1900–1910 to 19 percent in 1948–1950 (for Norway, we also have estimates from Soltow [1965], also taken up by Morrisson [2000, 224], showing a very sharp decline in the Gini coefficient between 1900–1910 and 1948–1950).
  53. In Sweden, according to estimates taken up by Kraus (1981, 217), the P90–100 share fell from 39.5 percent in 1935 to 30.3 percent in 1948, and the share going to fractile P95–100 fell from 28.1 percent to 20.1 percent; in other words, the P90–95 share almost did not decline at all (11.4 percent in 1935, 10.2 percent in 1948). In Denmark, according to the estimates taken up by Kraus (1981, 215) (see also Morrisson

- 2000, 221), the top-decile share fell from 39 percent in 1909 to 29.5 percent in 1949, and the top half-decile share fell from 30 percent to 19.1 percent; in other words, the P90–95 share did not decline at all (9 percent in 1908, 10.4 percent in 1949). In Finland, according to estimates taken up by Kraus (1981, 215) (see also Morrisson 2000, 228), the top-decile share fell from 50 percent in 1900 to 29 percent in 1952, and the top half-decile share fell from 40 percent to 18 percent; in other words, the P90–95 share did not decline at all (10 percent in 1900, 11 percent in 1952). Available estimates do not go beyond the top half-decile, but, given the extreme stability in the P90–95 share, and given results obtained in other countries (notably France), it seems reasonable to suppose that the decline in the P95–100 share is explained mainly by the decline in the P99–100 share (and even, to an extremely large extent, by the decline in the share going to the upper strata of the top 1 percent).
54. These estimates, from Hartog and Veenbergen (1978) and taken up by Morrisson (2000, 230), which do not go beyond the top decile, show that the top-decile share rose from 42 percent in 1914 to 47.6 percent in 1915 and 49.6 percent in 1916, before declining sharply starting in 1917 and settling at around 40 percent in the early 1920s (the increase observed in 1915–1916 seems almost “too” large; since the series starts in 1914, it is hard to say whether the top-decile share experienced a significant short-term decline in 1914; moreover, since the series stops in 1939, and resumes only in 1946, it is impossible to precisely compare the first and last years of each of the two world wars).
55. According to the estimates of Kuznets (1953, table 118, 596), the top 1 percent share of total income declined in 1914, then grew significantly in 1915–1916, and only started to decline in a lasting way in 1917. According to our estimates, it was in 1916 that the top 1 percent share (and the shares of higher fractiles) reached its highest historical level, and the decline also started in 1917 (see Appendix B, Tables B-14 and B-15).
56. See Chapter 2, section 2.2.
57. According to the estimates carried out by Procopovitch (1926, 72) and Bresciani-Turoni (1936, 119–121) from Prussian tax statistics from 1913 and 1918–1919, the unequalizing effect of the initial war years was so great that income concentration in Prussia in 1918–1919 was greater than its 1913 level. Given the very large drop in the top 1 percent share of total income observed in Germany between 1913 and 1928, these results suggest that the German hyperinflation of the 1920s had extremely massive equalizing effects (here again, it would be necessary to go back to the raw tax statistics to properly grasp the different episodes of this eventful chronology).
58. The phrase *Trente Glorieuses* is more applicable to the countries of Continental Europe than to the United Kingdom and United States, for which the exceptional character of the period was far less visible in a long-term perspective; nevertheless, this expression simplifies the exposition (at least for a French reader), and we will continue to use it to refer to the period from the immediate postwar years to the late 1970s.
59. See Chapter 2, Figure 2-6, and Appendix B, Table B-14, column P90–100.

60. See Chapter 2, Figures 2-8, 2-10, 2-12, and 2-14, and Appendix B, Tables B-14 and B-15.
61. Because the American tax statistics from the years 1913–1948 have never been reanalyzed since Kuznets's study (1953), unfortunately there is no continuous and consistent series to measure the evolution of American top-income shares of total income over the entire century. But the available estimates leave no doubt with regard to the very high degree of stability in the *Trente Glorieuses* period: according to the so-called OBE-Goldsmith series, cited in note 29, the P90–95 share of total income, after falling from 30 percent in 1929 to 21 percent in 1946–1947, stabilized at around 20–21 percent until the 1970s, and the P80–100 share, after falling from 54 percent in 1929 to 46 percent in 1946–1947, stabilized at around 45–46 percent until the 1970s (see Lindert 2000, 198–199); the estimates carried out by Brittain (1972) based on statistics from the American Social Security system (and taken up by Williamson and Lindert 1980, 316) also show that the P95–100 share remained frozen at around 20–21 percent over the 1950s and 1960s; the series derived directly from the Census Bureau's Current Population Survey (CPS) also show a very high degree of stability for top incomes from the 1950s to the 1970s, with perhaps a slight downward trend (see Lindert 2000, 198–199); the same goes for the series derived from tax statistics, covering the P99.5–100 share, which we will discuss shortly.
62. See the references in note 74.
63. According to the synthetic index developed by the DIW Institute, and taken up by Atkinson, Rainwater, and Smeeding (1995, 67), income inequality remained extremely stable in Germany over the 1950s and 1960s, before declining in the early 1970s. However, compared to what we observed in France, the compression of inequality observed in Germany in the early 1970s seems to have been of far more limited magnitude (which is probably explained by the fact that German inequality hardly grew at all over the 1950s and 1960s). We will also note that according to estimates published by the German tax administration, and taken up by Kraus (1981, 216), an initial decline took place between 1965 and 1968: the P90–100 share of total income was extremely stable between 1950 and 1965 (36.0 percent in 1950, 36.7 percent in 1965), before falling to 32.8 percent in 1968 (this decline was mainly due to fractile P95–100, whose share fell from 26.0 percent in 1950 and 27.2 percent in 1965 to 24.3 percent in 1968; we should note that these estimates that start in 1950 are not comparable with those also published by the German government for the 1913–1950 period; we have not attempted to adjust the significant gap between the two series for the year 1950).
64. In Holland, according to the series from Hartog and Veenbergen (1978), taken up by Morrisson (2000, 230), the P90–100 share of total income was completely stable from 1950 until the mid-1960s (at about 33–34 percent), before declining slightly in the late 1960s and early 1970s. In Sweden, according to the estimates taken up by Kraus (1981, 217), the P90–100 share was completely stable from the early 1950s until 1968 (at around 32–33 percent), before declining slightly in the late 1960s. In Denmark, according to the estimates taken up by Kraus (1981, 215) (see also Morrisson

- 2000, 221), the P90–100 share was also totally stable over the 1950s and 1960s (at about 27–28 percent; the series unfortunately stops in the late 1960s).
65. The British case, which involves certain particularities, though without undermining our overall interpretation (quite the contrary), will be examined shortly.
  66. See Chapter 5, section 3.2.
  67. The only long-term estimates of average tax rates that we are aware of are for the United States (see Steuerle and Hartzmark [1981] and Scheuren and McCubbin [1987–1988, 1988]), and they are not perfectly comparable with those we carried out for France (the estimates by Steuerle and Hartzmark do not cover the interwar period, and those from Scheuren and McCubbin were calculated for fixed income levels in constant francs, or for fractiles defined only in terms of taxable households, rather than fractiles defined in terms of all households).
  68. The only monographs devoted to the history of the income tax of which we are aware are for the United States (see Witte [1985] and Stanley [1993]) and the United Kingdom (see Sabine [1966]), and those works do not really meet our purposes here because they do not give a complete historical picture of income tax schedules, and most importantly, they do not look at the precise distributional position of the income levels targeted by the different rates in the different periods.
  69. See Kuznets (1953, 252).
  70. The marginal rates on the highest incomes (taking into account all exceptional surtaxes, surtaxes on childless taxpayers, etc., but without taking into account schedular taxes and the proportional tax) reached a 90 percent level for only five years in the history of the income tax in France (1924 and 1941–1944; see Chapter 4, Figure 4-1), whereas the 90 percent level was exceeded for more than twenty years in the United States (without taking into account exceptional surtaxes and the taxes of the various American states).
  71. In the United Kingdom, the top rates on “earned” income were for a long time lower than the top rates on capital incomes (this was a vestige of the schedular system), and only since 1984 has the top marginal rate been the same for all income categories. A similar system was also in place in the United States: from 1969 to 1981, the top marginal rate was 50 percent for “earned” incomes, and the 70 percent top marginal rate applied only to capital incomes.
  72. See section 2.1. The importance one attaches to the dynamic impact of the progressive income tax on pretax inequality obviously depends on one’s vision of the decline in inequality that took place in the years 1914–1945: if one sees that decline as having been due to a general and structural decline in all forms of income inequality (rather than a phenomenon mainly limited to a short-term shock experienced by very high capital incomes), then it makes sense to attribute only limited importance to the issue of the reconstitution of large fortunes.
  73. See Lampman (1962, 229–237).
  74. According to estimates carried out directly by the British tax administration, and reproduced by Lindert (2000, 176), the P99–100 share of total income fell from about 11 percent in 1949 to about 6 percent in the 1970s, the P95–100 share fell



- from about 23 percent in 1949 to about 16–16.5 percent in the 1970s (the P95–99 share thus fell from 12 percent in 1949 to 10–10.5 percent in the 1970s, a decline less than one-third the size of that experienced by the top 1 percent), and the P80–100 share fell from about 45 percent in 1949 to about 39–39.5 percent in the 1970s (the P80–95 share thus did not decline at all: it was 22 percent in 1949, 23 percent in the 1970s). The estimates carried out by combining tax statistics with income surveys (the so-called Blue Book series), reproduced by Nolan (1987, 14; 1988–1989, 202–203) and Lindert (2000, 177), are very slightly different, and indicate a similar phenomenon.
75. In France, the top 1 percent share of total income was about 7.5–8 percent at the end of the Second World War, then rose to 9.5–10 percent in the 1960s, before returning to a level of about 7.5–8 percent in the late 1970s (see Chapter 2, Figure 2-14, and Appendix B, Table B-14, column P99–100).
  76. We will revisit the unique nature of this event below (see section 2).
  77. On the tax rates in effect in France, see Appendix J, section 3.
  78. According to the estimates from Atkinson and Harrison (1978, 159), the share held by the top 1 percent of the British wealth distribution was about 50 percent at the end of the Second World War, and it was just over 30 percent in the early 1970s.
  79. See Atkinson and Harrison (1978, 239–240). It must be emphasized that Atkinson and Harrison did not go beyond the top 1 percent of the wealth distribution, so the top inheritance-tax rates (which apply only to very large fortunes) are not really taken into account by their analysis; in addition, Atkinson and Harrison limit themselves to the inheritance tax and do not take into account the impact of the dizzyingly high marginal rates on very large capital incomes under the income tax; it is likely that the “tax” factor would appear even more significant in their econometric equations if all these aspects had been taken into account. See also Phelps-Brown (1988, 380–381).
  80. See Chapter 2, Figures 2-6, 2-8, 2-10, 2-12, and 2-14, and Appendix B, Tables B-14 and B-15.
  81. In Germany, according to estimates from income surveys cited by Hauser and Becker (1997, 200–202) (and partially reproduced by Atkinson, Rainwater, and Smeeding 1995, 67), the P80–100 share of total income rose from about 37–38 percent in the 1970s to about 39–40 percent in the 1980s, and 40–41 percent in the 1980s and 1990s (if we look in terms of after-tax and transfer income, however, we observed that the P80–100 share remained almost totally stable) (here again, these German estimates from the 1970s to the 1990s are not comparable with those from earlier periods, so it is pointless to try to undertake long-term comparisons). In Holland, Sweden, Denmark, Norway, etc., we observe the same type of phenomenon: the shares of total income going to the top-income fractiles rose slightly in the 1980s and 1990s, and this trend was to a large extent canceled out by taxes and transfers; see notably the comparative data for the 1970s to the 1990s collected by Atkinson, Rainwater, and Smeeding (1995), Gottschalk, Gustafson, and Palmer (1997), and Gottschalk and Smeeding (2000).
  82. See the references in note 84.

83. See the references in note 84.
84. These changes in the positions of the United Kingdom and United States in the league tables of Western inequality are attested by the comparative data on the 1970–1990 years gathered by Atkinson, Rainwater, and Smeeding (1995), Gottschalk, Gustafson, and Palmer (1997), and Gottschalk and Smeeding (2000). See also the wage inequality data reproduced in Piketty (1997, 19), according to which the P<sub>90</sub> / P<sub>10</sub> ratio of the wage distribution in 1970 was barely higher in the United Kingdom than in Sweden (2.5 versus 2.1), versus 3.2 in the United States, and 3.7 in France; by 1990, the rankings had changed completely: Sweden was still at 2.1 (the increase in the 1980s canceled out the decline of the 1970s), but France was at 3.2 (the increase in the late 1980s did not cancel out the previous declines), the United Kingdom was at 3.3, and the United States was at 4.5. In other words, it was not only the very sharp compression of British wealth inequality that took place over the *Trente Glorieuses* that explains why the United Kingdom became far less unequal than France in the early 1970s, but the phenomenon is also explained by the significant growth of French wage inequality over the 1950s and 1960s, at a moment when British wage inequality, by contrast, was tending to decline. However, it must be noted that available estimates do not allow these comparisons to be fleshed out in a completely satisfactory way: the comparative data available for the years 1970–1990, both for wages and for incomes, are often expressed solely in terms of P<sub>90</sub> / P<sub>10</sub> ratios, P<sub>90</sub> / 50 ratios, etc. (rather than in terms of the various fractiles' shares of total income or total wages), and as noted earlier, these ratios are often excessively volatile (see Chapter 3, section 3.2). Moreover, it was this fragility of P<sub>90</sub> / P<sub>10</sub>-type indicators that INSEE pointed to in the 1970s when expressing its opposition to a study published by the OECD placing France at the top of the league tables of Western inequality (see Bégué 1976) (as it happens, the OECD study covered the late 1960s and early 1970s, and the place given to France was probably justified; it is no less true that, given significant differences in the methods used to estimate low-income levels in different countries, the use of P<sub>90</sub> / P<sub>10</sub>-type indicators caused French inequality to be artificially overstated).
85. See, for example, Katz, Loveman, and Blanchflower (1995, figure 1).
86. See, for example, Juhn, Murphy, and Pierce (1993).
87. On the French case, see Chapter 3, section 2.3, Figures 3-2, 3-4, 3-6, 3-8, and 3-9. The estimates available for Germany, Sweden, Holland, etc., suggest that wage inequality in all these countries experienced the same type of moderate widening in the 1980s and 1990s as that we observed for France. See, for example, the P<sub>90</sub> / P<sub>10</sub>-type indicators reproduced in Piketty (1997, 19).
88. See especially Bourguignon and Martinez (1997), who, in analyzing files from the “Budgets des familles” studies carried out by INSEE in 1979, 1984, 1989, and 1994, showed that in the absence of unemployment benefits and social transfers, income inequality among working-age individuals would have grown at an extremely rapid pace in France (as in the United Kingdom and United States). See also the references given above for Germany and the Nordic countries.



89. According to the estimates carried out directly by the American tax administration, and taken up by Feenberg and Poterba (1993, 149), the P80–100 share rose from 45.6 percent in 1977 to 51.4 percent in 1988 (an increase of 5.8 percentage points), the P80–90 share fell from 15.6 percent to 15.3 percent (a decline of 0.3 percentage points), the P90–95 share remained stable at 10.1 percent, the P95–99 share rose from 11.6 percent to 12.6 percent (an increase of 1 percentage point), and the P99–100 share rose from 8.3 percent to 13.4 percent (an increase of 5.3 percentage points). We do not have a similar decomposition for the 1990s, but the estimates available show that the very sharp growth in the top 1 percent share continued (see below). In addition, estimates derived from income surveys, though they do not make it possible to study the case of very high incomes, confirm that the increase in inequality was extremely concentrated: for example, according to estimates derived from the CPS, and reproduced by Lindert (2000, 198–199), the P80–100 share rose from 44.4 percent in 1981 to 49.1 percent in 1994, and the P95–100 share rose from 16.5 percent to 21.2 percent; in other words, the P80–95 share did not increase at all (27.9 percent in 1981, 27.9 percent in 1994).
90. According to estimates carried out by Feenberg and Poterba (1993, 160) based on American tax statistics, the P99–100 share of total income rose from 8.8 percent in 1979 to 14.4 percent in 1989 (an increase of 5.6 percentage points), and the P99.9–100 share rose from 2.6 percent in 1979 to 6.0 percent in 1989 (an increase of 3.4 percentage points, which represents more than 60 percent of the total increase in the P99–100 share).
91. See notably Goodman, Johnson, and Webb (1997, 92–94). Let us also note that, according to the so-called Blue Book and Economic Trends series compiled by the British authorities, and reproduced by Lindert (2000, 177–178), the P80–100 share of total income, after reaching its absolute lowest point in the 1970s, seemed to have regained its 1949 level in the 1990s (the level possibly had even been exceeded slightly; the breaks in the series do not allow us to be entirely certain). While we do not have series for the evolution of the top 1 percent share, there is every indication that in the 1990s it also regained a level close to what it had been in 1949 (that is, a level of about 10–11 percent), after having reached a low point of about 6 percent in the 1970s.
92. The estimates provided by Feenberg and Poterba (1993, 149 and 160) show that the P99–100 share of total income was about 8–9 percent in the 1970s (a level equivalent to that estimated by Kuznets for the years 1947–1948), and that this P99–100 share rose to 13–14 percent in the late 1980s. These estimates are consistent with those carried out by Gramlich, Kasten, and Sammartino (1993, 133), who find that the P99–100 share rose from 10.1 percent in 1980 to 14.1 percent in 1990. The P99–100 share declined slightly over the American recession of the early 1990s, before moving upward again since 1993: by calculating the Pareto coefficients implied by the latest published tax statistics (see *The Budget and Economic Outlook: Fiscal Years 2001–2010*, chapter 3, p. 10, table 3-4 [Congressional Budget Office, January 2000]), we can estimate that the P99–100 share of total income rose from 13.4 percent in

- 1993 to 15.4 percent in 1998, a level equivalent to that estimated by Kuznets for the years 1913–1914. We note, however, that according to estimates derived from the CPS and reproduced by Lindert (2000, 198–199), the P95–100 share of total income, despite a sharp increase, remained significantly below its 1913–1914 level in the 1990s; the level in the 1990s was closer to that of the 1930s than to that from the beginning of the century (this inconsistency is probably explained by the fact that the CPS does not allow very high incomes to be measured properly).
93. See Chapter 2, Figure 2-14, and Appendix B, Table B-14, column P99–100.
94. This shows that the long-term collapse of very high capital incomes observed in France and in all other European countries (including the United Kingdom, where at the end of the century the top 1 percent share of total income, despite its recent recovery, was about half the level it was at the beginning of the century) cannot be explained by the notion of a generalized expatriation of large fortunes from the Old World to the United States: the share of total income going to very high incomes in the United States has only just recently regained its level from the beginning of the century, and this level would have to be far exceeded for the United States to have taken on all the large European fortunes (with respect to France, recall, too, that all taxpayers fiscally domiciled in France—that is, those who live there more than six months per year—must declare all of their worldwide income in France for the French income tax, and all of their worldwide assets for the French inheritance tax).
95. According to the projections carried out by Shapiro and Greenstein (1999, 7), the share of disposable income held by the top 1 percent will be 12.9 percent in 1999 in the United States.
96. According to the estimates carried out by Feenberg and Poterba (2000, 7–8 and 12) based on American tax statistics, the wage share of total income declared by households of the P99.5–100 fractile of the American income distribution rose from 10–15 percent in the 1970s to about 30 percent in the 1990s. However, the income categories used by Feenberg and Poterba were relatively ambiguous (for example, the growth in the wage share seems to be explained by the growth of stock options, which are included in wages; the very rapid growth in the “other incomes” share also poses a problem), and this issue warrants systematic study. In any event, it is important to emphasize that the trend toward rising income concentration also affected capital incomes, and that the latter remain far more concentrated than wages (according to the estimates carried out by Gramlich, Kasten, and Sammartino [1993, 235], the share of the total wage bill held by the best-off 1 percent of households (in terms of total income) rose from 6.0 percent in 1982 to 9.2 percent in 1990, and the share of capital income held by the best-off 1 percent of households (in terms of total income) rose from 34.1 percent in 1980 to 38.8 percent in 1990: thus, the increase was proportionally greater for wages, but capital incomes remain far more concentrated).
97. See Wolff (1994, 62–63; 1995, 78–79); these estimates are partially reproduced by Lindert (2000, 188).
98. The fact that wage inequality sharply increased over the 1980s and 1990s, which Wolff (1994, 1995) brought to light using surveys that were totally independent of

- tax sources, also shows that the trend toward rising income concentration is not a “tax illusion” (according to that explanation, the rising concentration of incomes is simply because the sharp decline in top marginal rates encouraged recipients of very large incomes to engage less in fraud). Studies by Goolsbee (1997) and by Hall and Liebman (2000) have also shown that the very sharp increase in executive pay has been going on continuously since the 1970s, and that changes in top marginal rates have had only a limited impact on this process (that conclusion goes against the thesis advanced by Feenberg and Poterba [1993, 2000]). We should add that the fact that rising income concentration took place continuously seems far more consistent with the idea that the decline in top marginal income tax rates had a “real” impact on the savings capacities of wealthy taxpayers than with the idea of a tax illusion.
99. The phrase “the tip of the iceberg” has to our knowledge never been used to refer to this issue (specifically, it was not used by Kuznets), but it seems relatively appropriate to us: no one has tried to deny that the shocks of 1914–1945 (wars, inflation, bankruptcies, etc.) played an important role, at least from a short-term point of view, and the question is whether this “obvious” process hid a “deeper” structural process; this is brought out with particular clarity in the formulation adopted by Williamson and Lindert (1980), as we will see in section 2.1.
  100. See, for example, Lindert (2000) and Morrisson (2000). Both take up, to varying degrees (see section 2.1), the idea that the shocks of 1914–1945 were greatly amplified by a spontaneous process of declining inequality.
  101. See Chapter 3.
  102. See Chapter 3, sections 2.2 and 3.1.
  103. See Chapter 3, section 2.3.
  104. Recall that our finding of long-term stability in wage hierarchies takes into account the effects of transfers of manpower from the agricultural to the industrial sector, since the low-wage group at the start of the century and the interwar period was made up to a great extent of agricultural laborers and farm domestic workers.
  105. Generally speaking, there have been few historical studies on wage inequality, and the few available estimates are extremely thin. See Lindert (2000, 194 and 196), who, in discussing the long-term evolution of wage inequality in the United States and United Kingdom, has only a few occupational or sectoral series, based on ratios of the type: (wage of skilled workers) / (wage of laborers), (wages of engineers) / (wages of skilled workers), etc., without giving any indication of the headcounts involved; these series were also used in Williamson and Lindert (1980) and Goldin and Margo (1992), as we will see in notes 125 and 127, and make no reference to any wage-inequality estimates expressed in terms of fractiles. See also Morrisson (2000, 246), who, in discussing the case of the Continental European countries, faced an even smaller literature: he had only a few types of occupational or sectoral data of the same type as those used by Lindert, and in addition, these European data covered only a few isolated years. To our knowledge, the only wage-inequality estimates in terms of fractiles covering all wage earners (all sectors and occupations included) and looking at periods prior to the Second World War are those for the nineteenth-

- century United Kingdom by Williamson (1985, 40) (those estimates are also used in Williamson [1991, 63]). We will revisit these estimates by Williamson when we deal with the evolution of inequality in the nineteenth century (see section 2.3).
106. See Chapter 3, section 2.4.
107. See the estimates and references given in the notes to sections 1.1 to 1.3.
108. It is interesting to note that the same immutable orders of magnitude also prevailed in the Soviet Union and in the Communist countries, which instituted wage hierarchies that were apparently very close to those observed on the other side of the Iron Curtain (which, moreover, is consistent with the fact that the French Communists never really tried to question wage hierarchies as they existed in France; see Chapter 5, section 2.3): for example, according to estimates carried out by Atkinson and Mickelwright (1992, 381, table UI12), the P<sub>90</sub>–95 share of total income in the USSR in the 1980s stood at about 10 percent (the estimates are very slightly below 10 percent, but this is because they involved the distribution of per capita income, that is, after adjusting for household size). However, we must stress again that only estimates showing the long-term evolution of wage inequality in different countries, expressed in terms of fractiles and breaking out the different top-wage fractiles, would make it possible to carry out genuinely satisfactory international comparisons (in particular, only such estimates could allow us to determine the historic significance of the apparent explosion in American “super-manager” wages in the 1980s and 1990s).
109. See Kuznets, (1953, xxxvii–xxxviii).
110. See Kuznets (1953, xxxvii–xxxviii and 173–218). It may also be noted that Kuznets’s results seem to show that progressive taxation should have been enough to perpetuate the shocks of 1913–1948 (though Kuznets is not very explicit on this point): using income surveys carried out in 1935–1936, 1941, and 1944–1947, Kuznets finds extremely stable saving rates (expressed as a percentage of disposable income) among top incomes, which, given the large decline in their share of pretax income and the sharp increase in top income tax rates, means that these social groups were not close to regaining their past social position.
111. See Kuznets (1955, 4–5).
112. See Kuznets (1955, 7–10).
113. See Kuznets (1955, 2–18). As noted in Chapter 2, section 2.4, the specific mechanism Kuznets described was based on the idea of a gradual transfer of population from a poor agricultural sector to a rich industrial sector (only a minority initially benefits from the wealth of the industrial sector, hence an increase in inequality, then everyone benefits, hence the reduction of inequality), but it goes without saying that this highly stylized mechanism could take a more general form (for example, gradual transfers of manpower between different industrial sectors or different more or less remunerative occupations, etc.). In his 1955 article, Kuznets gave a numerical illustration showing how transfers of manpower from the agricultural sector to the industrial sector could bring about a decline in inequality, but this was a purely theoretical simulation, with no direct relationship to the empirical results from his 1953 book (see Kuznets 1955, 13).

114. See Kuznets (1955, 26).
115. See Kuznets (1955, 24).
116. The very few monographs and overviews devoted to the evolution of inequality in European countries deal solely with the nineteenth century (see especially Williamson [1985] and Kaelble [1986]), so these studies do not explicitly deal with the 1914–1945 period (we will return to these studies when we deal with the evolution of inequality in the nineteenth century; see section 2.3). The “tip-of-the-iceberg” theory for European countries was thus embraced essentially by analogy with the American case—that is, by assuming that the conclusions advanced by Kuznets (1955) and Williamson and Lindert (1980) for the United States also applied to Europe (see, for example, Morrisson 1991, 2000). We should note, however, that Morrisson shows great caution in regard to this theory (and rightly so): as we noted earlier when examining the French case (see Chapter 3, section 2.4), Morrisson explicitly makes clear that occupational and sectoral statistics cannot demonstrate satisfactorily that wage inequality actually experienced a structural compression over the first half of the twentieth century.
117. See Williamson and Lindert (1980, xix–xx).
118. In fact, although Williamson and Lindert, in their 1980 work, extensively discuss the short-term shocks arising from the “depression, war, inflation” trio (their entire book was written with the goal of moving beyond that explanation), they make no explicit reference to the fact that progressive taxation can have a structural impact not only on inequality of disposable income, but also on inequality of pretax income (due to its effects on savings capacities and wealth inequality). But their thinking seems to have evolved on this point, since Lindert (2000, 171–172) grants this mechanism a much more important role (generally speaking, Lindert [2000] is far more cautious about the “tip-of-the-iceberg” theory than Williamson and Lindert [1980] had been).
119. As we noted in section 1.2, Williamson and Lindert, like all authors coming after Kuznets, were content, when studying top incomes, to use Kuznets’s series, which in particular means that they were not able to study the trajectories followed by the upper strata of the top 1 percent of the income distribution.
120. See Williamson and Lindert (1980, 155–177 and 239–254).
121. See Williamson and Lindert (1980, 203–213 and 239–254).
122. Except when it comes to immigration, which in any case plays a relatively secondary role in the explanatory model advanced by Williamson and Lindert.
123. See especially Borjas, Freeman, and Katz (1992), who estimate that about 25 percent of the rise in wage disparities between skill levels in the United States since the 1970s was due to immigration.
124. See Williamson and Lindert (1980, 305–312). Williamson and Lindert are aware of the fragility of their data, since they refer to the fact that the “percentile ranks” of the various “typical workers” could have changed over time (see Williamson and Lindert 1980, 283), but they do not attempt to adjust for the biases thus introduced (they do not even provide worker headcounts corresponding to the different wage series).

125. See notably Goldin and Margo (1992, 4), who give estimates of the American wage distribution expressed in terms of fractiles for the years 1940, 1950, 1960, 1970, 1980, and 1985 (as it happens, these estimates amount to P<sub>90</sub> / P<sub>10</sub> ratios), but who, for earlier periods, rely on “typical worker” comparisons of the same type as those used by Williamson and Lindert. It is possible, moreover, that there are no genuinely appropriate statistical sources for estimating the American wage distribution in terms of fractiles prior to 1940 (there was no schedular wage tax in the United States in the interwar era, so the French statistics that we used have no direct equivalent for the United States).
126. See Chapter 3, section 2.4.
127. According to the estimates given by Goldin and Margo (1992), it would seem that the reconstitution of wage hierarchies after the compression of the Second World War was slower in the United States than we observed for France, and it may not have even fully regained its 1940 level until the very rapid increase in wage inequality since the 1970s: the P<sub>90</sub> / P<sub>10</sub> ratio of the American wage distribution fell from 4.26 in 1940 to 2.89 in 1950, 3.16 in 1960, 3.25 in 1970, 3.74 in 1980, and 4.31 in 1985 (in log terms, 1.45, 1.06, 1.15, 1.18, 1.32, and 1.46; see Goldin and Margo 1992, 4). However, it should be noted that wage inequality was perhaps particularly high in 1940 (without estimates expressed in terms of fractiles for years prior to 1940, it is very difficult to say precisely), and above all, that measures expressed in terms of P<sub>90</sub> / P<sub>10</sub> ratios are by their nature more volatile, as we have seen for the French case (see Chapter 3, section 3.2): it is likely that the share of total wages going to the best-paid 10 percent of American wage earners declined much less sharply over the 1940s than did the P<sub>90</sub> / P<sub>10</sub> ratio (generally speaking, it is unfortunately very rare for available wage-inequality estimates in various countries, even in the 1980s and 1990s, to be expressed in terms of top-fractile shares of total wages rather than solely in terms of ratios of the kind P<sub>90</sub> / P<sub>10</sub>, P<sub>90</sub> / 50, etc.: it is practically for incomes alone that we have international estimates expressed in terms of top-fractile shares).
128. See Chapter 3, section 2.4. Fourastié does not explicitly refer to Kuznets (nor to any other foreign author, incidentally), but he clearly situates himself in the same perspective as the Anglo-Saxon authors: he seeks to advance the idea that the decline of inequality is an irrepressible and practically “natural” phenomenon. The case of Fourastié is particularly extreme, however. Williamson and Lindert appeal to wage series that cover potentially large fractions of the population (even if they are not very precise about this), whereas Fourastié makes do with a few scattered data covering wages received by a handful of a few very senior civil servants.
129. Henceforth, we will refer exclusively to the 1881 edition. But we have verified that subsequent editions (notably those of 1888 and 1897) contained no significant innovations from the point of view that interests us here.
130. See Leroy-Beaulieu (1881, v–vi).
131. See Leroy-Beaulieu (1881, vii–viii).
132. See Leroy-Beaulieu (1881, 31–33).
133. See Leroy-Beaulieu (1881, 428–429).



134. See Leroy-Beaulieu (1881, 501–502).
135. Leroy-Beaulieu (1881, 507 and onward) briefly notes that Prussian top incomes seemed to have grown particularly rapidly over the previous decades, but he chalks this up to Prussia's great territorial expansion and the business cycle, without even attempting to adjust for these biases (let alone to estimate incomes by fractile).
136. See Leroy-Beaulieu (1881, 171–175, 207–208, 521–524, 528–538, 540–545). Only for British landed property does Leroy-Beaulieu, as a convinced Republican, acknowledge that a small number of “truly rich” monopolizes a significant fraction of total wealth; but Leroy-Beaulieu takes care to clarify that “this phenomenon arises, not from the free movement of wealth, but from restrictive laws,” and that these “vestiges of feudalism” will disappear once “free trade in land” is established, “as demanded by the most advanced fraction of the English Liberal party” (see Leroy-Beaulieu 1881, 517–518).
137. See Bayet (1997, 25–28). The series compiled by Bayet, which are also (partially) reproduced by Marchand and Thélot (1997, 241), represent a synthesis of all previous studies, and we have also made use of these series in estimating the evolution of blue-collar wages in the twentieth century (see Appendix E, section 1).
138. We have not attempted here to examine the writings of advocates of the “immiseration” thesis from this period; besides the fact that this thesis has long been discredited (far more so than the liberal thesis), it does not seem to have yielded “serious” studies of the evolution of income or wealth inequality (insofar as the studies by Leroy-Beaulieu and his liberal colleagues may be described as “serious”; they at least tried to present themselves as such in their attempts to quantify the issue of inequality).
139. The chapter Leroy-Beaulieu devotes to the rise in real wages is hardly explicit about the series used or the periodization of the phenomenon (Leroy-Beaulieu seems to want to place a fig leaf over the period of stagnation), but it is clear that increases in real wages that manifested themselves tangibly only during the second part of the century played a key role in his idea of the “chaotic period of large industry” (see Leroy-Beaulieu 1881, chapter 16). The same periodization (near-stagnation of wages over the first half of the nineteenth century, rapid increase over the second half) is found in all industrialized countries (at least to a first approximation), which no doubt explains the popularity of the “inverted U-curve” idea. Kuznets (1955) does not feel the need any more than Leroy-Beaulieu (1881) to explain why inequality started out rising during the initial phases of industrialization; this thesis was always accepted as the obvious and unquestionable result of wage stagnation.
140. Below, we will revisit what can be said about the initial phase (see section 2.3).
141. As it happens, profits seem to have grown even faster than wages over the second half of the nineteenth century: according to the series compiled by Lévy-Leboyer and Bourguignon (1985, 333–337), the volume of industrial production almost tripled between 1850 and 1910, whereas real wages only doubled. Given the uncertainties and controversies surrounding macroeconomic series for the nineteenth century (see notably Toutain 1996), this type of comparison would require a meticulous

- examination of the various available series, and in this book we have not attempted to pursue that exploration (all of the macroeconomic series we provide in the appendixes cover only the twentieth century; see Appendix G).
142. See Coston (1903, 304–313). In the appendixes we have reproduced the results of Coston's estimates, in their original presentation (see Appendix I, section 2.1, Table I-4).
143. See Neymarck (1911).
144. For how we went about obtaining our average estimate of top-income shares for the years 1900–1910 (which is probably an underestimate) based on these disparate estimates, see Appendix I, section 2.1.
145. For example, according to Williamson and Lindert (1980, 89–92), all of the estimates undertaken in the United States in the early twentieth century tended to understate the weight of the highest incomes. See also Bresciani-Turoni (1939, 123), who feels that Bowley wanted so much to conclude that the early twentieth-century United Kingdom was far less unequal than Prussia that he was led to artificially understate the weight of the topmost British incomes.
146. See Appendix I, section 2.2.
147. This motive appears very clearly in the writings of Sauvy (see Appendix I, section 2.2). These observations in no way detract from the very great value of the monumental work that is *L'Histoire économique de la France entre les deux guerres*.
148. In fact, it is entirely possible to use Pareto's law as a simple statistical approximation technique to estimate the levels of various fractiles in a distribution based on data by bracket, and this is the spirit in which we have employed this useful discovery (see Appendix B, section 1.1). We might also point out that Séailles, who in 1910 was one of the first economists in France to use Pareto's law, had a vision of inequality that was quite different from that expressed by most of his colleagues (or by Pareto himself): Séailles notes ironically that Leroy-Beaulieu tended to mistake his desires for realities ("nothing forbids us from wondering whether his ardent faith in the ceaseless increase in the well-being of the working classes did not guide his interpretation of the facts toward the conclusion he desired"; see Séailles 1910, 17), and his analysis of bequest statistics led him to conclude that French wealth concentration was extremely high (see Séailles 1910, 65). Séailles's works are not very useful for our purposes, however; besides the fact that he examines only the wealth distribution and provides no estimates of income distribution, Séailles does not seek to study the evolution of inequality (whereas most of his colleagues believed that there were "very few" very large incomes—or very large fortunes—Séailles thought there were "a lot" of them and that the wealth distribution was "highly concentrated": in both cases, these subjective judgments are of a certain historical interest, but they express a purely static vision of inequality, and they tell us nothing about evolution over time). Generally speaking, it is important to recognize that Pareto's discovery often stimulated research devoted mainly to analyzing statistical and mathematical regularities in distribution curves (an exercise that usually leads to the adoption of a static and fatalistic vision of inequality), rather than to analyzing the historical evo-



- lution of inequality; for French examples of such essentially static and statistical research, see notably Gibrat (1931), Roy (1949), and Thionnet (1960).
149. See Pareto (1896–1897, 2:315). The same interpretation had been laid out in a brief article entitled “*La courbe des revenus*,” published in 1896, in which Pareto explained that his studies showed that classical political economy was right to focus on production rather than distribution: because distribution is always the same, in order to improve the condition of the poor it is necessary to increase national production rather than trying to redistribute it, “as wrongly advocated by the socialists” (this 1896 text was reproduced in the collection of articles by Pareto published by Busino in 1964, in which the original article, “*La courbe de la répartition de la richesse*,” also appears; see Pareto 1896). Pareto’s original article also contained a section devoted to the progressive income tax, which supposedly showed that the curve he had brought to light did not authorize very large-scale redistribution, but the general tone was much more sober and technical than that of his subsequent publications (see Pareto 1896, 8–14).
150. It is obvious that Pareto heavily emphasized the fact that he had obtained relatively similar parameters for the different countries: the coefficients (the notation we use in Appendix B, section 1.1.2, corresponds to the  $a$  coefficients) estimated by Pareto were usually between 1.4 and 1.7; see Pareto (1896, 4) and Pareto (1896–1897, 2:312). But these  $a$  coefficients, which correspond to  $b$  coefficients between 2.4 and 3.5 ( $1.4 / 0.4 = 3.5$ , and  $1.7 / 0.7 = 2.4$ ), are actually much less similar a superficial examination might lead one to believe, because the inequality of a distribution does not depend solely on the value of those coefficients (the same coefficient, for example, can correspond to highly different levels of top-income fractiles of total income, which Pareto could not have realized, since he did not attempt to use that type of inequality measure); furthermore, the French experience shows that the collapse of top incomes was accompanied by a relatively limited decline in the Pareto coefficients (the  $b$  coefficient fell from about 2.1–2.2 in the interwar era to about 1.7–1.8 after the Second World War; see Appendix B, section 1.1.2, and Table B-1); the coefficients Pareto estimated on the basis of the tax statistics of his time show only that all European countries were then characterized by a great concentration of wealth (only for the late 1910s and early 1920s have we obtained  $b$  coefficients greater than 2.3–2.4; see Appendix B, section 1.1.2, and Table B-1), but they in no way allow us to conclude that distributions were the same in the different countries.
151. In fact, Pareto was just as ambiguous as Leroy-Beaulieu was on the subject of this “tendency toward a lesser inequality of conditions.” He noted that Leroy-Beaulieu had explained very well that the important thing was that the living standards of the poorest should rise and that only socialists and the envious were preoccupied with inequality as such (see Pareto 1896–1897, 2: 319–320), then he apparently decided to advance the notion of a declining trend in inequality anyway (so that the reader is no longer clear about what Pareto is saying about Leroy-Beaulieu’s studies). Since his estimates indicated declining  $a$  coefficients for Prussia and Saxony (see Pareto 1896, 4 and Pareto 1896–1897, 2:312), Pareto then tried to argue that a decline in  $a$

- coefficients could be interpreted as a decline in inequality (see Pareto 1896–1897, 2:323–325), which shows a good dose of bad faith: the relationship between the *a* coefficient and inequality assumed by Pareto is logically possible from a strictly theoretical point of view, but it is much more plausible to assume that in practice the relationship goes the other way (this sleight-of-hand was pointed out by Mourre [1922]); in fact, all empirical evidence shows that the decline in *a* coefficients (and thus the decline in *b* coefficients) was accompanied by an increase in inequality, and as we will see below, the case of the German states in the late nineteenth century is not an exception (see section 2.3). In other words, Pareto and Leroy-Beaulieu were both irritated by the trend indicated by the German statistics of their time, and they attempted to conceal it.
152. Multiple editions of this book were published in the late nineteenth and early twentieth centuries, and we will cite only the 1909 edition (the other editions are hardly different; the only significant difference between the 1909 edition and the first edition, published in 1895 under the title *La fortune privée à travers sept siècles*, is because in 1895 Vicount d’Avenel did not yet have available the bequest statistics that were generated by the creation in 1901 of a progressive bequest tax). We may also point out that Vicount d’Avenel made a specialty of this kind of great historical tableau; for example, in 1894, he had published a book entitled *Histoire économique de la propriété, des salaires, des denrées et de tous les prix en général, depuis l’an 1200 jusqu’en l’an 1800*.
153. See d’Avenel (1909, 1–39, and especially 10–11).
154. For the early twentieth century, d’Avenel went beyond individual examples, since he used the bequest statistics; see d’Avenel (1909, 10 and 267–271). But for the feudal era and the Old Regime he gave no data on the numbers or levels of aristocratic fortunes that could be compared with the bequest statistics.
155. See d’Avenel (1909, 95–96 and 159–166).
156. Leroy-Beaulieu also thought that the state had gone much too far in giving raises only to recipients of low salaries, and he vigorously took up the defense of his era’s senior civil servants who received only 15,000 or 20,000 francs per year, “figures that appear enormous to the masses,” but which actually “make it impossible to live elegantly and build up savings of any size”; see Leroy-Beaulieu (1881, 350–361) (recall that late nineteenth-century francs must be multiplied by a factor of about 20 to obtain 1998 francs; see Appendix F, Table F-1, column [7]). An annual salary of 20,000 francs, converted into 1998 francs, thus represents an annual salary of about 400,000 francs, this in an era when the average annual wage was about 1,000 francs (20,000 in 1998 francs), which was one-twentieth the pay received by the senior civil servants that Leroy-Beaulieu pitied.
157. Recall that it was only by looking at a few salaries earned by very senior civil servants that Fourastié, like Leroy-Beaulieu almost a century earlier, tried to defend the notion that a continual and inexorable decline in inequality had taken place in France since the nineteenth century (see Chapter 3, section 2.4). As we have seen, this was not the case at all in the twentieth century (if we consider all wages, in the

- public and private sectors combined, we find that wage inequality was extremely stable in the twentieth century), but it cannot be ruled out that the nineteenth century was different (the process of high private-sector wages replacing high public-sector wages, which did take place in the twentieth century, had probably begun in the nineteenth century, and the question is whether it was sufficiently massive and rapid).
158. Here we refer to estimates for Saxony by Jeck (1970); see also Jeck (1968) and estimates reproduced by Karlble (1986, 32–33). These estimates were also (partially) reproduced by Morrisson (2000, 233).
  159. Here we refer to estimates for Prussia by Mueller and Geisenberger (1972) and estimates reproduced by Dumke (1991, 133). These estimates were also (partially) reproduced in Kraus (1981, 216) and Morrisson (2000, 234).
  160. See Chapter 2, Figure 2-14, and Appendix B, Table B-14, column P99–100.
  161. See section 1.2.
  162. According to estimates for Saxony from Jeck (1970) (see also Jeck [1970] and estimates reproduced by Kaelble [1986, 32–33]), the P90–95 share of total income remained stable at around 10 percent (and the P95–99 share remained stable at around 14–15 percent) throughout the 1870–1910 period. According to estimates for Prussia from Mueller and Geisenberger (1972) and estimates reproduced by Dumke (1991, 133), the P95–100 share of total income rose from 28.4 percent in 1876–1880 to 30.6 percent in 1911–1913, and the P99–100 share of total income rose from 15.2 percent in 1876–1880 to 18.0 percent in 1911–1913. In other words, the P95–99 share did not increase at all (13.2 percent in 1876–1880, 12.6 percent in 1911–1913) (the same would probably be the case for the P90–95 share).
  163. It would obviously be valuable to have estimates of the income composition of the various top-income fractiles in Saxony and Prussia over the 1870–1910 period. Unfortunately, no estimate of this kind appears to have been undertaken by any of the authors, and we are thus reduced to assuming that very large capital incomes are at their greatest within the top 1 percent, which is obviously the most plausible hypothesis (also, Procopovitch's estimates [1926] show that it was chiefly the upper strata of the top 1 percent who were the major beneficiaries of the 1870–1910 period in Germany, which confirms that this was a phenomenon related to very large capital incomes).
  164. See Procopovitch (1926, 72–73). We should note that Procopovitch's estimates for Prussia also show that the P99–99.5 share of total income hardly rose at all between 1875 and 1913, and that the very sharp increase in the P99–100 share was almost solely due to the P99.5–100 fractile (and mainly the P99.9–100 fractile) (Procopovitch's estimates for Saxony cover only the year 1912, so they would not be able to show the same phenomenon; but we would probably observe the same regularity if estimates were available).
  165. In addition to the issue of the composition of the various top-income fractiles discussed above, it would be very interesting to have annual estimates decomposing the top 1 percent up to the level of the P99.99–100 fractile (only Procopovitch's estimates [1926, 72] go beyond the P99–100 fractile, and they cover only the years

1875, 1896, and 1913 [for Prussia] and the year 1912 [for Saxony]). Such estimates would tell us, notably, whether the trend toward growing income concentration continued apace until 1914, or whether it subsided in the first years of the twentieth century: Procopovitch's estimates (1926, 72) show that the growth in the top fractiles' shares of total income was almost as rapid over the two subperiods 1875–1896 and 1896–1913, but the estimates taken up by Kaelble (1986, 32–33) and by Dumke (1991, 133) suggest that the trend slowed sharply (and perhaps even came to a halt) between 1900 and 1913. These inconsistencies are possibly the result of differing estimates of the evolution of total income in Prussia and Saxony during these periods, and only a full-scale reexamination of the tax statistics and the German national accounts for the years 1870–1910 would make it possible to decide. As a general matter, such a full-scale reexamination would be all the more useful because most of these estimates are relatively old, and it is very hard to tell precisely what exact method was used by the various authors (according to Kaelble [1986, 23 and 31], some authors came to sharply different conclusions about the trend characterizing this period, and some studies that were used heavily by later German authors were never published, so it is sometimes impossible to say where this or that estimate comes from; it would also be valuable to study the German states other than Prussia and Saxony).

166. Conversely, German authors, more sensitive to findings from the Saxon and Prussian statistics from the years 1870–1910, have often expressed rather strong skepticism toward the idea of the “Kuznets curve”; see especially Dumke (1991), who admonishes Anglo-Saxon authors (to our mind, with a great deal of justification) for neglecting the German experience and for not paying sufficient attention to capital incomes.
167. According to the estimates highlighted by Lindert (2000, 181), the share of total wealth held by the top 1 percent of the British wealth distribution rose over the two subperiods 1810–1875 and 1875–1913 in approximately the same proportions. However, we must note that the estimates for the years 1911–1913 are not perfectly consistent with those for the years 1810 and 1875 (it is difficult to say how this absence of consistency might bias our conclusions). The scattered available estimates for British income concentration in the nineteenth century point to a degree of stabilization of inequality in the late nineteenth century (or even a slight decline) (see Lindert 2000, 175), but here again, these estimates suffer from a serious problem of consistency.
168. According to the estimates from Williamson (1985, 40) (these estimates are also taken up in Williamson 1991, 63), the share of total British wages going to the best-paid 10 percent of wage earners (all sectors and wage earners included) rose from about 28 percent in 1827 to about 32–33 percent in 1851 and 1881, before falling back to about 30–31 percent in 1901. However, the most recent research seems to have demonstrated that the mid-nineteenth-century spike obtained by Williamson was mainly due to defective series, and that correcting these errors results in a much flatter evolution over time (see Lindert 2000, 182). Whatever the case, it will be noted that the changes Williamson estimated are of relatively modest size, and that the orders of magnitude he obtained for the United Kingdom in the nineteenth century are very close to those we obtained for France in the twentieth century (in

- France, the share of total wages going to the best-paid 10 percent of wage earners gravitated around 25–30 percent throughout the twentieth century; see Chapter 3, Figure 3-2); this result seems to confirm the idea of a very high degree of long-term (even multicentury) stability in wage inequality.
169. According to the estimates taken up by Lindert (2000, 188), the share of total wealth held by the top 1 percent of the American wage distribution more than doubled between 1774 and 1890; Lindert also points to other estimates for 1860–1870, according to which the sharp increase in the top 1 percent share observed over 1774–1890 took place before 1860–1870, but the fact that the 1860–1870 estimates are not consistent with those for the years 1774 and 1890 means that it is difficult to draw conclusions.
170. See Chapter 6, section 3.
171. Unfortunately, Daumard and her colleagues did not attempt to systematically estimate the shares of total annual bequests going to the different fractiles of the bequest distribution (they simply tabulated the bequest declarations from their various samples using the same brackets as the early twentieth-tax administration), so the results obtained are not reported as expressively as they might be. However, the meaning of the results leaves no doubt: in Paris, the share of total annual bequests represented by the largest 1 percent of bequests was 30.8 percent in 1820 (the share represented by the largest 0.4 percent was 18.8 percent), and the share of total annual bequests represented by the largest 1.6 percent of bequests was 49.5 percent in 1911 (the share represented by the largest 0.4 percent was 30.1 percent) (see Daumard 1973, 127 and 194); the numbers of bequests are expressed as a percentage of the number of declarations submitted, but given the long-term stability in the share of deaths not giving rise to a bequest declaration (see Daumard 1973, 195), this could not bias the results. We observe the same results for other cities: for example, in Bordeaux, the share represented by the largest 0.3 percent of bequests was 6.3 percent in 1824, and the share of the largest 0.1 percent of bequests was 7.5 percent in 1911 (see Daumard 1973, 127).
172. In Paris, the share of total annual bequests represented by the largest 1 percent of bequests was 30.8 percent in 1820 and 30.2 percent in 1847, versus more than 40 percent in 1911 (see Daumard 1973, 194); for 1911, we only know that the share for the largest 1.6 percent of bequests was 49.5 percent and that the share for the largest 0.4 percent was 30.1 percent, which means that the share for the largest 1 percent was at least 40 percent; a more precise estimate could be obtained by calculating the corresponding Pareto coefficients.
173. See Bourdieu, Postel-Vinay, and Suwa-Eisenmann (2000, 19).
174. Bourdieu, Postel-Vinay, and Suwa-Eisenmann (2000, 19) estimated the Gini coefficient year by year for the distribution of bequests declared during the year in question, and they observed that these Gini coefficients, apart from erratic changes due to the limited size of the samples, followed a steady upward trend from the 1800s–1810s to the 1880s–1890s (the estimates stop in the 1890s, so it is impossible to say whether the trend continued in the very first years of the twentieth century; we may simply point out that a decline would represent a very sharp break in the trend).

175. Given that the bequest statistics compiled by the administration do not cover all the years of the 1902–1913 period, and most importantly given the erratic nature of certain fluctuations observed during this period, it is difficult to characterize the years 1902–1913 with certainty. For example, the ratio between the average bequest of the “200 families” (fractile P99.99–100) and that of the “middle classes” (fractile P90–95) evolved erratically over the years 1902–1913, with no clear trend (see Chapter 6, Figure 6-3). However, if we look at measures of inequality based on less narrow fractions of the population, we observe a relatively clear trend toward wider wealth inequality: for example, the share of total annual bequests belonging to the top 1 percent of the hierarchy of deceased rose from about 51–52 percent in 1902–1903 to about 55–56 percent in 1911–1913 (see Appendix J, Table J-11, column P99–100); in any event, no measure shows a trend toward declining inequality over the years 1902–1913.
176. As noted above (see Chapter 6, section 3.2), the evolution of wealth inequality among the deceased always runs several decades behind the evolution of inequality within the overall population.
177. See Morrisson and Snyder (2000, 133 and 146). These estimates are also taken up by Morrisson (2000, 235). Morrisson and Snyder (2000, 129) also used statistics from the *capitation* to study the evolution of inequality over the eighteenth century (their conclusion was that the top-decile share was relatively stable from the 1690s to the 1780s). On the sources used by Morrisson and Snyder to obtain their estimate for the 1900s–1910s (an estimate that Morrisson and Snyder actually attribute to the year 1890), see note 178.
178. However, it must be emphasized that Morrisson and Snyder’s estimates, besides covering only a few highly isolated years, are absolutely not homogenous (they can usefully pin down a few orders of magnitude, but they are hardly appropriate for the study of fine-grained changes over time). The estimate for the 1780s is based on statistics from the *capitation* and a few macroeconomic data (the top-decile share thus obtained varied between 50 percent and 55 percent; see Morrisson and Snyder [2000, 133, 143, and 146] and Morrisson [2000, 235]); the estimate for the 1860s is based on macroeconomic data and a few data by socioprofessional group (the top-decile share thus obtained varied between 48 percent and 50 percent; see Morrisson and Snyder [2000, 143 and 146] and Morrisson [2000, 235]). As for the estimate for 1900–1910, it was obtained from Colson’s estimate, which was itself based on estimates carried out by Doumer’s and Caillaux’s ministry staffs and on statistics from the personal property tax; the estimate thus obtained for the top-decile share varies between 44 percent and 46 percent (see Morrisson and Snyder [2000, 146]), Morrisson [2000, 235] and Morrisson [1991, 155]); Morrisson and Snyder attribute this estimate to 1890, but it is more of an average estimate for the 1900–1910 period, since the Doumer estimate dates to 1896, the Caillaux estimate dates to 1907, and the Colson estimate to 1903; using these same sources, we also got a value of 45 percent for the top-decile share in 1900–1910, while also making it clear that this is probably an underestimate (see Appendix I, section 2.1). Let us add



that Morrisson and Snyder (2000, 144–145) in our view give too much credit to arguments developed by economists at the time (notably Colson and Leroy-Beaulieu); as noted above, the fact that wages grew rapidly in the late nineteenth century does not mean that inequality declined (it all depends on the evolution of wealth concentration). Let us also point out that Morrisson and Snyder (2000, 146), Morrisson (2000, 235), and Morrisson (1991, 155) studied the twentieth century using, in total, two estimates: Sauvy's estimate for the year 1929, which as we have said massively underestimated the numbers and amounts of very high incomes (see Appendix I, section 2.2); and an estimate for the years 1975 or 1985 (the year varies according to the publication), probably derived from the *Revenus fiscaux* studies. Finally, let us make it clear that Morrisson and Snyder's estimates never go beyond the top decile, so they cannot precisely identify the economic processes in play: the macroeconomic data used by Morrisson and Snyder (similar data were also gathered by Morrisson [1984]) can bring out certain broad trends, but nothing can replace detailed estimates for the various top-income fractiles.

179. A ranking of tax assessments for all of France was compiled on a one-time basis in 1894, in the framework of the "Extraparliamentary Commission on the Income Tax" (see Appendix I, section 2.1). In addition to the fact that this 1894 national ranking pertained to the amount of tax rather than the rental values themselves, the one-time nature of the statistic means that it cannot be used to estimate the evolution of inequality.
180. Other similar statistics were compiled before 1889 (for example, Leroy-Beaulieu [1881, 171–175, 207–209, and 528–538] used statistics for Parisian rental values compiled in 1872 and 1878); but these statistics apparently were not completely homogeneous with those starting in 1889, so we for this book have not sought to go further back into the nineteenth century (for an interesting study on Parisian rents going back to 1860, see Marnata [1961]; note, however, that Marnata does not use the statistics by rental-value bracket). The original 1889, 1901, and 1911 statistics, how they were analyzed, and all the results obtained (as well as references to the publications in which they were published) are described in Appendix K.
181. The statistics from the real estate tax cover all *maisons*, so they include business locations, not only residential locations (we have not taken factories and undeveloped lands into account, since they are of limited importance in Paris). Unfortunately, these statistics from the real estate tax were compiled by the tax administration in a relatively ambiguous way: it is not clear that all of a property owner's properties were actually put together as they should have been, and the results should be interpreted with caution (see Appendix K).
182. The fractiles of owners were calculated for the total population (including non-owners), which explains why the shares reach such high levels (in particular, the P90–100 fractile share is always 100 percent, so we do not show it on Figure 7-2). Given the technical problems posed by the real estate tax statistics (see earlier in this section), these results should be interpreted with caution, at least when it comes to interpreting the levels (see Appendix K).

183. We have not discussed here the case of the northern European countries, since estimates for the nineteenth century are even rarer for these countries than for the “big” countries examined here. In addition, the few available estimates apparently cover only the late nineteenth century, and the trends observed seem inconsistent: for example, according to the relatively old estimates taken up by Morrisson (2000, 221 and 228), the top-income fractiles’ shares of total income increased very sharply in Finland in the late nineteenth century, and at the same time they declined very sharply in Denmark (in both cases, the changes are based on only two years and seem too large not to be suspect; a full-scale reexamination of these two data would be necessary). The estimates for Norway from Soltow (1965) and taken up by Kaelble (1986, 19) and Morrisson (2000, 224) also show a decline of inequality in the late nineteenth century, but they cover only a few cities and a few counties, and they are expressed only in terms of Gini coefficients (also, the results obtained by Soltow are actually far less unequivocal than the author’s presentation would lead one to believe: in fact, according to these estimates, there were several Norwegian cities where income became increasingly concentrated in the late nineteenth century).
184. We do not have long-term estimates for the evolution of Japanese inequality, but it is likely that such estimates would show a very strong flattening of wealth inequality in Japan over the course of the Second World War.
185. See Chapter 2, section 1.2.1.1.
186. See, for example, the interesting quotations from Keynes gathered by Combemale (1999, 11 and 103).
187. See Morck, Stangeland, and Yeung (1998). However, it is not certain that the source the study used to measure the inherited-wealth share of business shareholding, namely, the *Forbes* 1000 rankings and the *Who’s Who*, actually make it possible to account for and compare the weight of all inherited fortunes in different countries. Monographic studies devoted to a few businesses in a few countries might perhaps better measure these effects. We could direct the same type of critique to the studies based on regressions between inequality and growth: these works often conclude that inequality has a negative impact on growth, but the methodology used does not tell us whether this negative impact is actually due to inequality preventing a significant fraction of the population from investing, or whether the relationship is due to other mechanisms; see, for example, Benabou (1996).
188. See Chapter 1, section 4.2.
189. See, for example, Boyer (1978, 42–47). Marseille (1980) also defends the idea of too-low wage growth in the 1920s leading to a “crisis of overproduction.” The Regulation school also stresses the role played by public investments after the Second World War, and it goes without saying that the data examined in this book cannot confirm or contradict this part of the theory. According to Carré, Dubois, and Malinvaud (1972, 614–615) the theory is contradicted by the fact that it was the transformative industries (sectors where public enterprises played a limited role) that led growth in the 1950s and 1960s. We will also note that Carré, Dubois, and Malinvaud (1972, 457–459 and 620) refer to the fact that the inflation brought about by



- the two world wars reduced the indebtedness of many businesses, and that this redistribution by inflation may have stimulated later growth (however, Carré, Du-bois, and Malinvaud refuse to give a central role to this wealth-based explanation).
190. See Chapter 1, Figure 1-5, and Appendix G, Table G-3, columns (16) and (17). This criticism has also been directed at Boyer and his thesis by Asselin (1984, 2:96), who notes that the data available do not seem to show that wages grew particularly slowly (relative to productivity) in the 1920s. Of course, given the relative fragility of the available macroeconomic series for this period (at least when it comes to very short-term changes), we cannot rule out the possibility that the series we have used give a biased picture of the evolution of the wage-profit split over the 1920s; but this must be demonstrated. Furthermore, the fact that the total wage bill grew at the same pace as production does not necessarily mean that the “crisis of overproduction” theory, or the theory of strictly French origins for the crisis of 1929, are wrong: it is possible that the place given to certain industrial goods within the structure of French consumption in the 1920s was not large enough to allow the corresponding sectors to develop on a sustainable basis (for example, because recipients of very high capital incomes, who consume more domestic workers and luxury goods, took too large a share of national income); but this, too, must be demonstrated.
191. See Chapter 3, section 2.3, and Figure 3-2. Actually, Boyer (1978, 42–47) refers more to wage hierarchies between sectors, and to the fact that wage earners from different sectors after 1945 started to enjoy the same wage increases; but it must be explained why this stability in intersectoral inequality could guarantee stable growth despite the growth of vertical inequality (within each sector).

## APPENDIX A

1. The exact name used by the administration to refer to these tables changed multiple times since the 1915 tax-year tables, so it seemed preferable to use a consistent and intelligible terminology.
2. The only important discontinuity in the form of the tables compiled by the administration was because of the introduction of the family-quotient mechanism starting with the 1945 tax year (see below), not to changes in the exact name of the tax.
3. The only adjustment we have made to the raw figures published by the tax administration concerns the 1942–1944 tax years: in compiling the distribution tables for the 1942–1944 tax years, the tax administration subtracted not only deductions for dependents and family situation, but also the standard deduction (10,000 francs for the 1942 tax year, and 20,000 francs for the 1943–1944 tax years) from taxable income, so that the brackets used in the published tables artificially start with taxpayers whose incomes were between 0 and 10,000 francs. In order to put the 1942–1944 figures in a form comparable to that of other years, we thus added the amount of the standard deduction (10,000 francs for the 1942 tax year, and 20,000 francs for the 1943–1944 tax years) to the levels of the brackets and the amounts of taxpayer incomes (this also explains why the top bracket for these years is made up of incomes above 1,010,000 or 1,020,000 francs, rather than 1 million francs).

4. In theory, nontaxable taxpayers are also required to file a tax return. But it has been only since the 1980s that practically all nontaxable taxpayers have actually filed a return (see Piketty 1998, 90), which is mainly explained by the fact that notices of nontaxability, which by definition can be obtained only if a tax return has been filed, have become increasingly useful over time for households with modest incomes, notably due to the growth of means-tested social benefits. Since the 1985 tax year, the tax administration has compiled the same series of statistical tables for nontaxable tax units as for taxable tax units (from the 1915 tax year to the 1984 tax year [inclusive], returns filed by nontaxable tax units were not tabulated, and no information about them [not even the number of them] was preserved); however, the number of nontaxable tax units whose incomes fall within the top decile of the distribution is sufficiently small that their impact on estimates of top-decile income levels may be neglected (see Piketty 1998, 127, n. 43), and that is why we have used the statistical information on the 1985–1998 incomes of nontaxable tax units solely to determine the evolution of the total number of tax units and of total taxable income (see Appendix H, section 1, and Appendix G, section 1).
5. The distribution tables compiled for the 1945–1949 tax years distinguished between taxpayers with 1.5 family-quotient shares who were married couples without dependent children after three years of marriage (“1.5 (a)”) and those who were single, divorced, or widowed individuals with one adult or deceased child (“1.5 (b)”); since the 1950 tax year, all married couples without dependent children have been entitled to 2 family-quotient shares, and this distinction is no longer made. Also, all distribution tables compiled since the 1945 tax year have always made a distinction between taxpayers with 2 family-quotient shares who are married couples without dependent children (“2(a)”) and those who are single, divorced, or widowed individuals with one dependent child (“2(c)” for the 1945–1949 tax years, and “2(b)” since the 1950 tax year).
6. We have verified for every year and income bracket that the amounts shown in the “simple liability” column do correspond to the theoretical amounts that can be calculated from the various parameters of the legislation in effect, and we have not noted any inconsistencies.
7. See Appendix B, section 3.2.
8. These tables were published in the same issues of the *Bulletin Statistique du ministère des Finances (BSMF)* as the distribution tables.
9. Here again, we have verified for every year and income bracket that the amounts shown in the “simple liability” column do correspond to the theoretical amounts that can be calculated based on the various parameters of the legislation in effect, and we have not noted any inconsistencies.
10. For a comparison between tax issued and actual receipts for the 1970–1996 period, see Piketty (1998, table 2-4, 25). Comparing tax issued (see Column [5] of Table A-2) and total receipts (see *S&EF* supplément no. 175 [juillet 1963], p. 965, for the years 1900–1930, and *S&EF* no. 144 [décembre 1960], p. 1834, for the years 1930–1960) also suggests that this gap was about 5–10 percent by the earliest years of the

income tax. However, it must be emphasized that comparing receipts to tax issuance is not easy, especially for periods characterized by high inflation, since the receipts statistics combine all receipts received over the course of a given year in a single number, and thus do not make it possible to separate out in a perfectly precise way how much is due to taxation of the previous year's income and how much to prior years. Generally speaking, tax recovery statistics are relatively poor (tax receipts are received in bulk by the public treasury, without any indication of the distribution of these receipts by level of taxable income or type of taxpayer; until 1996, the procedure for depositing tax revenues did not even make it possible to distinguish between income tax receipts and receipts from other taxes collected via tax lists (property tax, etc.), so the distribution of receipts was carried out conventionally on the basis of the amount of tax-list issuance), and that is why in this book we have only used statistics compiled at the level of tax issuance.

11. This explains the slight gap between the figures given in column (5) of Table A-2 and the figures given in Piketty (1998, table 2-4, 25), which for the 1979–1996 period includes capital gains taxed at the proportional rate. Also, the net tax shown here for the 1982–1998 tax years was obtained by taking from table III (taxable tax units) of the *Etats 1921* the amounts corresponding to simple liabilities, late penalties, tax reductions, tax credits / tax assets, and the rebate (see the breakdown given in Table A-3), but without taking into account various small items such as exceptional BA, PV taxed by quotient, the fiscal 1 percent, etc.; all of these elements are taken into account in the figures given in Piketty (1998, table 2-4, 25).
12. Of the various special regimes we have therefore disregarded and subtracted from the total figures, let us mention the following examples. The distribution tables compiled for the 1931–1933 tax years include in the calculation of total tax “contributions owed in case of death,” and these represent less than 1 percent of total tax. For the 1934–1936 tax years, after the various income brackets the distribution tables include a line entitled “individual tax lists” (which probably groups together particular levies carried out in cases of death or because of international agreements) (the number of levies and the corresponding incomes represent less than 1 percent of the number of taxpayers and income taxed under the normal regime). In the postwar era, lines corresponding to “hidden compensation” (starting with the 1947 tax year), “particular levies” (starting with the 1949 tax year), and capital gains taxed at the proportional rate (starting with the 1959 tax year) made their appearance in the distribution tables published by the tax administration (starting with the 1966 tax year, the distribution tables appearing in the *S&EF* articles on “L'impôt sur le revenu en 19–” cover only the normal regime [like the distribution tables in the *Etats 1921* since the 1982 tax year] and information about the particular regimes is given separately in the text of the article [or in table III of the *Etats 1921*, which we use starting with the 1982 tax year]). From the 1947 to the 1972 tax years (when the statistics published by the tax administration were based solely on “tax lists drawn up by mechanical means,” so that the particular regimes disappeared from the statistics), the number and amount of incomes taxed under the “hidden

- compensation” regime (compensation paid by a firm without revealing the identity of the beneficiary; it is taxed at a proportional rate equal to the highest marginal rate of the progressive income tax schedule) never represent more than 0.01 percent of the number of taxpayers or income tax from the normal regime. From the 1949 to the 1964 tax years, the number and amount of “particular levies” never exceed 0.1–0.2 percent of the figures from the normal regime (starting from 1965, all we know is the corresponding amount of tax, which always assumes the same orders of magnitude). The statistics for capital gains are analyzed separately (see section 3).
13. All of the distribution tables for the 1919–1965 tax years show the various elements entering into the calculation of tax (surtaxes, penalties, etc.) separately. Unless we are mistaken, the only exception is the retroactive 20 percent surtax on 1924 incomes (law of December 4, 1925), which does not appear in the distribution table compiled for the 1924 tax year; this is probably explained by its delayed nature. We have thus computed in column (9) of Table A-2 an exceptional surtax on 1924 incomes equal to 20 percent of the corresponding net tax, amounting to 488 million; the tax-list issuance information published in the *BSLC* of October 1926 (100:694) and in the *BSLC* of September 1927 (102:408) show that the tax lists corresponding to this surtax were mostly issued before December 31, 1925, for an amount very close to that which we imputed). However, starting from the 1966 tax year, these items are no longer shown in the distribution tables published in the *S&EF* articles entitled “L’impôt sur le revenu en 19–” (only the simple liabilities are given), and the elements going into the calculation of tax are described in the text of the article. The *Etats* 1921 (which we have used starting from the 1982 tax year) also describes these items separately, in table III entitled “Éléments de calcul participant à la détermination de l’impôt net à émettre.”
  14. See Chapter 4, section 4.3, Table 4-6 (we have taken into account all of the exceptional surtaxes shown in Table 4-6).
  15. Tax credits also appear in the distribution table compiled for the 1959 tax year, but their amount is not separated out from the amount of tax reduction, so we have reproduced all of it in column (3). The amount of tax credits and tax assets shown for the 1987 tax year in table III of the *Etats* 1921 seems exaggeratedly small: 362 million francs, barely more than 0.1 percent of the amount of simple liability, whereas for all other years surrounding 1987 the amount of tax credits and tax assets stands at around 3–4 percent of the amount of simple liability; this is likely a transcription error by the *Etats* 1921, which we have corrected by assuming that tax credits and tax assets in 1987 equaled 3.5 percent of simple liability, a level in between that observed in 1986 and the level observed in 1988 (see Table A-3); this upward adjustment in the amount of tax credits and tax assets also results in a (slight) upward adjustment in net tax (column [7] of Table A-3 and column [8] of Table A-2) and in total tax issuance (column [5] of Table A-2; this is the only adjustment of this kind that we have carried out).
  16. For the 1959–1971 tax years, however, we have subtracted tax reductions (column [3]) from simple liability (column [1]) to calculate the ratio between net tax and

- simple liability (column [14]), since tax reductions in those years were rather peculiar (see below).
17. Generally speaking, the official names used to refer to the various items going into the calculation of tax have changed a great deal (and sometimes vary according to the publication), and it seemed useful to try to reconstruct their history. In particular, the concepts of “net” tax and “total” tax that we use here are not unchanging official names (in contrast to the concept of “simple liability,” which has not changed since the creation of the income tax).
  18. For the years 1997–1998, we did not have the breakdown of total tax that for previous years was provided by Table III of the *Etats 1921*, and we proceeded in the following way: in column (1) of Table A-3 we showed the total amount of simple liability appearing in table IIA of the *Etats 1921*; we assumed that columns (9) to (14) took the same values as those observed in the last available table III; that is, the provisional table III covering the 1997 tax year (situation on 12 / 31 / 1998); columns (2) to (7) were calculated on the basis of columns (1) and (9) to (14).
  19. The Ministry of Finance also published a *Bulletin de Législation Comparée (BLC)* from 1941 to 1947, but unlike the *BSLC*, the *BLC* did not publish statistics (as indicated by its title).
  20. The call number for the *BSMF* at the Bibliothèque des Lettres of ENS Ulm is HF er 1028 4° (the call number for the *S&EF* is SG ep 117 4°, and the call number for the *BSLC* is SG ep 220 8°).
  21. The exact title of these annual volumes was *Renseignements statistiques relatifs aux contributions directes et aux taxes assimilées* from 1889 to 1931, then *Renseignements statistiques relatifs aux impôts directs* starting from 1932. To simplify, we refer to the second title and its abbreviation for the entire period (*RSRID*).
  22. Only the years 1916–1919 are missing from the collection of *RSRID* volumes that can be consulted at the SAEF (apparently, the First World War halted its publication); on the other hand, the volumes were published every year during the Second World War. These *RSRID* volumes are preserved in the SAEF library (they are part of the “Archives imprimées / Publications officielles” collection, rather than archives properly speaking).
  23. See “Méthode de calcul des principaux impôts directs,” *BSMF* no. 3 (third quarter 1947), pp. 821–835.
  24. These notes always contain a complete description of the tax schedule and the prevailing tax rates. On the other hand, when it comes to the rules governing the tax base, the notes only provide the principal changes, so they must be supplemented with an examination of the texts of the laws.
  25. However, the role of the *S&EF* “orange series” (like the *E&P* since 1981) is very different from the other *S&EF* series: its role is not to publish the official statistics that the finance ministry compiles in the course of its work, but to publish research articles, sometimes by scholars outside the ministry (*E&P*, like the “orange series” of the *S&EF* from 1971 to 1980, is published by the Direction de la Prévision).

26. There are sometimes also other minor differences between the various published versions of the same table, such as how the different special regimes linked to the general income tax regime are presented and taken into account (see section 1.3).
27. Exceptionally, the *S&EF* issues entitled “Les impôts directs en 1953” (*S&EF* “supplément” no. 73 [January 1955]) and “Les impôts directs en 1954” (*S&EF* “supplément” no. 84 [December 1955]) do not contain a distribution table, and we refer readers to the distribution tables published in “L’impôt sur le revenu en 1953” and “L’impôt sur le revenu en 1954” for the 1952 and 1953 tax years.
28. Until 1978, *S&EF* appeared on a monthly basis (issue number 360 is dated December 1978, which corresponds to twelve issues per year for thirty years of publication, from January 1949 to December 1978). The publication rhythm then became increasingly erratic starting in 1979: the actual publication dates were increasingly late compared to the dates listed on the covers, and the final issues no longer even give an official date on their covers. The very last issues of the *S&EF* “red series” entitled “Statistiques de la DGI en 19–” contain a few final tables by income bracket: issue number 386, entitled “Statistiques de la DGI en 1980,” reproduces the distribution table for the 1979 tax year; issue number 393, entitled “Statistiques de la DGI en 1981,” does the same for the 1980 tax year; then issues 396, 397, and 398 (which are the last three issues of *S&EF* received by libraries), entitled “Statistiques de la DGI en 1982,” “Statistiques de la DGI en 1983,” and “Statistiques de la DGI en 1984” do likewise for the 1981, 1982, and 1983 tax years, respectively (the figures in these tables are always exactly the same as those reproduced in the “L’impôt sur le revenu en 19–” series, and in the *Etats* 1921, and we do not give references to these final *S&EF* issues in Table A-4). Since the final issue of *S&EF* (number 398) reproduces statistics from the 1983 tax year, it would seem it must have appeared in 1985.
29. See, for example, “Les statistiques de la Direction Générale des Impôts, année 1996,” *Les Notes Bleues de Bercy* no. 124, December 1–15, 1997.
30. For example, one can find the distribution table (but not the composition table) for the 1995 tax year (situation on 12 / 31 / 1997) in the latest “*Annuaire Statistique de la France*” (see *Annuaire Statistique de la France*, 1999 edition, p. 982, INSEE, 1999).
31. The last volume of the *RSRID* series that can be consulted at the SAEF is for the 1975 period (and thus the 1974 tax year), and the final volume of the series to have been the subject of an article in *S&EF* covered the 1972 period (and thus the 1971 tax year), an article published in issue 304 of the *S&EF* “blue series” (April 1974) (later, *S&EF* would publish a few annual articles on the “*Annuaire Statistique de la DGI*,” but these articles contain only aggregate tax statistics and no tables by income bracket).
32. The “*Annuaire Statistique de la DGI*” has existed in its current form since 1979.
33. Exceptionally, the first *Etats* 1921 for the 1998 tax year was actually compiled on 2 / 11 / 2000, rather than on 12 / 31 / 1999.
34. The fact that very high incomes are always (very) slightly underrepresented in the tax collections carried out in year  $n + 2$  is probably explained by the fact that litigious collections from taxpayers close to the threshold of taxability (and notably collec-



- tions of small-scale, self-employed professional profits) appear slightly more often than others among incomplete or late tax returns (this phenomenon is similar to that of the tax collections *d'office* discussed in section 1.2, though on a smaller scale).
35. If the markup rates were strictly uniform for all income brackets in the distribution tables, the levels of the various fractiles of the income distribution would be completely independent of the date of tax-list issuance (by definition).
  36. The last distribution table compiled on  $12/31/n+1$  that was published in the *S&EF* was for the 1971 tax year (see Table A-4), but distribution tables compiled on  $12/31/n+1$  never actually stopped being compiled (in addition to the tables from  $3/31/n+2$  since the 1964 tax year and the tables from  $12/31/n+2$  since the 1987 tax year), and they can be obtained by contacting the SESDO, which has preserved a copy of most of the corresponding *Etats 1921* (all of the distribution tables compiled on  $12/31/n+1$  that we consulted for the 1964–1996 tax years—compared to the tables compiled on  $3/31/n+2$  or  $12/31/n+2$  that we used—result in markup rates standing between the rates calculated in Table A-6 for the 1964–1965 tax years and those calculated for the 1995–1996–1997 tax years).
  37. If we marked up the number of 1963 taxable tax units by 4 percent, the percentage of taxable tax units would be 41.1 percent ( $39.5 \times 1.04 = 41.1$ ). Thus, the true increase in the percentage of taxable tax units between 1963 and 1964 was actually around 1.1 percentage point (from 41.1 percent to 42.2 percent), not around 2.7 percentage points (from 39.5 percent to 42.2 percent).
  38. These distribution tables compiled on  $3/31/n+2$  for the 1949 and 1950 tax years are the only two distribution tables we could find in the finance ministry archives that were not published in the ministry's statistical bulletins (*BSLC*, *BSMF*, and *S&EF*) or in the annual *RSRID* volumes (we found two tables in *Fonds* B651 entitled “Renseignements statistiques divers, 1938–1954,” which, in the SAEF inventory, correspond to volume 2 of the “Fonds fiscalité,” “Statistiques fiscales” section). Thus it is possible that distribution tables for  $3/31/n+2$  were also compiled for other years, but that they were neither published nor preserved (or they were preserved in SAEF collections that we could not identify). Whatever the case, since the 1949–1950 tax years are the only two years of the 1931–1963 period for which we have tables compiled on  $3/31/n+2$ , we have not attempted to make use of those two tables (other than for calculating in Table A-6 the value of the markup rate vis-à-vis the tables compiled on  $12/31/n+1$ ).
  39. The first table of this type appeared in the *BSLC* of October 1921 (pp. 744–745). All of the articles that followed in the “Les contributions directes en 19–” series published in the *BSLC*, *BSMF*, and *S&EF*, would then include similar tables (see below) (we did not think it necessary to give complete references to the publications where those tables were reproduced, but they can easily be found by interested readers: they were always published in the same issues of the *BSLC*, *BSMF*, and *S&EF* as those containing the distribution tables, in the same annual articles devoted to direct taxes, on page numbers usually very close to the page numbers given in Table A-4 for the distribution tables).

40. For example, “according to administrative jurisprudence,” the tax administration has seven years to carry out a tax adjustment in cases where omissions or insufficient information are discovered in a bequest (see Allix and Lerclé 1926a, 2:325).
41. These high penalties were introduced by the law of March 22, 1924 (see Allix and Lecerclé 1926a, 2:328).
42. We stopped Table A-8 in 1952, but the *S&EF* continued to publish the breakdown of issuances between “current” and “previous” until its discontinuation, and a similar breakdown continued to be published in the 1990s (for example, in *Les Notes Bleues de Bercy*); these statistics always show amounts for the previous portion that are slightly less than 10 percent (usually around 7–8 percent) of the amount for the current portion, and this has been the case since the 1950s (the rate sometimes rises slightly above 10 percent when particular events result in delays in the compiling and issuance of tax lists, such as during the strikes in the tax agencies in the early 1970s).
43. Strictly speaking, the “numbers of items” appearing in these tables are not numbers of taxpayers, since a single taxpayer can sometimes give rise to several “items” (for example, in the event of a tax adjustment); but comparisons with later years show that the difference is relatively small and can be neglected (at least for the years 1915–1918, when we face far more serious uncertainties).
44. We found no other composition tables in the finance ministry archives, except for a few tables for the 1950s showing the composition of income as a function of the dominant type of income, which we have not attempted to use here (these tables were apparently compiled only for a few scattered years, and the tax administration does not clearly specify how it defined the concept of “dominant” income; like the distribution tables compiled on  $3 / 31 / n + 2$  for the 1949 and 1950 tax years [see above], these tables by dominant income appear in *Fond B651* of the finance ministry archives). Also, the publications presenting composition tables prior to 1948 sometimes refer to the fact that the tables were not compiled every year (see, for example, *S&EF* no. 8 [August 1949], p. 604, where the tax administration presents the tables for the 1947 tax year and explicitly says that no tabulation was carried out for a composition table, in contrast to what had been done for the 1946 tax year). However, it cannot be ruled out that other composition tables for the interwar era or the Second World War years were buried in the finance ministry archives, and we were unable to find them.
45. However, only since the 1948 tax year has it been possible to use the composition tables to arrive precisely at the figures from the distribution tables: the composition tables compiled for the 1917, 1920, 1932, 1934, 1936, 1937, 1945, and 1946 tax years cover a slightly narrower field than the distribution tables, so the numbers and amounts are slightly lower (this appears to be due to the fact that the composition tables did not take into account tax adjustments, tax collections “d’office,” etc.; see *S&EF* no. 3 [March 1949], p. 174).
46.  $85,918 / 2,207 = 3.9$  percent,  $427,322 / 2,207 = 19.4$  percent,  $797,522 / 2,207 = 36.1$  percent, etc.



47. The tables by dominant income mentioned above could make it possible to measure the diffusion of the various income categories more precisely, but apparently, they were only compiled for a few scattered years in the 1950s.
48. The problem of tax-list issuance dates arises differently for the distribution and the composition tables: for the distribution tables, the fact that not all taxpayers who were ultimately taxed are taken into account risks causing us to underestimate the various top-income fractile levels; for the composition tables, working with an incomplete universe can bias the estimates in Appendix B (section 2) only if the missing taxpayers with a given taxable income level had incomes whose composition was different from the average composition at that income level. In any event, for the composition table the problem of tax-list issuance dates only really arises for the 1917 tax year, and, after the double composition table for the 1920 tax year, it appears that any bias could only affect the lowest income brackets (it is possible that we slightly underestimated the wage share).
49. Presenting this double table for a single date is relatively strange, and this situation never repeated itself subsequently: in principle, the statistics compiled on a given date include all tax-list issuances carried out up to that date, whether the issuances resulted from a spontaneous declaration or a tax adjustment (as noted above in the case of tax collections *d'office*), and it is by establishing tables for different dates that one can manage to distinguish taxpayers whose cases are dealt with rapidly from those whose cases require clarifications or adjustments.
50. The two tables are extremely similar, except with respect to the lowest income brackets, which confirms that taxpayers slightly above the threshold of taxation were at that time particularly resistant to the income tax (in particular, wage earners slightly above the threshold of taxation were strongly overrepresented among tax adjustments: for example, in the 6,000–10,000 bracket, the compensation and wage share was 60.5 percent before taking into account tax adjustments, and it rose to 75.4 percent after taking adjustments into account; these were probably wage earners whose wages were known to the tax administration thanks to wage declarations their employers had made under the schedular wage tax).
51. No distinction of this kind was made in the composition table for the 1917 tax year, which grouped all real estate incomes together in a single category.
52. This evolution was not due to changes in the categories: the categories remained the same between 1920 and 1932, and the built real estate share in gross total income (all taxable tax units included) rose from 4.7 percent to 7.4 percent between 1920 and 1932, whereas the nonbuilt real estate share fell from 2.1 percent to 1.9 percent.
53. Only the composition tables for the 1934, 1936, 1937, 1945, and 1946 tax years make this distinction; in these tables, fictive real estate income as a share of total real estate income was generally around 20 percent (all taxable tax units included), and it reached levels of around 30–35 percent for the highest brackets.
54. In all of the composition tables compiled since the 1948 tax year, RGA have always been of residual importance relative to BIC (always less than 10 percent of the BIC

- total, except at the start of the period, when the RGA share reached 20–25 percent of total BIC for the highest income brackets).
55. In reality, while there is no doubt that the shares of profits received by partners in SNCs were automatically included in BIC before 1948, it cannot be ruled out that compensation paid to *gérants* (managers) of SARLs were included in TSP (finance ministry publications unfortunately do not say much about this); in any event, this would be of limited importance, since compensation paid to *gérants* of SARLs (a company category created in 1925) was most likely of limited importance in the interwar era (especially compared to shares of profits received by partners in SNCs).
  56. This ephemeral category was a very minor importance: less than 0.1 percent of total BIC (all taxable tax units included) in both 1920 and 1932, though it was about 5 percent for the highest income brackets in 1932 (less than 1 percent for the highest in 1920).
  57. Since 1948, all of these different modes of BIC taxation, not unlike the different modes of BA and BNC taxation, have always been subjected to detailed decomposition in the composition tables (or in annex tables published after the composition tables). When it comes to high incomes, the real-profit regime has always represented practically all declared profits.
  58. Let us note that the category *charges et offices*, which was broken out within BNC in the composition tables (or the corresponding annex tables) for the 1948–1969 tax years, also appeared in the composition table for the 1920 tax year (we have always included this category within BNC).
  59. The share of retirement pensions and annuities in total TSP (all taxable tax units included) obviously grew a great deal (from about 10 percent in 1917–1922 to nearly 30 percent in the late 1990s); however, given that the taxable share of tax units greatly increased and that the pension and annuity share of total TSP has always been a declining function of the income level, this point would merit clarification (the complication comes from the fact that annuities, which were likely much more important in the interwar era than at the end of the century, are never broken out within pensions and annuities).
  60. This “miscellaneous income” category also includes residual categories such as “income determined on the basis of outward signs of wealth,” as well as “capital gains from sale of lands for building” (see section 3), and a detailed decomposition of these various elements was given in the annex tables published after the composition tables.
  61.  $634.799 / 214.441 = 0.3$  percent.
  62.  $72.621 / 2,207 = 3.3$  percent.
  63. It is impossible to calculate these (taxable income) / (overall gross income) ratios precisely based on the composition tables compiled for the 1917 and 1920 tax years, since those tables stop after the “overall gross income” column (they give no information about the amount of deductions from total income or the movement to taxable income); we have compared the overall gross income appearing in the composition tables with the taxable income appearing in the distribution tables for the

same years, but, given that the two series of tables did not cover exactly the same universe until 1948 (see section 2.1), the ratios obtained in this way are relatively imprecise (we obtain a declining ratio for the highest income brackets up to 90 percent in 1917 and up to 80 percent in 1920, which seems more or less consistent with the evolution of the amount of deductible taxes; see Appendix B, section 1.4.1).

64. In fact, the column for deductions of “direct taxes” also included deductions for “social insurance”; however, there is no doubt that “direct taxes” represented the bulk of the amounts in question: besides the fact that the amounts shown correspond very well to the theoretical amounts that can be calculated (see Appendix B, section 1.4.1), it should be made clear that this “social insurance” label in principle concerns only contributions paid for domestic employees (any contributions owed by the taxpayers themselves were already deducted from the corresponding categorical incomes).
65. Real estate capital gains as a share of overall gross income has generally stood at around 0.2–0.3 percent since 1979 (all taxable tax units included), and the share has rarely exceeded 2 percent for the highest income brackets. In the composition tables for the 1963–1976 tax years, the real estate capital gains share (which at the time amounted to “capital gains from sales of lands for building”) of overall gross income was even lower (these capital gains were included in the “miscellaneous incomes” category in the composition tables for the 1966–1976 tax years, and a detailed breakdown of these “miscellaneous incomes” was given in an appendix table published after the composition table; real estate capital gains then completely disappeared from the tables for the 1977–1978 tax years, and they reappeared only in 1979, which is explained by the fact that the tax administration took a few years to adapt its statistical categories to the new capital-gains tax regime, as well as to computerize the tax collection procedures in question; see *S&EF* “red series” no. 371 (September 1980), p. 71, and *S&EF* “red series” no. 396 (1984), pp. 44–46.
66. There were also a few rare cases where investment capital gains could be taxed as BIC or as RCM (see Chapter 6, section 1.3).
67. Besides the fact that the series suddenly stopped in 1972 (which is apparently explained by the fact that the statistics on 1973 incomes now only covered “tax collections carried out by mechanical means” while at the time these capital gains were collected “manually”; see *S&EF* “red series” no. 328 [April 1976], p. 2), and that investment capital gains reappeared in the tax statistics only in 1979 (and in 1988 for the distribution of these capital gains), the problem with these investment capital-gains tables for the years 1959–1972 (which appeared in the same publications as the distribution tables) is that they cover only the few very specific categories of investment capital gains that were taxable at the time (the total amount of these capital gains represented about 0.5 percent of taxable income [all taxable tax units included] over the 1959–1972 period, which is one-sixth the share observed in the 1990s, roughly 3 percent [see Table A-11], but it is hard to tell how these percentages would have evolved if the capital gains universe in question had remained the same); moreover, these tables from 1959–1972 give the distribution of capital

- gains as a function of the amount of the capital gains (rather than as a function of the taxpayer's taxable income, as do the tables compiled since 1988); for all these reasons, these tables from 1959–1972 do not permit reliable comparisons with later periods, so we have not attempted to use them.
68. See also Appendix D, Table D-2, where we give the exact references to the publications where the “wages” tables were published.
  69. We have found no trace of any tabulations of wage and profit declarations from 1917–1918, neither in that era's finance ministry publications (*BSLC* and *RSRID*), nor in the finance ministry archives.
  70. On the rental value statistics compiled before the First World War, see Appendix K. The statistics derived from the interwar real estate tax were actually even more limited than those from the prewar era, since the interwar tax administration constantly postponed the date of a new general assessment of rental values, and the real estate tax continued in effect with irregularly updated rental values based on the 1911 survey of built and nonbuilt properties.
  71. Incomes from loans, deposits, and collateral were in principle supposed to result in a declaration (at least for income from loans between individuals), but apparently no distribution tables were compiled based on these declarations.
  72. These retrospective publications feature not only series concerning all receipts and all budget expenditures (derived from the finance laws), but also series on the amounts of tax-list issuance (at least for the 1930–1959 period).
  73. This second table was first compiled for the 1949 tax year (whereas the first table was first compiled for the 1948 tax year).
  74. The list also included *rémunérations des gérants et associés* (RGA) and income from loans, deposits, and collateral (which thus yielded declarations under the “proportional tax,” which were analyzed in the same way as those concerning other incomes), as well as a few residual categories used in the framework of the progressive income tax (such as “incomes received outside of France”).
  75. And even throughout the 1919–1959 period (see below).
  76. The statistical tables derived from the schedular tax on BIC were always compiled separately for the normal regime and the special regime; since individual entrepreneurs were gradually taken out of the normal regime (see Chapter 4, section 4.2), the statistical tables have gradually made it possible to break out corporations within the group of BIC recipients (with a complete separation starting from 1942).
  77. On a one-time basis, the IS on 1948 profits was collected by means of tax lists, and the tax administration compiled a corresponding distribution table (see *S&EF* no. 20–21 [August–September 1950], p. 619, and *S&EF* “statistical supplement” no. 14 [2nd quarter, 1952], p. 198). But this mode of collection was abandoned the following year, and since then firms have always had to calculate and pay the amount of their IS directly, so the tax administration has not compiled this type of statistical table since then (company profit declarations continued to be analyzed, but the statistical tables they yielded were not as regular or as standardized as those based on taxes collected by means of tax lists).

78. This separate treatment now pertained only to investment-securities income strictly speaking, since incomes from loans, deposits, and collateral continued on the same trajectory as real estate incomes and were subjected to the same statistical treatment as company profits starting from 1948.
79. For the “complementary tax” the administration compiled a series of tables giving the number and amount of incomes subject to the “complementary tax” for a certain number of brackets of total income subject to the “complementary tax” (since the incomes in question were the same as those taken into account in the tables derived from the “proportional tax,” this again is a very strange total-income concept) (this table was compiled for the 1959–1969 tax years); also, for the 1959 tax year (and only for that year), the tax administration also compiled a table for the “complementary tax” by categorical income brackets similar to the tables compiled for the “proportional tax”; all of these tables were published in the same publications as those given in Tables A-4 and A-10, and we have not attempted to use them.
80. Also recall that since 1985 all statistical tables based on income tax returns have also been compiled for nontaxable tax units (rather than just for taxable tax units).
81. Though with the exception of the tables for tax reductions, which we used in Appendix B (section 3) to estimate average tax rates by fractile.

APPENDIX B

1. By definition, all that is needed to go from the levels  $P_{90-100}$ ,  $P_{95-100}$ ,  $P_{99-100}$ ,  $P_{99.5-100}$ ,  $P_{99.9-100}$ , and  $P_{99.99-100}$  to the intermediate levels  $P_{90-95}$ ,  $P_{95-99}$ ,  $P_{99-99.5}$ ,  $P_{99.5-99.9}$ , and  $P_{99.9-99.99}$  is to apply the following accounting equations:  $P_{90-95} = 2 \times P_{90-100} - P_{95-100}$ ,  $P_{95-99} = (5 \times P_{95-100} - P_{99-100}) / 4$ ,  $P_{99-99.5} = 2 \times P_{99-100} - P_{99.5-100}$ ,  $P_{99.5-99.9} = (5 \times P_{99.5-100} - P_{99.9-100}) / 4$ , and  $P_{99.9-99.99} = (10 \times P_{99.9-100} - P_{99.99-100}) / 9$ . However, our estimate of the intermediate levels  $P_{90-95}$  to  $P_{99.9-99.99}$  is not a simple mechanical deduction from our estimate of the higher levels  $P_{90-100}$  to  $P_{99.99-100}$ , since to make certain adjustments (see section 1.4) it is preferable to go directly through the intermediate levels, before converting the results obtained in terms of higher levels; to go from the intermediate levels to the higher levels, it is sufficient to apply the following accounting equations:  $P_{99.9-100} = (9 \times P_{99.9-99.99} + P_{99.99-100}) / 10$ ,  $P_{99.5-100} = (4 \times P_{99.5-99.9} + P_{99.9-100}) / 5$ ,  $P_{99-100} = (P_{99-99.5} + P_{99.5-100}) / 2$ ,  $P_{95-100} = (4 \times P_{95-99} + P_{99-100}) / 5$ , and  $P_{90-100} = (P_{90-95} + P_{95-100}) / 2$ .
2. Some authors prefer to call the parameter  $a = b / (b - 1)$  the “coefficient of the Pareto law” (these terms are simply conventions; the key point is to compare the same coefficients).
3. We may note that for all of the interwar years and the immediate post-Second World War period, the Pareto coefficients always reach significantly higher levels at the  $P_{90}$  threshold than for the very high incomes; this totally artificial phenomenon is explained by the fact that the distributions described in the distribution tables are truncated (see section 1.3).
4. See Pareto (1896) and Pareto (1896–1897, vol. 2, book 3, chap. 1).

5. See also Atkinson and Micklewright (1992, 279–283).
6. To reproduce the calculations precisely (without rounding error), it is necessary to go back to the raw figures given in Table A-1, using all of the decimal places.
7. See preceding note.
8. See note 6.
9. See note 6.
10. This seems logical insofar as the Feenberg-Poterba technique amounts to not using all available information about income levels above the highest threshold, even though this information is key if we are looking specifically at top incomes. However, it is possible that the American data allow this information to be dispensed with more easily than the French data, since the tables compiled by the American tax administration use a significantly larger number of income brackets than the French tables (notably when it comes to very high incomes, for which the brackets used by the French tax administration have not been adjusted since the 1960s). In any event, the two techniques always give extremely similar results, with discrepancies that are totally negligible compared to the size of the fluctuations studied.
11. For readers interested in a precise description of these issues concerning sampling rates in the DGI samples and INSEE's *Revenus fiscaux* studies, the availability and technical characteristics of the samples, and so forth, see Piketty (1998). Here we will merely make it clear that the DGI samples (the so-called light samples) that we used include all income tax returns from fractile P99.99–100 (that is, above roughly 3 million francs), and one-fifth of the returns from fractile P99.9–99.99 (that is, between about 1 million francs and about 3 million francs); we should also say that we took into account both taxable and nontaxable households, which confirmed unimportance of nontaxable households at these income levels.
12. See especially Piketty (1998, table E-2, 130, and table E-4, 132).
13. See Piketty (1998, table E-1, 126, and table E-2, 130).
14. In particular, with the exception of this adjustment concerning the P99.99 thresholds and the P99.99–100 levels, and excepting the fact that the results for the 1996 tax year given in Piketty (1998) were based on the distribution table compiled on  $12 / 31 / n + 1$  (and that no results were given for the 1997–1998 tax years), the results for the 1970–1998 tax years reproduced in Tables B-2, B-3, and B-4 are strictly the same as the results given in Piketty (1998, tables 3-3 and 3-4, 35–36, and table D-2, 109). The results given in Piketty (1998) express the levels in terms of shares of total taxable income rather than in terms of francs, so it is necessary to multiply the shares by the average incomes given in Piketty (1998, table 2-3, 23) to obtain estimates in francs; also, it must be taken into account that the adjustments to the P99.99–100 level result in (very) small upward adjustments for all of the P90–100, P95–100, to P99.9–100 levels starting from the P90–95 to P99.9–99.99 levels and from the adjusted P99.99–100 series. We should also make it clear that the results given in Piketty (1998) already included a (slight) adjustment for the 1988 tax year, the only year for which capital gains taxed at the proportional rate were included in the concept of

- “taxable income” used in the income brackets of the distribution table, and we simply adopted the results of this adjustment (see Piketty 1998, 108–110).
15. The full shares granted to dependent children in large families date only to the 1970s and early 1980s, as does the mechanism for capping the effects of the family quotient (see Chapter 4, section 4.1.1).
  16. The lower threshold of the lowest bracket of the tax schedule for the 1970 tax year was 2,900 francs, and  $15,950 = 5.5 \times 2,900$  francs.
  17. However, the estimates reproduced in Tables B-2 to B-4 take into account the adjustments made “for a too-low top bracket” for P99.99 and P99.99–100 described in section 1.2.
  18. With the exception of the years 1931–1935 and 1942–1944, for which the distribution tables were compiled in terms of “taxable income” (after taking into account deductions for family dependents) and not in terms of “net income” (see Appendix A, section 1.1), the adjustments that should be made for the 1931–1935 and 1942–1944 years are thus of a different kind. We began by estimating the levels and thresholds of the various fractiles using the raw data reproduced in Table A-1, then we adjusted the estimates obtained by adding to them estimates of average deductions for family dependents. Using the columns of the 1931–1935 and 1942–1944 distribution tables concerning deductions for family dependents, as well as the special table compiled for the 1937 tax year (see below), we adopted the following average deductions: for the 1931–1935 years, 5,000 francs for the P90 threshold, 6,000 for P95, 7,000 francs for P99, 8,000 francs for P99.5, and 9,000 francs for P99.9 and P99.99 (thus about 5,500 francs for the P90–95 level, 6,500 francs for the P95–99 level, 7,500 francs for P99–99.5, 8,500 francs for P99.5–99.9, and 9,000 francs for P99.9–99.99 and P99.99–100 levels); for the year 1942, 6,000 francs for the P90 threshold, 7,000 for P95, 9,000 francs for P99, 10,000 francs for P99.5, and 12,000 francs for P99.9 and P99.99 (thus about 6,500 francs for the P90–95 level, 8,000 francs for P95–99, 9,500 francs for P99–99.5, 11,000 francs for P99.5–99.9, and 12,000 francs for P99.9–99.99 and P99.99–100 levels); for the years 1943–1944, 8,000 francs for the P90 threshold, 9,000 for P95, 13,000 francs for P99, 14,000 francs for P99.5, and 17,000 francs for P99.9 and P99.99 (about 8,500 francs for the P90–95 level, 11,000 francs for P95–99, 13,500 francs for P99–99.5, 15,000 francs for P99.5–99.9, and 17,000 francs for P99.9–99.99 and P99.99–100 levels) (the fact that average deductions rise so sharply with income is an artificial result of ranking by income after deductions for family dependents).
  19. This table was published in the *BSLC* of July–August 1939 (126:68–69).
  20. We have not been able to find any other similar table, neither in the *BSLC*, the *RSRID* volumes, nor in the Finance Ministry archives.
  21. The markup rates for headcounts that we have applied to the raw figures appearing in Table A-1 are the following: for the 1919–1921 tax years, 1.1704 at the level of bracket 10,000–20,000, 1.0016 at the 20,000–30,000 level (no markup for higher brackets); for 1922, 1.2494 for 10,000–20,000, 1.0026 for 20,000–30,000; for 1923–1927,



- 1.3797 for 10,000–20,000, 1.0203 for 20,000–30,000; for 1928, 1.0633 for 10,000–20,000, 1.0037 for 20,000–30,000; for 1929–1930, 1.1981 for 20,000–30,000, 1.0290 for 30,000–50,000, 1.0014 for 50,000–100,000; for 1936–1941, 1.1556 for 20,000–30,000, 1.0446 for 30,000–40,000, 1.0299 for 40,000–50,000, 1.0112 for 50,000–75,000, 1.0012 for 75,000–100,000.
22. Except perhaps for 1915, which would mean that our estimates of top-income levels in 1915 are slightly overstated.
23.  $29.2 \times 1,472,839 / 1,336,715 = 32.1$  (with rounding errors). The results reproduced in Table B-5 take into account the fact that only half of the 1944 IGR was deductible in the 1945 tax year and only a quarter of 1946 IGR was deductible in the 1947 tax year (for the 1946 tax year, and definitively starting from the 1948 tax year, no deductibility of the previous year's IGR was permitted).
24. Note that when it comes to the 1914–1916 tax years, the schedular taxes did not exist, but the “four old ladies” were still in effect, and affected taxpayers could deduct them from their 1915–1917 taxable incomes; we have not taken these deductions into account, so the corresponding estimates are slightly understated.
25.  $39.2 \times 1,472,839 / 1,336,715 = 43.1$  (with rounding errors).
26. This adjustment also includes deductions from total income other than those concerning the previous year's taxes (see Appendix A, section 2.2).
27. This flat-rate deduction was introduced in order to obtain savings, so it can be supposed that real expenses declared before 1934 represented at least 10 percent of wages (on average).
28. We applied the same markup rates to the thresholds as we did to the intermediate levels (the P90–95 markup rate was applied to the P90 threshold, the P95–99 markup rate was applied to the P95 threshold, etc.).
29.  $2,125,961 = 1.431 \times 1.111 \times 1,336,715$  (with rounding errors).
30.  $471,435 = 1.245 \times 1.136 \times 333,321$  (with rounding errors).
31.  $636,887 = (9 \times 471,435 + 2,125,961) / 10$  (with rounding errors).
32.  $6,141,642 = 2.889 \times 2,125,961$  (with rounding errors).
33.  $1.93 = (6,141,642 / 3,1778) / 100$
34. We used the average income for 1900–1910 estimated in Appendix G; see Table G-2, column (7). The thresholds were calculated assuming a Pareto coefficient of 2.6.
35. We invite any interested readers to compare the raw data from the composition tables (the references to these raw tables are given in Appendix A, Table A-10) with the estimates we adopted for the composition of the various fractiles (see Table B-16), a somewhat fastidious comparison that shows that the trends are perfectly consistent. The only systematic bias in our methodology concerns how we moved from the composition of taxable income to the composition of fiscal income: since the hierarchical position occupied by wage earners in the taxable income distribution is slightly higher than in the hierarchy of fiscal income, our methodology results in a slight underestimate of the wage share for high fractiles. However, calibrating with the composition data from the 1988–1995 DGI samples (which were



- obtained on the basis of fiscal income fractiles, not taxable income fractiles) shows that this bias is of an extremely small size.
36. We had already used this method in Piketty (1998) and found that it provided relatively reliable estimates (within 1 or 2 percent), at least when the available thresholds are not too far from the thresholds of the fractiles whose composition one is trying to estimate, which only stopped being the case in the 1980s–1990s (and only above fractile P99.5–100).
  37. For example, if you know the average income level for fractiles P90–100 and P95–100 and the income composition of fractiles P90–100 and P95–100, you can deduce (by subtraction) the composition of P90–95 income. However, this method is acceptable only when the distributions described in the composition tables are not “truncated” (see section 1.3); up to the late 1950s, and notably in the interwar era (especially since the interwar composition tables cover a slightly narrower universe of taxpayers than the distribution tables), this method sometimes results in estimates of the composition of intermediate fractiles that are slightly inconsistent with the raw data; when such a situation arises, we have slightly adjusted the estimates so that the composition of intermediate fractiles is always perfectly consistent (in terms of both levels and trends) with the raw data.
  38. The assumption that the flat-rate exemption for wage earners applied at the same rate whatever the wage level is reasonable in that the exemption started to be capped only in the 1970s. It is also confirmed by the fact that in the raw composition tables data for the 1952–1953, 1953–1954, 1958–1959, and 1959–1960 transitions, the wage and retirement-pension share of taxable income declined in equivalent proportions for all income brackets.
  39. These estimates are reproduced in Piketty (1998, table 3-2, 31, and tables F-2 to F-14, 138–144). These are the estimates we have used in Table B-16 for the years 1988–1995, without adjustments.
  40. More precisely: (1) the linear extrapolation method, applied to the raw data from the composition tables for the 1970–1988 tax years, gives us, for each year, estimates of the composition of taxable income for fractiles P90–100, P95–100, P99–100, and P99.5–100 (because the brackets used by the tax administration in the 1980s and 1990s were too low, it is impossible to go beyond P99.5–100; the results of this linear extrapolation, converted in terms of intermediate fractiles, are given in Piketty [1998, table 3-6, 42–43]); (2) for each fractile and each income category, these estimates give us growth rates for 1971 / 1970, 1972 / 1971, etc., and 1988 / 1987, of the share accounted for by the income category in question for the fractile in question, and we applied these growth rates to the estimates of the 1970 composition of fiscal income for fractiles P90–100, P95–100, P99–100, P99.5–100, P99.9–100, and P99.99–100 (for fractiles P99.9–100 and 99.99–100, we applied the same growth rate indicator as for fractile P99.5–100), which allows us to move up to 1988 little by little; (3) because the evolution of the composition of taxable income is (very) slightly different from the composition of fiscal income, the resulting estimates for

- the composition of fiscal income for 1988 are (very) slightly different from the estimates from the DGI samples, and, to avoid any discontinuity in 1988, we adjusted the resulting estimates for 1971–1987 by assuming that the total 1988 / 1970 error for each fractile and each income category could be allocated linearly over the years 1970–1988 (these annual adjustments never exceed 1 percent; by construction, the resulting estimates for the years 1971–1987 do not add up exactly to 100 percent, and we obviously rescaled them to add up to 100 percent); (4) finally, we inferred (by subtraction) the composition of the P<sub>90–95</sub>, P<sub>95–99</sub>, P<sub>99–99.5</sub>, P<sub>99.5–99.9</sub>, and P<sub>99.9–99.99</sub> fractiles for 1971–1987 from the composition of the P<sub>90–100</sub>, P<sub>95–100</sub>, P<sub>99–100</sub>, P<sub>99.5–100</sub>, P<sub>99.9–100</sub>, and P<sub>99.99–100</sub> fractiles and from the income levels of the various fractiles (as we did for 1917–1970 incomes).
41. The method used for 1996–1998 incomes is the same as that used for 1971–1987 incomes (see previous note), except that step (3) is not necessary (all that is needed is to apply the 1996 / 1995, 1997 / 1996, and 1998 / 1997 growth rates to the estimates from the DGI sample for 1995, then to rescale everything to get a sum equal to 100 percent).
  42. As we did with total taxes (see Appendix A, section 1.3, Table A-2), we have taken into account all of the “exceptional surtaxes” shown in Table 4-6 (Chapter 4), and we have thus excluded certain taxes that took the form of compulsory loans.
  43. For example, for 1930, Table B-19 gives an average tax rate (expressed as a percentage of taxable income) of 28.2 percent for fractile P<sub>99.99–100</sub>, Tables B-2 and B-8 show that the (average taxable income) / (average fiscal income) ratio for fractile P<sub>99.99–100</sub> in 1930 was about 0.629 ( $1,336,715 / 2,125,961 = 0.629$ ), hence the average tax rate (expressed as a percentage of fiscal income) of 17.7 percent ( $17.7 = 26.8 \times 0.629$ ) given in Table B-20.
  44. For example, for 1930, the average tax rate (expressed as a percentage of fiscal income) was 1.3 percent for fractile P<sub>0–100</sub> and 3.1 percent for fractile P<sub>90–100</sub> (see Table B-20), and the P<sub>90–100</sub> share of total fiscal income was 41.08 percent (see Table B-14), hence the average tax rate (expressed as a percentage of fiscal income) of 0.0 percent for fractile P<sub>0–90</sub> shown in Table B-20:  $(1.3 \times 100 - 3.1 \times 41.08) / (100 - 41.08) = 0.045$  percent, rounded to 0.0 percent.
  45. For example, for 1930, the average tax rate (expressed as a percentage of fiscal income) was 17.7 percent for the P<sub>99.99–100</sub> fractile and 1.3 percent (in fact 1.252 percent) for the P<sub>0–100</sub> fractile (see Table B-20), and the P<sub>99.99–100</sub> share of total fiscal income was 1.93 percent (see Table B-14); hence the 27.3 percent share of total tax for fractile P<sub>99.99–100</sub> shown in Table B-21 ( $27.3 = [17.7 \times 1.93] / [1.252 \times 100]$ ), and the 1.61 percent share of total after-tax income for fractile P<sub>99.99–100</sub> shown in Table B-22 ( $1.61 = [0.823 \times 1.93] / 0.98748$ ).
  46. The estimates of average effective tax rates for fractiles P<sub>90–100</sub>, P<sub>95–100</sub>, P<sub>99–100</sub>, P<sub>99.5–100</sub>, P<sub>99.9–100</sub>, and P<sub>99.99–100</sub>, reproduced on the left-hand side of Table B-19, were calculated directly from the average rates of the intermediate fractiles reproduced on the right-hand side of Table B-19 and from the average taxable incomes by fractile reproduced in Tables B-2 and B-3 (if one knows the average tax rates and average taxable incomes for fractiles P<sub>99.9–99.99</sub> and P<sub>99.99–100</sub>, one

can deduce the average tax rate for fractile P99.9–100; likewise, if one knows the average tax rates and average taxable incomes of fractiles P99.5–99.9 and P99.9–100, one can deduce the average tax rate of fractile P99.5–100; and so on, step-by-step). As for the estimates reproduced in Tables B-20, B-21, and B-22, they were also calculated directly from the estimates in Table B-19 (see above), and thus any estimation errors can only come from errors in the estimates in Table B-19.

47. Strictly speaking, due to the progressivity of the rate schedules, the average tax rate of a given fractile is not exactly equal to the average tax rate for a taxpayer within income exactly equal to the average income of that fractile (it is necessary to calculate the average tax rate in each point of the fractile, then take an average by weighting with a Pareto law). However, when we look at the intermediate fractiles (P90–95, P95–99, etc.), the average tax rates change relatively slowly from one end of a fractile to the other, so that estimation errors introduced in this way are extremely small. Comparing with the average tax rates that can be calculated from the distribution tables shows that this approximation technique gives quite acceptable results.
48. More precisely, for the entire 1915–1944 period and for all top-income fractiles we used weights equal to 0.146 for single individuals, 0.359 for married couples without dependent children, 0.249 for married couples with one dependent child, 0.148 for married couples with two dependent children, 0.070 for married couples with three dependent children, and 0.029 for married couples with four dependent children (by construction, the sum of the weights equals 1; families with five children or more are accounted for by granting families with four dependent children a slightly higher weight than their actual weight). The table on family situations compiled for the 1937 tax year, as well as the distribution tables compiled annually, show that “average” family composition varies relatively little with income level (at least within the top decile), and the distribution tables show that this “average” family composition changed very slowly up to 1944. We have also carried out estimates using other weights and different “reasonable” assumptions about the evolution of these weights over time, and the overall result is that estimates of average tax rates for the various fractiles depend very little (a maximum of 0.5 percentage points of tax rate) on the choice of weights.
49. The fact that the average tax rate of fractile P99.5–99.9 is slightly lower than the average rate for the 100,000–200,000 bracket makes sense in that fractile P99.5–99.9 also includes incomes between 82,506 and 100,000 francs, for which the average tax rate is significantly lower: the distribution table shows that in 1930 the average rate of the 50,000–100,000 bracket was 2.99 percent (270.608 million of net tax issued for 9043.793 million of taxable income) (fractile P99.5–99.9 also includes taxable incomes between 200,000 and 207,477 francs, but there are far fewer of them).
50. Within the top decile, we always observe (throughout the 1945–1998 period, as well as in 1915–1944) that the share of families follows a sort of “inverted U-curve”: the P95–99 and P99–99.5 fractiles contain more families and have a slightly higher average number of FQ shares than the P90–95 fractile, then the percentage of families and the average number of FQ shares decline slightly as we enter the upper

strata of the top 1 percent (fractiles P99.5–99.9, P99.9–99.99, and P99.99–100 always contain more single taxpayers and childless married couples than the preceding fractiles). However, all of these changes within the top decile are always of a relatively small magnitude (for example, in 1995, the average number of FQ shares went from 2.59 in P90–100 to 2.61 in P95–100, 2.73 in P99–100, 2.71 in P99.5–100, 2.64 in P99.9–100, and 2.47 in P99.99–100; the figures are almost identical for 1988: from 2.58 in P90–100 to 2.73 in P99–100 and 2.47 in P99.99–100; these figures come from the DGI samples of 1988–1995 tax returns used in Piketty [1998]), so we have chosen to ignore them (if we were to take them into account, the effect on the average tax rates by fractile would never exceed 0.5 percentage points of tax rate). On the other hand, the “average” family structure of the bottom deciles is significantly different from the top decile. In particular, the percentage of single individuals (particularly tax units with 1 and 1.5 shares of FQ) is significantly higher in the bottom deciles than in the top decile, and the average number of FQ shares is significantly lower; the average number of FQ shares for fractile P90–100 also seems to display a clear downward trend in the 1980s–1990s (1.90 in 1998, 1.79 in 1995), in contrast to fractile P90–100, which seems extremely stable from this point of view.

51. Based on the 1945–1998 distribution tables, we have adopted the following weightings: For the 1945–1949 tax years, 0.04 for FQ=1, 0.15 for FQ=1.5, 0.24 for FQ=2, 0.22 for FQ=2.5, 0.19 for FQ=3, 0.12 for FQ=3.5, 0.04 for FQ=4 (for an average FQ of 2.45); for the 1950 tax year (the year the penalty for childless married couples was eliminated), 0.04 for FQ=1, 0.04 for FQ=1.5, 0.35 for FQ=2, 0.22 for FQ=2.5, 0.19 for FQ=3, 0.12 for FQ=3.5, and 0.04 for FQ=4 (for an average FQ of 2.50); for the 1970 tax year, 0.04 for FQ=1, 0.04 for FQ=1.5, 0.30 for FQ=2, 0.22 for FQ=2.5, 0.24 for FQ=3, 0.12 for FQ=3.5, 0.05 for FQ=4 (for an average FQ of 2.56). For the 1951–1969 tax years, we assumed a linear trend between the weights adopted for 1950 and those adopted for 1970, which does a rather good job of accounting (to a first approximation) for the growth in the number of families observed in the FQ distribution between 1950 and 1970; this trend seems to have come to a stop in the early 1970s, and for the years 1971–1979 we used the same weights as those we adopted for 1970; for the 1980 tax year (the first year when a full share was granted to the third child, which means that married couples with three children now had 4 FQ shares, rather than 3.5), we adopted 0.05 for FQ=1, 0.05 for FQ=1.5, 0.30 for FQ=2, 0.22 for FQ=2.5, 0.25 for FQ=3, 0.01 for FQ=3.5, and 0.12 for FQ=4 (for an average FQ of 2.54); for the 1981–1998 tax years, we adopted the same weights as for 1980 (the DGI samples of 1988–1995 income tax returns, used in Piketty [1998], confirm that the distribution of FQ shares among top incomes was extremely stable in the 1980s–1990s). By construction, these weights always sum to 1 (as we did for 1915–1944, we gave FQ=4 a slightly higher weight than its actual weight, to take into account the existence of FQs greater than 4). These weights are obviously not intended to provide a fine-grained description of the evolution of family structures among top incomes since 1945; however, they do have the merit of providing acceptable approximations of average tax rates by fractile.

52. See Part Two, Chapter 4, Table 4-5.
53. To calculate the effects of the cap, we assumed that all tax units with 2 or more shares were married-couple tax units (in practice, that is the case for the overwhelming majority of them; see Piketty [1998, 18, n. 33]), so we did not take account for the fact that since the 1986 tax year, the cap on the tax relief obtained through the full share of family quotient granted to single individuals for their first dependent child has been less than the overall cap (this provision affects very few taxpayers, and the consequences for average tax rates by fractile are negligible). On the other hand, we did take into account the new cap affecting taxpayers with 1.5 FQ shares since the 1997 tax year (assuming all of them were affected), as well as the reduction in the general cap in effect since the 1998 tax year (see Appendix C, Table C-5, for the evolution of the thresholds of the family-quotient cap).
54. For the 1915–1944 period, we also lacked all of the information necessary to estimate the importance of certain items for each of the fractiles. For example, knowing the family situation (single, married couple without children, married couple with one child, two children, three children, or four children) and taxable income does not make it possible to calculate the amount of any surtaxes on single individuals and childless married couples (to do this, one would have to know the percentage of childless married couples to whom the surtax actually applies, that is, the percentage of couples who have been married for more than three years and have never had a child, etc.). However, the distribution tables do give us the actual weight of these surtaxes within the various taxable income brackets, which allowed us to estimate the approximate weight of the surtax to assign to the various fractiles (such an approximate estimate is easily sufficient for the 1915–1944 period, given the very small difference between simple liability and net tax during this period; see Table A-3, column [14]).
55. As already noted, the only exceptional surtaxes we did not take into account were compulsory loans (we did take into account all of the exceptional surtaxes appearing in Table 4-6, Chapter 4).
56. In other words, we multiplied the average rates of simple liability by fractile by a factor equal to 1.0144 for 1945, 1.020 for 1946, 1.000 for 1947, and so on. (We also added any exceptional surtaxes, as we did for the entire 1915–1998 period.)
57. For the 1959–1971 period, we thus calculated the average rates of simple liability by fractile and by number of FQ shares by applying the rate schedule before accounting for the tax reduction proportional to the amount of wages and retirement pensions (that is, the schedules with brackets taxed at 5 percent, 15 percent, 20 percent, 25 percent, 35 percent, 45 percent, 55 percent, and 65 percent [rather than 0 percent, 10 percent, 15 percent, 20 percent, 30 percent, 40 percent, 50 percent, and 60 percent] for the 1959–1969 tax years, and at 3 percent, 13 percent, 18 percent, 23 percent, 33 percent, 43 percent, 53 percent, and 63 percent [rather than 0 percent, 10 percent, 15 percent, 20 percent, 30 percent, 40 percent, 50 percent, and 60 percent] for the 1970–1971 tax years; see Part Two, Chapter 4, Table 4-5), then we subtracted 4 percentage points from the rate obtained for fractile P90–95 ( $4 = 5 \times 80$  percent); for

1970–1971, we subtracted 2.4 percentage points ( $2.4 = 3 \times 80$  percent), 3.5 percentage points from the rate obtained for fractile P95–99 ( $3.5 = 5 \times 70$  percent), and for 1970–1971, we subtracted 2.1 percentage points ( $2.1 = 3 \times 70$  percent), and so on. In strict terms, the wage and retirement-pension share for the various fractiles is obviously not perfectly constant (see section 2), but given the limited importance of the tax reductions at play, we thought there was little point in trying to use fine-grained changes in the income composition to impute slight changes in the rates of reduction to which the various fractiles were actually entitled.

58. See Table A-3.
59. See Appendix A, section 4.
60. These calculations were based on the “amount of simple liability” and “amount of net tax” columns from table IIA (taxable tax units, all numbers of shares combined) from the Etat 1921 from the 1998 tax year (situation on 12 / 31 / 1999). The rates obtained for other years in the other tables of the same kind (available since the 1994 tax year) have similar profiles and levels. These average rates of tax reduction are slightly understated, since the net tax appearing in table IIA takes into account capital gains taxed at the proportional rate.
61. In other words, we multiplied the average rates of simple liability by fractile by a factor equal to 0.982 for 1959, 0.940 for 1960, and so on, 0.834 for 1997–1998.
62. According to the DGI samples, the (net tax) / (simple liability) ratio falls extremely rapidly among households with more than 500,000 francs of taxable income (which cannot be seen in the distribution tables), and the corresponding overall rate of tax reduction reaches 27.8 percent for fractile P99.99–100 in 1995 (versus 9.9 percent for fractile P99.5–99.9 and 13.9 percent for fractile P99.9–99.99); this means the actual average tax rate for fractile P99.99–100 (expressed as a percentage of fiscal income and estimated using DGI samples) was just over 35 percent in the 1990s, and not about 39–40 percent, as (incorrectly) suggested by the estimates in Table B-20. We chose not to correct this estimation error for the following reasons: on the one hand, by choosing to apply to all fractiles the 16.6 percent overall rate of tax reduction (in 1997–1998) observed for all households (taxable and nontaxable, which means this rate takes into account the effects of the rebate), even as the rate for taxable households alone was only 11.4 percent (in 1997–1998), we have already corrected a significant share of this bias (which explains the small size of the gap between our estimate of the average tax rate for fractile P99.99–100 and the rates estimated using the DGI samples; this choice also means that our estimates of average tax rates for the other fractiles are [very] slightly understated); on the other hand, and most importantly, this 27.8 percent rate of tax reduction for fractile P99.99–100 is mainly due to the importance of investment income and thus tax assets for very high incomes, and it would be rather artificial if such a phenomenon caused us to present average tax rates that declined slightly for the topmost incomes, insofar as tax assets are already accounted for in the denominator: the taxable income given in the tax statistics has always included tax assets ( $y = y_a + a$ , where  $y$  is the amount of taxable income taken into account in the tax statistics and in the calculation of the tax,  $y_a$  is the amount of taxable income



before adding tax assets, and  $a$  is the amount of tax assets, with these latter two amounts never being broken out separately in the tables compiled by the tax administration), and if one really wished to subtract tax assets from tax paid, it would seem logical to subtract tax assets from the denominator as well (that is, if  $I$  is tax owed (before imputing tax assets), it would seem logical to examine an average tax rate of the type  $t = (I - a) / (y - a)$  (or even a rate  $t = I / y$ ) rather than a rate of the type  $t = (I - a) / y$ ); the solution we have adopted is hardly satisfactory (we are taking tax assets into account in calculating the uniform (net tax) / (taxable income) rate that we apply to all fractiles, but we are not taking into account the concentration of tax assets among very high incomes), but, in addition to the fact that it yields acceptable approximations, it seemed to us the only possible method, insofar as a complete treatment of the long-run tax asset issue would require us to study the incidence of the corporate tax (and of the schedular tax on BIC incomes before the 1948 reform) on average tax rates of owners of investment capital before the 1965 creation of the tax asset (see Chapter 4, section 4.4), and more generally, the issue of the incidence of taxes other than the income tax on income-tax payers, an issue whose thorough study over the long run would far exceed the scope of this book.

63. The fact that tax credits were not counted separately until 1959 results in a particularly sharp drop in the (net tax) / (simple liability) ratio in 1960 (from 98.2 percent to 94.0 percent; see Appendix A, Table A-3, column (14)), which leads us to exaggerate the decline in average rates for very high-income fractiles between 1959 and 1960. Likewise, the sharp decline in the (net tax) / (simple liability) ratio in 1983 (from 97.0 percent to 91.7 percent; see Appendix A, Table A-3, column (14)) causes us to overstate the decline in average tax rates (the decline in the (net tax) / (simple liability) ratio is due to the conversion of deductions from taxable income into tax reductions, and we have not carried out the necessary adjustments for the (fiscal income) / (taxable income) ratio).

## APPENDIX C

1. See Appendix A, section 1.4. This 1947 note, like all other notes of its kind, unfortunately does not address the tax on investment income.
2. This general rule is complicated by the fact that investment income tax rates quickly diverged according to the type of investment security in question.

## APPENDIX D

1. Estimates of the total number of wage earners from the censuses are reproduced in Appendix H (Table H-2) (the figures obtained depend on how one chooses to treat “isolated workers”). By making the census results consistent, Marchand and Thélot (1997, 236–237) adopted the following estimates: 12.2 million wage earners in 1921, 12.4 million in 1926, 12.9 million in 1931, and 11.9 million in 1936.
2. For a given average wage, and assuming a Pareto coefficient of around 2, a 10 percent overestimate of the total number of wage earners (which is considerable) leads to a roughly 5 percent overestimate of a given top fractile’s share of the total wage bill.

3. The 1,000-franc deduction “for mutilation due to war” introduced in 1922 was still in effect in the 1934–1938 wage-years (see Appendix C, Table C-7); but given the very small number of taxpayers affected, this deduction can be ignored.
4. The problem is posed in a different way for the 1922–1930 and 1931–1933 periods: the brackets used by the administration in tabulating wage declarations were expressed in terms of “net wages” (before taking into account any deductions for family dependents) through 1930, and in terms of “taxable wages” (after any deductions for family dependents) starting from 1931. Based on the columns showing the amount of deductions for family dependents by wage bracket, we began by estimating the levels and thresholds of the various fractiles using the raw data reproduced in Table D-1, and then we adjusted the estimates obtained by adding to them the following amounts: in 1922–1926, 1,500 francs at the level of fractile P90–95 (and thresholds P90 and P95) and 1,000 francs at the level of fractile P95–99; in 1927–1928, 1,000 francs for P90–95 (and for thresholds P90 and P95) and 500 francs for level P95–99; in 1929, 750 francs for P90–95 (and for P90), 500 francs for P95, and 250 francs for P95–99; in 1930, 500 francs for P90–95 and P90, and 250 francs for P95; in 1931–1933, 2,250 francs for P90–95, 2,500 francs for P90, 3,000 francs for P95–99 and P95, 4,000 francs for P99–99.5 and P99, 5,000 francs for P99.5–99.99 and P99.5, and 6,000 francs for P99.9–99.99, P99.99–100, P99.9, and P99.99.
5. It may be noted that Pareto coefficients are significantly lower for wages (Table D-4) than for incomes (Table B-1), which reflects the fact that wages are less highly concentrated than incomes.
6. Compared to the interwar tables, the INSEE tables also offer a certain number of advantages: INSEE analyzed all wage declarations (not just those concerning wages above a certain threshold), and INSEE provides information on socioprofessional category, sex, industry, etc. However, given our purposes here (namely, estimating the top-wage fractiles’ shares of total wages), these advantages are of limited interest.
7. Tables D-15 and D-16 merely convert the results from Table D-14 into 1998 francs and into shares of total wages, using the conversion rates estimated in Appendix F, column (7) of Table F-1, and the average wage series estimated in Appendix E, column (12) of Table E-3.
8. The wages from the *Emploi* studies were wages declared by the workers themselves, which means there is a certain amount of bias, notably with respect to underestimation of very high wages (the sharp decline in very high wages as a share of total wages shown in Table D-17 for the late 1990s seems suspect); that is why we limited ourselves to using the P90 threshold from the *Emploi* studies as a growth indicator for the top decile.
9. Also, the INSEE tables most often show headcounts only in terms of percentages of aggregate headcounts, with a limited number of decimal places (only one decimal place for the 1956–1974 wage-years, then two decimal places for the 1975–1992 wage years; see Table D-9), which introduces a new source of error, particularly for very high wages.



10. For the years 1950 and 1956–1992, we thus used the coefficients  $(a, k)$  implied by the pairs  $(s_i, p_i)$  and  $(s_{i+1}, p_{i+1})$  such that the lower threshold of the fractile to be estimated is included within the interval  $[s_i, s_{i+1}]$  ( $a$  and  $k$  are thus given by  $a = \log(p_i / p_{i+1}) / \log(s_{i+1} / s_i)$  and  $k = s_i p_i^{(1/ai)}$ ; for the other years, we always used the coefficients  $(a, k)$  implied by the  $(s_i, p_i, b_i)$  threshold closest to the lower threshold of the fractile being estimated ( $a$  and  $k$  are thus given by  $a_i = b_i / (b_i - 1)$  and  $k_i = s_i p_i^{(1/ai)}$ ).
11. The discrepancy between our series and the Baudelot-Lebeaupin-Bayet-Julhes-Friez series is generally around 1 percent, except in 1950 when the gap reaches 5 percent, which is explained by the fact that Beaudelot and Lebeaupin did account for the fact that when INSEE analyzed the 1950 wage declarations, it decided to exclude wages below a certain threshold (this was explained very clearly in the INSEE publication at the time; see *BMS* supplement, October–December 1952, 39–40); Beaudelot and Lebeaupin did take this particularity of the year 1950 into account when estimating the P10 threshold, but they omitted to do so when estimating the P50 and P90 thresholds, as well as when estimating average wages by socioprofessional category (see Appendix D, section 2). Note, also, that INSEE's inauguration of a new procedure for analyzing wage declarations, starting from the 1993 wage-year, which aimed to better identify "spuriously low wages" (for example, low wages corresponding to part-time jobs and / or temporary jobs, whose working times and / or durations were incorrectly declared), probably resulted in an artificial increase in the P10 threshold (and an artificial decline in the P90 / P10 ratio); that is why we used the P10 threshold from the *Emploi* studies when estimating the evolution of the P10 threshold since 1993.
12. See Tables B-8, B-9, and B-10. Also, INSEE's analyses of wage declarations always excluded wage earners working part-time (that is, those working less than 80 percent of the legal weekly hours, whether or not they are permanent workers), farmworkers, domestic personnel, employees of the national government (whether civil servants or not) and local governments, as well as workers in certain semipublic establishments whose wages are not subject to annual declaration (such as hospitals or postal and telecommunications services); as noted in Chapter 3 (sections 2.2 and 2.3), the wage distributions from the *Emploi* studies make it possible to get a preliminary sense of the biases thus introduced.
13. The results of our extrapolations show that excluding nonpermanent wage earners causes wages to be overestimated by roughly 10 percent in 1963, and that this bias was smaller in the early 1950s (see Table D-11), which allowed us to determine the markup rates to apply to the pre-1963 estimates (all details are given in Tables D-12 and D-14). Note that Beaudelot and Lebeaupin did not attempt to correct this bias: their series for thresholds P10, P50, and P90 cover only permanent wage earners through 1962, and all wage earners starting from 1963 (in contrast, the Beaudelot-Lebeaupin series for average wages by socioprofessional category do take this bias into account).
14. For its analysis of 1947 wages, INSEE also compiled a table taking nonpermanent wage earners into account based on their nonannualized wage (we have not attempted

- to make use of that table here; we have used only the table reproduced in Table B-8, which covers only permanent wage earners).
15. The ideal solution would be to couple a single wage-earner's various wage declarations, which would make it possible to work based on the actual annual wages that workers received, rather than on the basis of annualized wages. But so far INSEE has never carried out such coupling in a systematic way (individual Social Security numbers have been used by INSEE since 1967, but only to group together multiple declarations within a single establishment or firm; the Baudelot-Lebeauvin series take this bias into account, both for the P10, P50, and P90 thresholds, and for average wages by socioprofessional category).
  16. Gaps between the estimates for permanent wage earners only and those for all wage earners reach levels of around 30 percent (even 86 percent in 1993) for the P99.9–100 and 99.99–100 fractiles in 1993–1996 (see Table D-11). We have chosen to use the estimates for all wage earners (see Table D-14), but it is possible that the estimates based on permanent workers only are closer to reality.

## APPENDIX E

1. A large number of raw series of this kind, going back to 1806, were reproduced in the retrospective year book published in 1966 by INSEE; see *Annuaire Statistique de la France—Résumé rétrospectif 1966* (INSEE, 1966), 422ff.
2. See the references to Fourastié's works given in Chapter 1, section 5.
3. Compared to the DADS series and other available series, Kuczynski appears to seek to understate the positive evolution of wages in 1947 (the year of the Marshall Plan and the Communists' departure from the government) and the years that followed, and, conversely, to overstate the wage growth won by 1945–1946 (see below). This slight bias is understandable insofar as Jürgen Kuczynski was writing in East Berlin in the postwar period, and he was personally involved in the political controversies of the era concerning the growth rate of real wages, at a time when the inflation rates published by the CGT regularly clashed with those from the government and with the very favorable estimates of purchasing power growth disseminated by Jean Fourastié (see Kuczynski 1960–1972, 33:283 and 286). However, it does not appear that these controversies, whose scope was limited relative to the objective uncertainty surrounding the statistics of the time, should cause the seriousness or objectivity of Kuczynski's studies of the prewar years to be questioned.
4. According to the series published by INSEE in 1966 (see *Annuaire Statistique de la France—Résumé rétrospectif 1966* [INSEE, 1966], 422ff.), the evolution of blue-collar wages at the end of the war appears to have been far less favorable in Paris than in the provinces, and far less favorable for single individuals than for heads of families, given the sharp increase in family benefits and other family pay top-ups.
5. In this way, we obtained a 1947 / 1946 growth rate of around 37 percent, very much in line with the growth index from the Ministry of Labor (38 percent) (see *Annuaire Statistique de la France—Résumé rétrospectif 1966* [INSEE, 1966], p. 428), whereas the Kuczynski index would have given a growth rate of around 25 percent

(too low) and the Bayet series a growth rate of around 57 percent (too high). The estimates thus obtained are also very close to the estimate for total wages during the Second World War produced by Chélini (1998, table 28, 60) based on Sauvy's national income series and archival documents on wages from the Finance Ministry (Chélini unfortunately gives no additional details about his estimation method): expressed as an index of 100 in 1938, the total wage bill in current francs estimated by Chélini was 147 in 1942, 163 in 1943, 271 in 1944, 467 in 1945, and 717 in 1946; the blue-collar wage series that we adopted, as an index with 100 in 1938, equals 153 in 1942, 187 in 1943, 271 in 1944, 473 in 1945, and 672 in 1946. The two series are thus extremely similar, and the Chélini series seems to confirm that the Villa series (which, for an index of 100 in 1938, equals 147 for 1943 and 601 for 1946) understates the 1943 / 1938 and 1946 / 1938 increases.

6. As we noted in Appendix D (section 2), Baudelot and Lebeauin did not take into account the fact that INSEE, in its analysis of 1950 wages, decided to exclude wages below a certain threshold (Baudelot-Lebeauin adjusted for this bias only for their estimate of the P10 threshold), which caused them to overstate average wages. In fact, the 1951 / 1950 nominal wage growth given by the Baudelot-Lebeauin series (9 percent for blue-collar workers) is much too low: the series by blue-collar occupation published in 1966 in the *Annuaire rétrospectif* (pp. 422ff.) all show 1951 / 1950 growth rates of around 30 percent (see also Lévy-Bruhl 1952), and the Bayet blue-collar wage series also shows a growth rate of that level.
7. Bayet's estimates for the gap between the average wage and the blue-collar wage are taken up in Marchand and Thélot (1997, 165–166).
8. Other total wage estimates, similar in spirit and methods to those by Dugé de Bernonville, have been carried out by various authors for the years preceding the First World War, but these estimates exist only for certain isolated years and do not make it possible to compile a consistent series; see Dugé de Bernonville (1931, 943), who notably cites estimates by Colson, Lavergne and Henry, and Pupin; Colson's estimate for 1913 (14.7 billion francs) is slightly below Dugé's (15.7 billion francs); all available estimates, when divided by the wage-earner headcounts from the censuses and Bayet's average blue-collar wage, always yield (average wage) / (blue-collar wage) ratios very close to 1 (even slightly less than 1) by the beginning of the century, which shows that methodological differences cannot result in very large divergences vis-à-vis the series that we adopt. The estimates of total wages contained in Villa's National Accounts series (1993, 1994, 1997) contain no new information relative to Dugé de Bernonville's estimates (Villa uses Dugé de Bernonville's total wage series as a growth indicator for 1920–1938 and uses the Kuczynski blue-collar wage series for the years 1900–1913).
9. See, for example, Dugé de Bernonville (1937, 535), where he estimates that the number of work days for industrial blue-collar workers fell from 79 million in 1930 to 70 million in 1931, 60 in 1932, 57 in 1933–1934, and 54 in 1935–1936—an even larger decline than suggested by Kuczynski's “average percentage of time lost by blue-collar workers” estimates of around 20–25 percent (see above).

## APPENDIX F

1. On the history of the “official” indexes compiled by the SGF and then by INSEE, see *Annuaire Rétrospectif de la France 1948–1988* (INSEE, 1990), pp. 283–285 and Remp (1987); for the “raw” indexes, see *Annuaire Statistique de la France 1966—Résumé rétrospectif* (INSEE, 1996), pp. 387–405, and *Annuaire Rétrospectif de la France 1948–1988* (INSEE, 1990), pp. 286–297. Although the basic principles have remained unchanged, the index compiled by INSEE has continued to improve since 1949: the geographical field has expanded (the price samples were solely Parisian until 1961, and the index only became “national” starting in 1962), the reference household chosen to calculate the weightings of the various items became more representative (the SGF indexes were compiled on the basis of the average budget of a blue-collar family; from 1949 to 1992, the reference population was made up of households whose head is blue-collar [*ouvrier*] or less-skilled white-collar [*employé*]; it is only since 1993 that the INSEE index has covered all households), and the number of individual price samples has constantly increased (currently, more than 160,000 price samples are carried out every month).
2. Except for the Singer-Kerel index, which overestimates the SGF / INSEE and Fourastié indexes by about 10–20 percent over the 1914–1949 period (for a comparison between the Fourastié, Singer-Kerel, and SGF / INSEE indexes, see Fourastié [1970, 611–621]).
3. Villa describes the “PCSGF” series as the “SGF consumption price” index (see Villa 1994, 102). Villa also published the Fourastié and Singer-Kerel consumption price indexes (see Villa 1994, 141–142, series “PCJF” and “PCSK”).
4. The very slight differences observed for certain years are due to the fact that the series published in the February 1999 *BMS* do not contain enough decimal places. If we use the *BMS* series with a sufficient number of decimal places (series provided in November 1998 by Stefan Lollivier [INSEE, division of retail prices, resources and household living conditions]), then these slight differences with the Villa series disappear.
5. These inconsistencies are not due to too few decimal places.

## APPENDIX G

1. See Chapter 4, section 4.1.
2. These “official” national accounts were compiled jointly by INSEE and the Finance Ministry’s Service des Etudes Economiques et Financières (SEEF) (the SEEF became the Direction de la Prévision [DP] in 1965), then under the primary responsibility of INSEE starting in 1962. The first real national accounts series were published in 1956 (see “Rapport sur les comptes de la nation: rapport et comptes 1949–1955,” *SEEF* no. 85 [January 1956], pp. 1–165). This is the so-called base 1952 series, because it uses the year 1952 as the base year to calculate the accounts in constant prices (for a fascinating history of the “heroic age” of the first “official” national accounts compiled in France after the Second World War, see Fourquet [1980]). The “Rapports sur les Comptes de la Nation” were published each year from 1956 (in *Statistiques et Etudes Financières* through the 1961 accounts, in *Etudes*

*et Conjoncture* from the 1962 to the 1967 accounts, in *Les Collections de l'INSEE* from the 1968 to the 1987 accounts, and in *INSEE-Résultats* from the 1988 accounts), and several different bases followed in succession after the 1952 base (the 1956 base was introduced with the 1959 accounts, the 1959 base with the 1962 accounts, the 1962 base with the 1968 accounts, the 1971 base with the 1975 accounts, the 1980 base with the 1986 accounts, and the 1995 base with the 1998 accounts). INSEE has also published important volumes describing the methodology and concepts of the national accounts; see especially “Système élargi de comptabilité nationale, base 1971, méthodes,” *Les Collections de l'INSEE* no. 198–199 (série C [Comptes et planification] no. 44–45) (May 1976), and “Système élargi de comptabilité nationale, base 1980, méthodes,” *Les Collections de l'INSEE* no. 549–550 (série C [Comptes et planifications] no. 140–141) (June 1987), as well as long series going back to 1949 on a homogenous base (we have made extensive use of these long series, and precise references to the publications and the “official” national accounting series that we used are given in the tables).

3. See “Les comptes économiques de l’année 1938,” *SE&EF* supplément no. 101 (May 1957), pp. 673–691.
4. For the nineteenth century, let us mention the studies by Lévy-Leboyer and Bourguignon (1985) and by Toutain (1987, 1997). In this book, we limit ourselves to the twentieth century, so we have not attempted to take stock of the available series for the nineteenth century (these series have elicited significant controversy; see, for example, Toutain [1996]).
5. The example of Dugé de Bernonville also shows how tenuous the border between “official” and “private” estimates can be: Dugé de Bernonville published his estimates privately in the *Revue d’Economie politique* (and not in the official publications of the SGF), yet he was a deputy director of the SGF, and the first batch of his estimates appeared in a book by Michel Huber (director of the SGF at the time), who took the trouble to warmly recommend his subordinate’s estimates in the preface of his book (see Huber [1931] and Dugé de Bernonville [1931]). Let us also note that Dugé de Bernonville’s real innovation was to have compiled his “private incomes” estimates on an annual and regular basis, like the modern national accounts (comparable estimates had been made before [see especially Colson (1903, pp. 295–304), as well as the work of the 1894 extra parliamentary commission on the income tax to which we referred in Appendix I, section 2.1], but these were always isolated estimates for a single year).
6. In the production perspective, GDP is equal to the sum of the output of the various industries; in the demand perspective, the sum of GDP and imports is equal to the sum of consumption, investment, and exports; in the income perspective, GDP is equal to the sum of the incomes going to the various actors (wages, dividends, etc.). In theory, these three ways of calculating GDP should give the same result (that was the case for the official national accounts starting in 1949, as well as for the “1938 accounts”). In practice, because these different ways of calculating GDP require different types of sources (in the production-based calculation, it is merely a matter of

aggregating the various production indexes; in the demand-based calculation, data on consumption, investment, and foreign trade are necessary; in the income-based calculation, the most demanding one, it is necessary to mobilize data on the various categories of income: wages, dividends, etc.), the national accounts from the 1900–1949 period are often relatively far from this theoretical ideal: most authors simply estimated production-based GDP series, and authors (such as Villa) who tried to estimate complete national accounts yielded GDP series that varied slightly depending on the approach used (production, demand, or income). We will return to these points later on.

7. Since Villa used the concepts from the base 1962 national accounts, his series are for “gross domestic production” rather than “gross domestic product,” so they exclude nonmarket GDP: one of the main innovations of the base 1971 was to introduce the notion of nonmarket GDP for the first time (nonmarket GDP corresponds to the value of services produced by the state, which is supposed to be equal to the cost of such production, that is, the sum of the wages of public workers and the value of the goods and services consumed by the state), and this innovation resulted in the replacement of the “gross domestic production” concept with the “gross domestic product” concept (since the introduction of base 1971, GDP has been equal to the sum of nonmarket GDP and market GDP, with the latter equal to the old GDP, a few details aside). We have not attempted to estimate a long-term nonmarket GDP series, but the available data show that before the Second World War, it settled at levels very close to those observed in the immediate postwar period, that is, around 10 percent of market GDP; in the rest of this appendix, as well as in the text of the book, we refrain from systematically recalling that the acronym “GDP” refers to “gross domestic production” rather than “gross domestic product” in the pre-1971 base estimates.
8. For the 1949–1970 period, we have used the series reproduced in the *Annuaire rétrospectif* published by INSEE in 1990. These series are compiled in base 1971, which INSEE retro-interpolated using the series compiled in earlier bases. For the 1970–1997 period, we have used the series reproduced in the latest *Rapport sur les comptes de la nation* published in base 1980, that is, the *Rapport sur les comptes de la nation 1997*. These are series compiled in base 1980, therefore, hence a (very) slight discontinuity in 1970 vis-à-vis the series compiled in base 1971, though not a very important one in practical terms (the adoption of base 1980 involved changes to the concepts and methods of the national accounts that were far less significant than for the adoption of base 1971) (INSEE also retro-interpolated the base 1980 series for the entire 1959–1997 period; but these 1959–1997 series, which constitute the basis of the “Nouba” data and are mainly used internally within INSEE and have never been published; we have preferred to make use of published series as much as possible, and that is why we have made practically no use of this “Nouba” base [however, see Tables G-6 and G-8]). For 1998, we merely applied the growth rates shown in the *Rapport sur les comptes de la nation 1998* (4.1 percent for GDP in current francs, 3.2 percent for GDP in constant francs, 4.0 percent for GPI, and 3.4 percent for GDI) to the 1997 figures. Generally speaking, in this book we have not attempted to use the new



INSEE series compiled in base 1995; the base 1995 series that were available at the time this appendix was composed do not even go back to 1970, so we have chosen to stick with the series compiled in base 1980 and to fill in the year 1998 by applying the 1998 / 1997 growth rates published in the *Rapport sur les comptes de la nation 1998* to the 1997 estimates in base 1980 (judging by the experience of previous revisions, it is likely that the move from base 1982 to base 1995 will involve changes of only a few tenths of a percentage point, at least when it comes to changes over time).

9. In practice, the (taxable income) / (fiscal income) ratios are never exactly equal to 70 percent; but the slight differences around 70 percent observed since 1970 are small enough to be neglected (see Appendix B, Table B-7).
10. In the publication reporting the results of the 1970 *Revenus fiscaux* study, INSEE notes that fiscal income represented around 57 percent of household income in the national accounting sense in the 1956 and 1962 studies, and around 59–60 percent in the 1965 and 1970 studies (see Banderier and Ghigliazza 1974, 119). These figures confirm the notion of a slight upward trend in the (fiscal income) / (household income in the national accounting sense) ratio, but these levels cannot be used as such: on the one hand, at the time INSEE used national accounting series based on now-obsolete bases (without specifying which); meanwhile, and most importantly, the amount of total fiscal income or total taxable income estimated in the *Revenus fiscaux* studies, along with the total number of tax units, is always slightly understated relative to the aggregates we are trying to estimate here, since the *Revenus fiscaux* studies, which are based on samples of tax returns transmitted by the DGI, always have trouble picking up the incomes of nontaxable tax units that did not file returns (whose numbers significantly declined only in the late 1970s and early 1980s) (see Piketty 1998, 89–96). Using the same type of upward adjustment as those we estimated for 1970, the upward trend estimated by INSEE that goes from approximately 57 percent in 1956 to 60 percent in 1970 becomes a trend running from about 60 percent in 1956 to about 64 percent in 1970, very close to the trend we have used here (see column [3] of Table G-2).
11. This slight bias could be because we started with the total taxable income series estimated in Piketty (1998), which is *a priori* unbiased, and then we divided the series by a uniform coefficient of 0.70 to go from taxable income to fiscal income, even though the “right” coefficient was probably closer to 0.72 in 1970 and declined only to about 0.70 over the course of the 1970s (see Appendix B, Table B-7).
12. To calculate income-side GDP and estimate the corresponding series (household income, wages, profits of individual entrepreneurs, dividends, undistributed business profits, etc.), Villa started with the levels given in the “1938 accounts” and used as indicators of change Dugé de Bernonville’s various “private incomes” series (for dividends and undistributed profits, Villa combined Dugé de Bernonville’s and Malissen’s series).
13. The following points merit clarification. To estimate “incomes from industry and commerce,” Dugé de Bernonville started with the total amount of industrial and commercial profits (BIC) subject to the schedular tax on BIC, which he marked up

to account for the deduction of the previous year's schedular tax and the existence of BIC incomes below the threshold of taxation; then he subtracted from that total the amount of dividends paid by French companies, which he estimated from the IRVM statistics; ultimately, the combined effects of the markup and the subtraction led him to estimate levels of income from industry and commerce on the same order as the total amount of BIC subject to the schedular tax on BIC (see column [7] of Table G-13). The incomes from industry and commerce that Dugé de Bernonville estimated in this way include undistributed profits (which are not part of fiscal income), which is why we applied rates of 75 percent (for 1913 and 1920–1929) and 85 percent (for 1930–1938) to this series (we used undistributed profit shares of 25 percent for the 1920s and 15 percent for the 1930s based on Malissen's estimates, which show that the retention rate among French companies was about 50 percent in the 1920s and 30 percent in the 1930s [see column (4) of Table G-15], and that the corporate share of total BIC was always around 50 percent [see column (8) of Table G-15]). To estimate income from investment securities, Dugé de Bernonville added the amount of income from French government securities (obtained from budget statistics) to the amount of income from investment securities subject to the IRVM, then subtracted from this total a percentage corresponding to the securities incomes received by firms or public entities (rather than individuals); in practice, the percentage used was about 10 percent (see column [6] of Table G-14), which seems low (especially since Dugé de Bernonville did not account for the fact that dividends paid between companies are often subject to multiple taxation under the IRVM; for an estimate of the magnitude of this bias, see Malissen [1953, 47]); that is why we applied a 70 percent rate to this series (it is also necessary to account for the existence of nontaxable public interest). Let us also point out that we applied only a 25 percent rate to incomes from agriculture (Dugé de Bernonville uses statistics on the level of agricultural production, which, given the very favorable method of determining fiscal BA, causes him to sharply overestimate the latter), a 0 percent rate to pensions (Dugé de Bernonville based his estimate mainly on war pensions, which are not taxable and thus are not part of fiscal income), a 95 percent rate to wages (Dugé de Bernonville estimated a gross wage bill based on direct data on headcounts and wages in the public and private sectors, and he subtracted neither mandatory social contributions nor voluntary contributions for retirement, which are heavily deductible from fiscal income; the 95 percent rate we adopted is probably too high), a 75 percent rate to income from built property (Dugé de Bernonville marks up the rental values from the real estate tax by about 25 percent, whereas it is the latter that make up fiscal income), and a 100 percent rate to incomes from the liberal professions (Dugé de Bernonville based his estimates on statistics from the schedular tax on BNC, appropriately marked up, and no adjustment seems needed to move to fiscal income).

14. Note, however, that the very high GDI/GDP ratios obtained for the early 1920s from Villa's series (column [10] of Table G-1) are artificially increased by the fact that for the denominator we used the production-side GDP estimate (Villa's



“PIBQ” variable): in particular, if we had used the income-side GDP estimate (Villa’s “PIBE” variable; see Table G-3), the 123.3 percent ratio observed in 1921 would disappear and would fall (slightly) below the 100 percent level. The overestimation of interwar GDI could be due to both an overestimated level used in the “1938 accounts” and to the slightly excessive markup coefficients applied by Villa to Dugé de Bernonville’s “private incomes”—unless these high coefficients are justified by accounting for the large volume of nontaxable social benefits (particularly benefits paid directly by the employer and not taken into account by Dugé de Bernonville) by the interwar era, which would amount to the same thing from the point of view of estimating fiscal income.

15. Rivet (1941) also used the same methods as Dugé de Bernonville to estimate the total wage bill in 1941 (the estimate is consistent with those by Dugé de Bernonville and Mitzakis, but we have not attempted to use it, since Rivet provides no estimates for the other income magnitudes).
16. See section 3 and Tables G-15 to G-17. That BIC grew slightly faster than wages up to 1943 is not inconsistent with the fact that the capital share of corporate value-added began to decline by the beginning of the war: indeed, the statistics from the schedular tax on BIC show that only “small and middling” BIC grew slightly faster than wages up to 1943, whereas “big” BIC (especially corporate profits) was starting to decline (not only in relative terms, but also in current francs) by the beginning of the conflict.
17. Lecaillon thus obtained estimates of 36.3–29.0–28.7–35.8–41.6–57.9–70.8–82.9 for total “private income” (in billions of current francs) for the years 1913–1914–1915–1916–1917–1918–1919–1920, respectively.
18. For example, Lecaillon’s series would lead one to conclude that there was a decline in household purchasing power between 1918 and 1919, which seems highly inconsistent with the strong growth of GDP and, above all, the significant growth of real wages (which shows that households benefited from the recovery). Conversely, Lecaillon’s series would lead one to conclude that there was spectacular growth in household purchasing power between 1919 and 1920, which would mean a significant drop in the top-income share, much too large not to be suspect (for example, the P90–100 share would fall from 49.57 percent in 1919 to 39.60 percent in 1920).
19. See Hautcœur and Grottard (1999), who proposed an estimate for the evolution of the labor and capital shares of corporate value-added based on an analysis of the statistics from the tax on war profits.
20. The “EBE” variable used by Villa, which denotes gross corporate savings, that is, gross operating surplus minus interest and dividends paid by companies (see Table G-3), should not be confused with GOS in the usual sense, that is, gross operating surplus.
21. In the national accounts, household gross operating income (excluding IEs), still called household gross operating surplus (excluding IEs) (the only difference between gross income and gross surplus is that interest is subtracted in the second case, which makes no difference here since Villa does not take into account interest paid by household), includes incomes drawn by households from family gardens

- (notably in the form of in-kind income) and most importantly from housing (that is, rents, including the fictive rents that owners occupying their dwellings supposedly pay themselves). For the 1970–1998 period unpublished series make it possible to decompose household gross operating surpluses (excluding IEs) (that is, column [1] of Table G-6); unsurprisingly, we observe that family gardens were of negligible importance (1–2 percent of the total, thus 98–99 percent for rents), and that the fictive rent share of total rent was about 70 percent (with a slight upward trend) (these unpublished series were provided to us by Jacques Bournay [INSEE, Département des Comptes Nationaux], and unfortunately there are no comparable series for prior periods).
22. As noted above, only income-side GDP (“PIBE” in Villa’s notation) permits decomposition by income category: production-side GDP (“PIBQ” in Villa’s notation) only provides a decomposition by production sector, and demand-side GDP (“PIBVAL” in Villa’s notation) only provides a decomposition according to the final use of income (consumption, investment, or exports).
  23. Since Malissen’s series covers only the years 1940–1941, we have extended it, assuming a linear evolution between 1939 and 1942 (since the amounts estimated by Malissen are extremely stable for the entire 1938–1945 period—around 10 billion current francs—the error thus produced is likely very small, and it would go in the direction of an even smaller capital share in 1940–1941).
  24. See above.
  25. In principle, Dugé de Bernonville’s estimate of dividends paid by French companies (column [2] of Table G-13) and Malissen’s estimate of profits distributed by French companies (which in practice are mainly dividends, since interest is deducted from fiscal BIC by firms) (column [2] of Table G-15) should coincide perfectly, since both are based on statistics of IRVM receipts; indeed, we observe that discrepancies between the two series are generally less than 10 percent (see column [9] of Table G-13); these discrepancies are explained by the fact that there are always several ways to move from IRVM receipts to an estimate of the corresponding incomes, given that IRVM rates depend on the types of investment securities taxed and often change in the middle of a year (Malissen had more detailed IRVM statistics than Dugé de Bernonville, so it may be assumed that his estimates were slightly more reliable; in particular, Dugé de Bernonville did not yet have statistics for 1938, hence a particularly low estimate for that year; the estimates for the years 1931–1932 are also complicated by the shift from budget years to calendar years). We may also note that for 1921–1939, Malissen estimated the total amount of French corporate profits (column [1] of Table G-15) by assuming that corporations corresponded to the 50,000 largest payers of the schedular tax on industrial and commercial profits (Malissen was forced to adopt such an assumption because the statistics on the schedular BIC tax do not distinguish between corporations and individual entrepreneurs). For the years 1942–1949, the statistics do break out corporate profits (column [5] of Table G-15), from which Malissen was careful to subtract tax receipts from the same year

- (column [6] of Table G-15), to account for the fact that since 1942 taxes paid on the previous year's profits were no longer deductible from current profits.
26. This method for extending Villa's series makes it possible to obtain a good reconciliation for the year 1949 (27.8 percent for the capital share in Table G-3 column [15]), 28.9 percent in Table G-4 (column [6]), whereas adopting Villa's estimate of IDVE for 1949 (408.6 billion, an amount four times the 87.2 billion obtained from Malissen's series) would have led to a capital share of 33.4 percent. Certain inconsistencies remain, however, chiefly because Malissen adopted far smaller estimates of undistributed profits than those used in the "1938 accounts" or in any of the series based on the "1938 accounts," including Villa's (according to Malissen [1953, 65–66]), the estimate of undistributed profits used in the "1938 accounts" was grossly overstated, since the authors of the "1938 accounts" merely applied a "rate of undistributed profits" to GDP similar to that estimated in 1945). In any event, it does not seem possible for these uncertainties inherent in the war years to cast doubt on the collapse in the capital share observed in 1944–1945, which appears relatively robust (the phenomenon is perfectly consistent with all production and wage indexes used by the various authors, which show how the collapse in production coincided with sharp wage increases in 1944–1945, as well as with the statistics derived from the schedular tax on BIC and the IRVM used by Malissen, which show the collapse in the profits of big corporations and in the interest and dividends distributed to their creditors and shareholders during the war years, especially at the end of the war).
  27. This is notably the case with the VAT and the other "taxes on production" that preceded it. One sometimes speaks of value-added "at factor costs" to refer to this "net" value-added, as opposed to value-added "at market prices," which includes production taxes and other subsidies. The advantage of a decomposition of value-added "at factor costs" is that the sum of the labor share and the capital share actually equals 100 percent, whereas a decomposition "at market prices" generates a "share of production taxes (net of subsidies)," which muddies the trends. On the different ways of decomposing value-added, see, for example, Cette and Mahfouz (1995, 1996), Piketty (1997, 39–40), and Prigent (1998).
  28. With the (slight) difference that we are now using the gross operating surplus (EBE, or *excédent brut d'exploitation*) of IEs, rather than the gross operating income of IEs (in practice, interest paid by IEs, which distinguishes these two magnitudes from each other, is quantitatively not very important; in any event, this slight difference has no effect on the decomposition of value-added, properly speaking [excluding IEs]).
  29. For the 1970–1997 period, we used the series compiled in 1980 reproduced in the latest "Rapport sur les Comptes de la Nation" published in base 1980, that is, the "Rapport sur les Comptes de la Nation 1997" (for 1998, we again merely applied the growth rates shown in the "Rapport sur les Comptes de la Nation 1998" to the 1997 figures). For the 1949–1970 period, we used the series retro-interpolated in base 1971 by INSEE from the series compiled in previous bases (the series derived from this retro-interpolation in base 1971, which make possible a decomposition

- of firms' value-added, were not reproduced in the *Annuaire rétrospectif* published by INSEE in 1990, so we had to use the series in "Chaillié base" that Villa published on the website of Cepii ([www.cepii.fr](http://www.cepii.fr)), which are perfectly consistent with the published series). These choices (base 1971 for the 1949–1970 series, base 1980 for the 1970–1998 series) have the merit of being consistent with the choices we made for Table G-1. Also, the results we would have obtained for the value-added split if we had used series derived from other national accounting bases would be practically identical, within a few tenths of a percentage point; see, for example, Cette and Mahfouz (1995, 1996), who use the base 1962 series for the years 1949–1959 and the base 1980 series (the Nouba base) for the years 1959–1994, as well as Prigent (1998), who uses the base 1980 series (the Nouba base) for the years 1959–1996 and obtains exactly the same results as those we get here, namely, a very high degree of stability in the labor-capital split over the 1950s–1960s, then a "U-curve" for the capital share (and an "inverse U-curve" for the labor share) over the 1970s–1980s–1990s, with a trough in 1982–1983.
30. See, for example, the studies cited above by Cette and Mahfouz (1995, 1996) and Prigent (1998), who use this second solution to estimate the value-added split over the 1949–1994 (Cette-Mahfouz) and 1959–1996 (Prigent) periods, and who note that this solution results in a capital-labor split that is practically identical (within a few tenths of a percentage point) to that obtained by excluding individual enterprises.
  31. This discontinuity is explained by the fact that compensation paid by IEs has only been systematically separated from compensation paid by other enterprises since the adoption of base 1971 (along with the introduction of the nonmarket GDP concept, this was the second important innovation of base 1971: IEs were fully integrated into the household sector, whereas they had previously been part of the enterprise sector). The series given for 1949–1970 were in principle retro-interpolated by INSEE into base 1971, but the "COUTSE" variable from base "Chaillé" continues the convention of prior bases by combining compensation paid by IEs with compensation paid by other enterprises (apparently no further decompositions have been retro-interpolated, probably because the raw materials from previous bases do not permit such decompositions).
  32. It is difficult to evaluate the magnitude of this bias precisely, since the available series do not give the relative importance of compensation paid by IEs over the entire period studied. It can be noted, however, that the series available for the 1970–1998 period make it possible to calculate that the wage share of IE value-added was extremely stable around at 15–20 percent (this calculation was made using the estimates of compensation paid by IEs given in the 09.09 tables of the 1990s "Rapports sur les Comptes de la Nation" and the "base Nouba" series, which show that the stability holds for the entire 1959–1998 period); assuming a similar share for the early part of the century, and given that the value-added of IEs (excluding wages paid by IEs) was around 45 percent at the beginning of the century (see column [13] of Table G-3), we can estimate that the labor share given in column (14) of Table G-3 for the beginning of the century is overstated by about 5 percentage points, and

- not 4.1 percentage points: starting with an unadjusted share of 80 percent, and using a 20 percent wage share of IE value-added, we get:  $[0.8 - (0.2 \times 0.45) / ((1 - 0.2) \times (1 - 0.45))] / [1 - (0.2 \times 0.45) / ((1 - 0.2) \times (1 - 0.45))] = 0.75$ ; however, it cannot be ruled out that firms classified as IEs in the national accounts from the early part of the century include a nonnegligible number of large unincorporated businesses with wage shares of value-added significantly above 15–20 percent.
33. We should make clear that household property incomes in the national accounting sense (see column [2] of Table G-6, and Tables G-7 and G-8 for decompositions) include only investment incomes (as noted above, real-estate incomes are included in household gross operating surplus, excluding IEs). We may also point out that we were forced to use series in base 1962 to decompose household incomes over the 1949–1959 period (see Table G-6), since the series retro-interpolated by INSEE in base 1971 provide no complete decompositions beyond 1959 (see *Annuaire Rétrospectif de la France 1948–1988* (INSEE, 1990), p. 251) (we then chose to use the unpublished series in base Noubia for the entire 1959–1998 period, since it seemed pointlessly complicated to again change bases in 1970). Likewise, to decompose household property incomes over the 1949–1959 period, we were forced to use series in base 1956 (see Table G-7), since the series in base 1962 do not provide decompositions of property income for the 1949–1959 period; see “Les Comptes de la Nation, base 1962: les comptes des années 1949–1959,” Les Collections de l’INSEE no. 55 (série C [Comptes et planification] no. 13), April 1972.
  34. The tables by BIC bracket produced from BIC declarations by the interwar tax administration were published in the same publications as the tables by income bracket and wage bracket (see Appendix A, section 4). Note, too, that the highest BIC bracket used in these tables was for BIC above 50,000 francs for the 1919–1930 tax years, then BIC above 1 million francs for the 1931–1938 tax years, which explains why we give estimates only for the average BIC of the largest 1,000 and 10,000 taxpayers starting from 1931 (see Tables G-18 and G-19) (given the erratic fluctuations in the total number of taxpayers and how difficult it would be to estimate the evolution of the total number of industrial or commercial enterprises, we preferred to make our estimates using fixed numbers of taxpayers rather than fractiles). We may add that Pareto coefficients for BIC distributions are generally around 4–5 (that is, more than twice as high as coefficients obtained for incomes or wages), which shows the extreme concentration characterizing BIC.
  35. All GDP series reproduced in Table G-20 are production-side GDP series (none of the authors shown in Table G-20 tried to compile GDP series by demand or by income; to our knowledge, only Villa’s series provide such decompositions). The publications by Vincent, Carré, Dubois and Malinvaud, and Toutain contain precise descriptions of the many agricultural, industrial, or tertiary production indexes that they used in compiling their series. Sauvy, unfortunately, provides very little information about how he proceeded: in his 1954 report, he merely noted that his series came from “personal calculations”; in his “Histoire économique de l’entre-deux-guerres,” where he published a revised version of his 1954 series, he simply referred

- interested readers to his 1954 report, explaining: “the report gives only succinct notes on the calculation methods. The handwritten file on this question was lent and not returned” (see Sauvy 1965–1975, 1:276) (it is likely that Sauvy used production indexes as well; we will also note that Sauvy’s series were for national income, which makes little difference when it comes to changes over time—to go from GDP to national income requires adding net income from the rest of the world and subtracting capital depreciation). Maddison relied mainly on series by Toutain and Sauvy, so his are not really original series.
36. See Table G-21. We find the same cyclical profile with the GDP series calculated by demand or by income, with a few small differences (see Table G-22). We should note that Villa’s income-side GDP series, unlike Villa’s production- or demand-side GDP, was compiled only in current francs, so we had to use the demand-side GDP price index to obtain a series in constant francs (another price index could also be used, in particular the consumption price index); this is a general characteristic shared by all series of this kind: calculating GDP by production or demand can yield series both in current francs and in constant francs (one merely has to choose a base year and calculate a price index by aggregating the production prices of the various industries or the prices of the various components of demand), whereas calculating GDP by income can only yield a series in current francs (it would make no sense to calculate a price index by aggregating the “prices” of the various income categories).
37. See Table G-21. Controversies about the overall evolution of GDP in these chaotic periods are not absent, of course, for instance when it comes to the peak level reached in 1929: according to Sauvy’s initial estimates, real 1929 GDP was 38 percent higher than 1913 real GDP, whereas Vincent assesses 1929/1913 growth at 26 percent; but these disagreements are actually of a relatively modest magnitude (also, different assessments tend to converge: Sauvy’s revised series assessed 1929/1913 growth at 33 percent, rather than 38 percent, and we observe the same phenomenon with Toutain’s series). We will also note that we get the same orders of magnitude (within a few percentage points) with GDP series calculated by demand or by income (see Table G-22), which is particularly striking in that these series are based on totally independent sources: production-side GDP series are based on production indexes, demand-side GDP series are based on consumption, investment, and foreign trade data, and income-side GDP series are based on data for the various categories of income (and as it happens, on Dugé de Bernonville’s and Malissen’s series, which were notably based on tax data).
38.  $1.1^{1/36} = 1.0027$ .

## APPENDIX H

1. This change of source introduces no discontinuity between 1993 and 1994, since the population series published in the *Rapports sur les Comptes de la Nation* are strictly the same as those published in Daguët (1995) (in both cases it is total metropolitan population on January 1 of the year in question). In contrast to its predecessors, the *Rapports sur les Comptes de la Nation* 1998 (published in July 1999) contains no



- series for total population (probably because the results of the 1999 census could not yet be taken into account).
2. See *INSEE-Première* no. 663 (July 1999).
  3. The attentive reader will note a slight inconsistency in the method used to obtain an annual series for the number of households: for the total population, the estimates reproduced in Table H-1 are always estimates for January 1; for the number of households, the estimates based on the 1901 to 1962 censuses were adjusted to a “January 1” base; but for the 1968–1990 censuses, we directly used the estimates from those censuses, with no adjustment made for the fact that they were estimates as of the date of the censuses, that is, the month of March (likewise, the estimates from the *Emploi* studies, which we have used without adjustment, are also estimates for the month of March) (see Table H-1). We have not tried to rectify this slight inconsistency, because that would have led to a (very) slight modification in series for the total number of households published in Piketty (1998, table 2-2, 21) for 1970–1996, which would have represented an additional source of confusion, for a largely illusory gain of precision.
  4. Also, the annual estimates obtained in this way are extremely close (within 0.1 percent) to the annual estimates of the number of households carried out by INSEE since the 1946 census (see, for example, *Le Mouvement économique en France, 1949–1979* (INSEE, 1981), p. 22, for an annual series covering the years 1946–1980, and *Annuaire Statistique de la France* (INSEE, 1989), p. 51, for an annual series covering the years 1946–1989).
  5. For the 1998 tax year, only the tables compiled on  $12 / 31 / n + 1$  were available for the writing of this book, so we marked up the total number of tax units found in the source by 1 percent, in order to account for the year  $n + 2$  releases.
  6. For references to the main INSEE publications devoted to the *Revenus fiscaux* studies, see Appendix I, section 1. Since the main objective of these studies was to measure income inequality between households (combining the incomes of different tax units within the same household), these publications contain very few results expressed in terms of tax units, except for allusions along the lines of “the study showed that on average 100 households corresponded to 130 tax units”; see, for example, Ruault (1996, 110n1), which presents the results of the 1962 study. The reports of the Conseil des Impôts in the 1970s also contain estimates of the percentage of taxable tax units derived from the *Revenus fiscaux* studies, from which estimates of the total number of tax units can be inferred, and these estimates also show a very high degree of stability in the ratio (number of tax units) / (number of households).
  7. See also Daguet (1995), which provides consistent annual series for the percentage of married individuals, widows, divorced individuals, single individuals, etc., by age bracket, over the entire 1901–1993 period, obtained from censuses and civil justice statistics for intercensal years.
  8. In fact, if we estimate the number of tax units on the basis of the series provided by Daguet (1995, pp. 125ff.), assuming that the number of tax units is equal to the sum of the number of married men, adult single men, divorced or widowed men, adult

single women, and divorced or widowed women, we arrive at the conclusion that the ratio (number of tax units) / (number of households) was about 10–15 percent higher in the interwar era than during 1956–1998 (and about 20 percent higher at the beginning of the century), with ratios of about 1.4–1.5 for the interwar era (and 1.5–1.6 for the beginning of the century), rather than about 1.3. These results suggest that the downward trend in the number of complex households dominated the upward trend in the number of unmarried couples over the first half of the twentieth century, which seems logical. These estimates, however, are relatively uncertain (in particular, the marriage statistics do not tell us the number of invalids attached to other tax units, and thus they overestimate of the number of tax units), and, given the limited magnitude of this trend, it seemed more reasonable to assume a constant ratio before 1956.

9. See the preceding note.
10. Also, it is likely that any such errors would only strengthen our main results: for a given total income, revising the total number of tax units upward leads to an upward revision in the share of total income going to the top fractiles (since the top fractiles now include a larger number of tax units); this means that, if we are underestimating the total number of tax units in the interwar era by about 10–15 percent (see preceding notes), then we are also underestimating the top-fractile shares in the interwar era, by a factor of about 5–7.5 percent (the underestimate of the total number of tax units must be divided by the Pareto coefficient to get the underestimate of the top-fractile shares, since the new tax units added to the top fractiles are situated close to the lower threshold for those fractiles, and the ratio between the average income of those fractiles and the income of these new tax units is thus approximately equal to the Pareto coefficient).
11. We have not sought to use the adjusted series compiled by Marchand and Thélot (1991, 1997), since they do not offer a sufficiently detailed breakdown of the active population between the different socioprofessional categories.
12. We have not attempted to use the results of the 1911 and 1946 censuses, since they were based on ad hoc nomenclatures that were never used again. In addition, we show in Table H-3 the 1982 census results that INSEE created using the 1954 nomenclature, which gives a sense of the discontinuities produced by the change in nomenclature (INSEE also published adjusted results of the 1962 and 1965 censuses expressed in 1982 nomenclature; we have not tried to use those adjusted results, since they are not available at the more detailed level of the 1982 nomenclature, and they were not compiled for the 1954 and 1968 censuses).
13. These publications, like all SGF and INSEE publications, may be consulted at the INSEE library (academic libraries rarely hold complete collections, particularly when it comes to the volumes presenting the results of the early twentieth-century and interwar censuses). For a detailed representation of the 1954 and 1982 nomenclatures, see especially, “Recensement général de la population de 1975—Population active,” *Les Collections de l'INSEE* no. 328 (série D [Démographie-emploi] no. 67), pp. 49–76 (INSEE, October 1979) (for the 1954 nomenclature) and “Recensement



général de la population de 1982—Population active,” *Les Collections de l'INSEE* no. 472 (série D [Démographie et emploi] no. 100), pp. 39–61 (INSEE, September 1984) (for the 1982 nomenclature).

## APPENDIX I

1. See Introduction, section 1.2.
2. See Fourgeaud and Nataf (1963) for the 1956 study, Ruault (1965) for the 1962 study, Banderier (1970) for the 1965 study, Banderier and Ghigliazza (1974) for the 1970 study, Canceill et al. (1987) for the 1975 and 1979 studies, Canceill (1989) for the 1984 study, and Campagne et al. (1996) for the study on 1990 incomes. Preliminary results concerning the 1996 study, as well as retrospective analyses comparing the results of the 1990 and 1996 studies to those from previous studies, were also published recently in the *Synthèses* collection (see below). INSEE has also published other, more specific studies based on the *Revenus fiscaux* studies, which notably appeared in *Economie et Statistiques* (see, for example, the references given in Bégué 1987, 25).
3. See Piketty (1998, 153).
4. See Fourgeaud and Nataf (1963, 435 and 438).
5. See Ruault (1965, 34 and 105) ( $3,750 / 10,823 = 0.35$ ,  $8,000 / 10,823 = 0.74$ ,  $13,700 / 10,823 = 1.27$ ) (the average income comes from Table I-1).
6. See Ruault (1965, 105) ( $2,400 / 6,343 = 0.38$ ,  $4,900 / 6,343 = 0.77$ ,  $8,300 / 6,343 = 1.31$ ) (the average income comes from Table I-1).
7. See Ruault (1965, 105–106).
8. See Banderier (1970, 44) ( $5,500 / 14,641 = 0.38$ ,  $10,850 / 14,641 = 0.74$ ,  $18,250 / 14,641 = 1.25$ ) (the average income comes from Table I-1).
9. See Banderier (1970, 113).
10. See Banderier and Ghigliazza (1974, 46) ( $9,300 / 22,013 = 0.42$ ,  $16,800 / 22,013 = 0.76$ ,  $28,000 / 22,013 = 1.27$ ,  $4,250 / 22,013 = 0.19$ ,  $42,500 / 22,013 = 1.93$ ) (the average income comes from Table I-1).
11. See Banderier and Ghigliazza (1974, 125).
12. See Banderier and Ghigliazza (1974, 124n 2).
13. See “Les revenus des ménages (1960–1984)—Rapport de synthèse,” *Les documents du CERC* no. 80 (2nd Quarter 1986), p. 78 (the estimates presented by the CERC go up to 1979: the P<sub>90</sub> / P<sub>10</sub> ratio moved from 14.7 in 1962 to 11.7 in 1965, 10.0 in 1970, 8.4 in 1975, and 7.1 in 1979).
14. See “Les Français et leurs revenus: le tournant des années 1980,” *Les documents du CERC* no. 94 (Third Quarter 1989), p. 69, where the CERC takes up the estimates it published in 1986, and extends them with an estimate of the P<sub>90</sub> / P<sub>10</sub> ratio for the year 1984 (without giving further details about the methodology used): the P<sub>90</sub> / P<sub>10</sub> ratio thus moved from 14.7 in 1962 to 11.7 in 1965, 10.0 in 1970, 8.4 in 1975, 7.1 in 1979, and 6.9 in 1984, hence a “halt in the reduction of inequality over recent years,” hence the title of the report (“the turning point of the 1980s”). These results were widely picked up in the press and in popular articles on the issue of income inequality (see, for example, Marseille 1996, 32): “today, the 10 percent of

households declaring the highest fiscal incomes receive 6.9 times more than the poorest 10 percent of households, versus 14.7 times more in 1962” (Marseille failed to cite his source, did not specify the years used, and seems to have confused the P<sub>90</sub>/P<sub>10</sub> ratio with the P<sub>90–100</sub>/P<sub>0–10</sub> ratio, but he is clearly referring to the CERC’s estimates). See also “Les revenus des Français—Deuxième rapport de synthèse,” *Les documents du CERC* no. 51 (Fourth Quarter 1979), p. 61, where the CERC provides estimates according to which the P<sub>75</sub>/P<sub>25</sub> ratio moved from 3.22 in 1962 to 3.04 in 1965, 2.83 in 1970, and 2.78 in 1975 (without indicating the source, and without specifying very clearly whether these ratios concerned the entire population or only workers).

15. The only reference to the annual tabulations of income tax returns that we have been able to find in the publications of the CRC dates from 1977 (see “Les revenus des Français—Premier rapport de synthèse,” *Les documents du CERC* no. 37–38 [Third Quarter 1977], pp. 133–135). The reference is a very low-key one, since the CERC merely notes that the statistics say that 7,984 taxpayers declared 1973 incomes greater than 400,000 francs, without clarifying that these statistics cover all liable taxpayers and had been compiled every year for more than sixty years; the CERC has sometimes analyzed categorical tax statistics concerning BIC, BNC, or corporate executive incomes (see especially *Les documents du CERC* no. 24 [Fourth Quarter 1974], no. 73 [Fourth Quarter 1984], no. 77 [Fourth Quarter 1985], and no. 90 [Fourth Quarter 1988]), but besides the fact that these estimates cover only one or two scattered years, the CERC has never attempted to use the tax statistics to estimate the level of top-income fractiles (the only income-distribution estimates expressed in terms of fractiles published by the CERC between 1969 and 1993 were cited in the two previous notes, and are all taken from the *Revenus fiscaux* studies, with the sole exception of an estimate of the various deciles’ shares of total income for the year 1986, which was published in the 1989 report cited above (p. 92), “from an analysis of the DGI file,” and which accompanies a corresponding estimate for the year 1979, “taken from the 1979 *Revenus fiscaux* study”; the CERC gives a figure of around 31–32 percent for the top-decile share of total income in both 1979 and 1986, which seems relatively reasonable). On the other hand, the CERC in its 1977 report (p. 38) adopts Fourastié’s data to arrive at a finding of a secular decline in inequality in France; we have already seen the extent to which these data are unsatisfactory (see Chapter 3, section 2.4).
16. See Ruault (1965, 31).
17. See Banderier (1970, 41).
18. See Banderier and Ghigliazza (1974, 43). INSEE also notes the very high degree of fragility of the graphical interpolation methods used at that time to estimate the thresholds of the various fractiles, especially when it comes to low-income fractiles and the P<sub>10</sub> threshold (see, for example, Banderier and Ghigliazza [1974, 124nn 1–4]).
19. See, for example, Banderier (1970, 107–109), who noted that the disappearance of small artisans and especially small farmers (whose incomes as accounted for in the *Revenus fiscaux* studies appear even lower than they actually are) had the potential to cause an artificial inflation of low incomes, and who noted that the decline in

income inequality observed between 1956 and 1965 disappeared when looking only at nonfarm households. Indeed, the results expressed in terms of socioprofessional categories and published by INSEE show the decisive weight of farm households and nonemployed households (who present at least as many problems as farm households) among low incomes; see, for example, Ruault (1965, 32): in 1962, nearly 32 percent of households in the lowest income bracket were farm-operator households, nearly 54 percent were nonemployed households, and little more than 14 percent were wage-earning households or nonfarm self-employed; see also Ruault (1965, 37 and 61): the pensions attributed to former workers in the private sector appear excessively small in 1962, as do the operating profits attributed to farmers.

20. However, partial analyses of the 1975 study had been carried out by the late 1970s, notably in the form of articles that appeared in *Economie et Statistiques* (see, for example, the article cited by Bégué [1987, 251]). Analyses of the 1965, 1970, and 1975 studies had also been carried out jointly by INSEE and the Direction de la Prévision (which at the time used the *Revenus fiscaux* studies to simulate tax reforms) and published in the reports of the Conseil des Impôts (see especially “Deuxième Rapport du Conseil des Impôts,” *S&EF* [blue series] no. 311 [November 1974], pp. 35–37, and “Quatrième Rapport du Conseil des Impôts,” *S&EF* “blue series” no. 361–362 [November–December 1979], pp. 65–68).
21. See Canceill, Laferrère, and Mercier (1987, 81 and 171).
22. See Canceill (1989, 70) and Campagne, Contencin, and Roineau (1996, 67).
23. See “Revenus et patrimoine des ménages, édition 1995,” *Synthèses* no. 1 (June 1995), p. 32.
24. See “Revenus et patrimoine des ménages, édition 1995,” *Synthèses* no. 1 (June 1995), pp. 43–44.
25. Other studies of the “Budgets des familles” type had been carried out by INSEE from 1951, but a gradual deterioration in the quality of the studies and the representativeness of the samples was observed, so the series was halted in 1970, before being resumed in 1979 (see Desabie 1987, 258–259). Generally speaking, a very large number of budget studies have been carried out by INSEE, the SGF, or “private” scholars (economists or sociologists) since the nineteenth century, but these studies generally examine particular social milieux or geographic zones. According to Desabie (1987, 254), “between the wars, there were no budget studies examining more than 100 households.” On the history of budget studies in France, see also Brousse (1957). The famous studies by the sociologist Maurice Halbwachs seem fairly representative of the objectives pursued by this type of study in the early twentieth century and interwar period: the purpose was to study the structure of budgets in the lower classes (shares of food expenditures, rent, etc.), and certainly not to estimate the income distribution at the national level. For example, Halbwachs studies the evolution of working-class budgets between 1907 and 1937–1938, using his 1907 study examining 87 households (“54 working-class households and 33 small farming households”), which, he explains, should be preferred to the 1913–1914 SGF study, “which was carried out very quickly and without serious validity checks” (even

- though it covered a significantly larger sample: 1,461 working class and 221 farming households), and a 1937–1938 study examining 4 households (see also Halbwachs 1921, 1933). Ultimately, it was not until 1979 that the “Budgets des familles” studies could really be used to estimate the income distribution at the national level and to fill in the details on certain points from the *Revenus fiscaux* studies.
26. See “Revenus et patrimoine des ménages, édition 1996,” *Synthèses* no. 5 (August 1996), p. 36.
  27. On the methodology used, see “Revenus et patrimoine des ménages, édition 1996,” *Synthèses* no. 5 (August 1996), pp. 149–151.
  28. See “Revenus et patrimoine des ménages, édition 1996,” *Synthèses* no. 5 (August 1996), p. 36.
  29. Independent of this problem connected to the number of observations, it is quite clear that this type of study also poses the issue of the sincerity of the answers provided by the households questioned, particularly when they have high incomes.
  30. See “Revenus et patrimoine des ménages, édition 1999,” *Synthèses* no. 28 (September 1999), p. 22.
  31. Observing that a declining share of capital income was being accounted for in the *Revenus fiscaux* studies, INSEE actually decided simply to exclude capital income from the “tax income” concept used in the estimates published in 1999 (a methodological choice never made in previous publications). However, INSEE notes that it is not clear *a priori* that taking capital incomes into account necessarily increases the jump in the  $P_{90} / P_{10}$  ratio observed between 1990 and 1996, given the importance of capital incomes for retired households; see “Revenus et patrimoine des ménages, édition 1999,” *Synthèses* no. 28 (September 1999), p. 30.
  32. See “Revenus et patrimoine des ménages, édition 1999,” *Synthèses* no. 28 (September 1999), pp. 44–48.
  33. See “Revenus et patrimoine des ménages, édition 1999,” *Synthèses* no. 28 (September 1999), p. 44. These data do not permit a strictly rigorous calculation of ratios of the  $P_{50} / P_{10}$  or  $P_{50} / (\text{average income})$  type, since they concern average incomes by decile rather than thresholds. But we may regard  $P_{40-50} / P_{0-10}$  as providing a good approximation of  $P_{50} / P_{10}$  (or at least of the evolution of  $P_{50} / P_{10}$ ), and we do observe a decline in  $P_{40-50} / P_{0-10}$  over the course of the 1970s and a stabilization in the 1980s–1990s ( $77,121 / 11,367 = 6.8$  in 1970,  $110,001 / 22,078 = 5.0$  in 1979, and  $119,995 / 24,561 = 4.9$  in 1996). In 1996, the average income of fractile  $P_{40-50}$  settled at 76 percent of the average income ( $119,995 / 158,566 = 0.76$ ), that is, a level virtually identical to that obtained for  $P_{50} / (\text{average income})$  in the first *Revenus fiscaux* studies (see section 1.1.1); given that the  $P_{50}$  threshold estimated in these initial studies was probably slightly overstated (for reasons already noted), we may conclude that the  $P_{50} / (\text{average income})$  ratio essentially did not change.
  34. The results of the “national accounts by CSP” were published by INSEE following each of the *Revenus fiscaux* studies: see Fourgeaud and Nataf (1963) for the 1956 national accounts by CSP, Ruault (1966) for those of 1962, Roze (1971) for those of 1965, Roze et al. (1975) for those of 1970, Martin (1981) for those of 1975, Gombert

- (1985) for those of 1979, and Fall (1992) for those of 1984. INSEE also tried to compile national accounts by CSP on an annual basis for the years 1984–1989 (see Fall 1992), but this experiment was quickly abandoned; more generally, it should be emphasized that national accounting by CSP has somewhat fallen out of fashion. Some initial national accounts by CSP were compiled on an experimental basis (and using highly approximate distribution schema) for the years 1951 and 1952 (see also Malinvaud 1954).
35. The concordances between the standard nomenclature used in the censuses and the “accounting nomenclature” are explained very clearly in the various volumes presenting the results of the *Revenus fiscaux* studies; see Banderier (1970, 121); Banderier and Ghigliazza (1974, 133–135); Canceill et al. (1987, 200–203); Canceill (1989, 138–142); Campagne et al. (1996, 116–119). For the 1956, 1962, 1965, and 1970 studies, average incomes by CSP were recalculated by INSEE using the nomenclature from the censuses (see Banderier and Ghigliazza (1974, 119), so we have been able to take them up without any adjustment. For the 1975 and 1979 studies, we simply added back the *professions non commerciales* from the accounting nomenclature into the *Cadres supérieurs et professions libérales* CSP. In reality, part of these *professions non commerciales* should be included in the *Cadres moyens* CSP (for example, self-employed personnel in medical or social services, or the few self-employed elementary teachers), but the published results for the 1975 and 1979 studies do not provide the decomposition of *professions non commerciales* into *professions non commerciales supérieures* and *professions non commerciales intermédiaires* that would be used in later studies. The average income that Table I-1 attributes to *Cadres supérieurs et professions libérales* for 1975 and 1979 is thus slightly understated. In addition, the published results for the 1975 and 1979 studies in the accounting nomenclature do not make it possible to recalculate the average incomes of the *Personnels de services* CSP (which are mixed in with *ouvriers* in the accounting nomenclature) or the *Autres catégories* CSP. For the 1984 and 1990 studies (column 1990b), a complete decomposition of the *professions non commerciales* has been published, and we have thus included the *professions non commerciales supérieures* from the accounting nomenclature in the *Cadres et professions intellectuelles supérieures* CSP, and the *professions non commerciales intermédiaires* from the accounting nomenclature into the *Professions intermédiaires* CSP. For the 1990 (columns 1990a and 1990c) and 1996 studies, results compiled in the census nomenclature have been published, and we have used these results (after combining *cadres* and *professions libérales* to form the *Cadres et professions intellectuelles supérieures* CSP).
  36. We omit to mention here the Morrisson-Snyder estimates for the eighteenth century, which we refer to in Chapter 7 (section 2.3).
  37. The works and collections of speeches that Joseph Caillaux devoted to the income tax contain no quantified estimate of the income distribution (see Caillaux 1897–1904; 1910); it is necessary to refer to the 1896 and 1907 parliamentary bills to obtain the estimates considered here (the exact references are given in Table I-3).
  38. See *BSLC*, 39 (February 1896), 184–196.

39. The difference between these two sources is that available assessments for the city of Paris cover the rental values that served as the basis for the personal property tax (we describe and analyze these raw materials in Appendix K), whereas the available assessments for France as a whole only cover movable-property assessments (that is, the corresponding amount of tax, whose relationship with rental values is relatively complex). All of these statistical materials had been very clearly presented to the 1894 commission by the director general of direct taxation at the time (see *Commission extraparlamentaire de l'impôt sur les revenus instituée au ministère des Finances [décret du 16 juin 1894]*—*Procès-verbaux*, vol. 1, pp. 467–470, Imprimerie Nationale, 1895), and Doumer's staff in 1896 only had to complete the work that had already been carried out for this commission; the commission's report contained all of these raw statistical materials, but it contained no estimate of the income distribution; in particular, the report presented by Adolphe Coste, the commission's *rapporteur général*, contained only estimates of large income aggregates at the macroeconomic level (see *Commission extraparlamentaire de l'impôt sur les revenus instituée au ministère des Finances [décret du 16 juin 1894]*—*Procès-verbaux*, vol. 2, p. 1077, Imprimerie Nationale, 1895), estimates of the same type as those carried out by Dugé de Bernonville in the interwar era (see Appendix G, Table G-12), and which Coste had simply taken up from his own studies published in 1890 (see Coste 1890).
40. See *BSLC*, 39, (February 1896), 187.
41. See *BSLC*, 39, (February 1896), 187. Leroy-Beaulieu's estimate, too, was based on assessments of rental values for the city of Paris, and he slightly marked up his figures to obtain a valid estimate for France as a whole: Leroy-Beaulieu thus arrived at the conclusion that there must have been around 18,000–20,000 incomes greater than 50,000 francs, and around 700–800 incomes greater than 250,000 francs (see Leroy-Beaulieu 1881, 539). Note, also, that Neymarck (1911), though just as unlikely as Leroy-Beaulieu to be seeking to exaggerate the importance of big incomes, estimated the number of incomes greater than 40,000 francs at around 20,000 (and this was looking only at capital incomes, since Neymarck relied exclusively on bequest statistics).
42.  $2.5 / 1.6 = 1.56$ , and  $2.2 / 1.6 = 1.38$ .
43. The exact references are given in Table I-3. Note that the 1918 and 1927 editions of Colson's *Cours d'économie politique* simply reused the same estimate that appeared in the 1903 edition, without modification. Specifically, the 1927 edition included a new chapter devoted to the changes that had taken place since the war, but offered no new estimate of the income distribution, and it did not attempt to analyze the statistics emerging from the new tax system; see Colson (1927, 453–512).
44. See Colson (1903, 313).
45. Colson estimated that there were 1,000 “very big incomes,” that is, 1,000 incomes greater than 140,000 francs in the provinces or greater than 200,000 francs in Paris (see Table I-4), whereas Leroy-Beaulieu in 1881 had estimated that there were around 700–800 incomes greater than 250,000 francs in France (see Leroy-Beaulieu 1881, 539). As for D'Avenel (1909, 10 and 356–371), he estimated that there



were at least 1,000 households with incomes greater than 200,000 francs, which seems consistent with Leroy-Beaulieu's estimate, though with the important difference that d'Avenel insisted that his was a lower-bound estimate, whereas Leroy-Beaulieu considered his an upper-bound estimate.

46. See Sauvy (1965–1975, 2:447) and Sauvy (1984, 2:304–305).
47. In particular, this discrepancy cannot be justified by any shift from a “pretax income” in the tax statistics to an “after-tax income” in Sauvy's estimate: besides the fact that the discrepancy is far too massive to be closed by such an adjustment, it must be remembered that the incomes declared under the IGR and used in the tax statistics from the time, and which we just cited, are already incomes “after deduction of the previous year's IGR,” a technical detail that we had to adjust for (see Appendix B, section 3); it is possible that Sauvy forgot this “detail” and subtracted an estimate of the current year's IGR from the incomes in the tax statistics, which would mean that the IGR was subtracted twice (once for the previous year by the taxpayers themselves, and once for the current year by Sauvy).
48. This discrepancy is especially surprising because Sauvy himself in his *Histoire économique de l'entre-deux-guerres* repeatedly stressed that, according to him, the tax statistics generally were the victim of widespread underestimation of these levels, especially the BIC statistics used by Dugé de Bernonville to estimate his “private incomes” series (as we explained in Appendix G, Dugé de Bernonville had the great virtue to our minds of laying out his sources and methods in an extremely precise way, which was not the case for Sauvy).
49. See Introduction, sections 1.2 and 2.1.2.
50. In addition, Brochier makes an important conceptual error, since he implicitly assumes that all payers of the schedular taxes (including the schedular tax on BIC income) are individuals or households, even though a significant number of BIC taxpayers (particularly most of the very large taxpayers) are actually corporations.
51. It may also be noted that Jankeliowitch displays a very high degree of skepticism toward his results: he suggests that the lower level of income concentration for 1946 could simply be explained by a very sharp increase in fraud since 1938. Brochier, in contrast, notes that investment incomes were probably better declared in 1946 than in 1938, given the creation of the coupon book.

## APPENDIX J

1. The only adjustment we made to the raw figures published by the tax administration concern the year 1932, for which the distribution table covers only nine months (only declarations submitted between April 1, 1932, and December 31, 1932, were taken into account); we thus multiplied all of the figures appearing in the raw table for 1932 by a coefficient equal to  $4/3$  (the legitimacy of this adjustment is confirmed by the fact that the results thus obtained are perfectly consistent with those of neighboring years, for which the tabulations of bequest declarations always covered all declarations submitted over the twelve months of the calendar year (with

- the sole exception of the table for the year 1931, which actually covers declarations submitted between April 1, 1931, and March 31, 1932; this does not seem to have had any notable effects on the results obtained).
2. With the exception of the 1984 and 1994 tables, which are based on samples of declarations submitted over the course of the years in question (see below).
  3. There is a problem with this simplicity, however: bequest declarations are often submitted several months after a death, so the distribution table compiled from bequests filed over the course of a given year can actually include declarations of deaths that took place in different months and years, which can pose problems in periods of high inflation (we have not attempted to correct for this bias, which may be of some importance for very short-term changes, but of hardly any importance for the long-term changes that motivated our analysis of bequest statistics).
  4. We have not reproduced these liabilities figures, but interested readers may find them by consulting the publications from which the raw tables are taken, the precise references to which are shown in Table J-2. Also note that the publication for the year 1957 contains a table compiled by net-asset bracket (to preserve continuity with prior series), which confirms that the bias introduced by liabilities is extremely small (at least in the context of a long-term study).
  5. See *L'imposition du capital*, 8e Rapport au Président de la République, Conseil des Impôts, 1986, p. 323.
  6. See *L'imposition du patrimoine*, 16e Rapport au Président de la République, Conseil des Impôts, 1998, p. 210.
  7. In addition to the 1984 and 1994 DMTG studies, the tax administration also organized DMTG studies for 1977 and 1987. Unfortunately, these 1977 and 1987 studies do not appear to have produced distribution tables using sufficiently high bequest brackets for our purposes, so we did not attempt to use them; see Fouquet and Méron (1982) for an analysis of the 1977 DMTG, and Arrondel and Laferrère (1991), Laferrère and Monteil (1992), and Arrondel and Laferrère (1994) for analyses of the 1987 DMTG; see also Laferrère (1990) for an analysis of the 1984 DMTG, and Arrondel and Laferrère (1998) for an analysis of the 1994 DMTG. Note, too, that in the context of the 1975 *Revenus fiscaux* study, INSEE organized a complementary study that followed the evolution of gifts and bequests taking place between 1962 and 1975 (the goal of the study was to fill in the gap that ran from the abandonment of annual bequest statistics in 1964 to the organization of the first DMTG study in 1977 [see Canceill 1979]; but the sample created contains too few very large bequests for us to envisage using the results here). Finally, let us mention the *Patrimoine au décès* study organized by INSEE in 1988; see Laferrère and Monteil (1994) and Accardo and Monteil (1995) (the goal of this work was to study wealth among all of the deceased, and not just among those whose deaths led to the creation of a bequest declaration; no distribution table seems to have been created specifically for very large bequests).
  8. As noted in Chapter 6 (section 3.1), all of the aggregate statistics for the 1826–1964 period were published in the *Annuaire Statistique de la France 1966—Résumé Rétrospectif*; INSEE, 1966, p. 530.



9. “Composition” tables were also compiled following the 1984 and 1987 studies, but the brackets used in those tables do not go sufficiently high to bring out the composition of very large bequests (see the references given in Table J-3); the table for 1994 is from a specific analysis of the computer file from the 1994 study carried out at our request by Luc Arrondel (CNRS).
10. The composition tables compiled for the years 1946, 1949, and 1959 were published in the same publications as the corresponding distribution tables (see Table J-2).
11. As already noted, all of the aggregate statistics for the 1826–1964 period were published in the *Annuaire Statistique de la France 1966—Résumé Rétrospectif*, INSEE, 1966, p. 530.
12. For example, the figures for the year 1946 are clearly inconsistent: three bequests greater than 100 million francs were declared, but their total amount is 240 million francs (see Table J-1). The reports of the Conseil des Impôts, where the distribution tables from the 1984 and 1994 studies were published, are not very explicit either on the issue of “recalled” gifts, and it is not certain that those gifts were actually taken into account.
13. We have not reproduced the distribution tables concerning gifts, but interested readers may find them by consulting the publications from which the raw tables are taken, and whose precise references are given in Table J-2.
14. On the issue of how the number of gifts adapted to changes in their tax regime since the early 1950s in France, and in particular on the gift boom observed since the law of December 30, 1991, see Arrondel and Laferrère (1998).
15. See *BSLC* August 1902, 52:153–159.
16. These bequest shares tables were published in the same publications as the distribution tables (see the references given in Table J-2), with very rare exceptions: for example, the distribution table for the year 1902 was published in the *BSLC* of June 1903, whereas the corresponding bequest shares table was published in the *BSLC* of October 1903 (54:378–385).
17. These age bracket tables were published in the same publications as the distribution tables (see the references given in Table J-2) with very rare exceptions: for example, the distribution table for the year 1947 was published in *S&EF* no. 3 (March 1949), but the age bracket table was only published in *S&EF* “supplément Statistiques” no. 4 (4th Quarter 1949), pp. 670–742.
18. These tables covering the years 1906 and 1908 were published in the October 1907 *BSLC* (62:373–395) and in the November 1909 *BSLC* (66:473–495). Similar tables were also compiled from the bequest declarations of 1928 (this table was published in the August 1929 *BSLC* [106:349–375]) and 1934 (this table was published in the March 1935 *BSLC* [117:369–395]).
19. The results of this study were published in 1934 in the *Bulletin de la SGF*; see Danysz (1934).
20. See, for example, Colson (1903, 276–292) and Lévassieur (1907, 608–616). See also “Quelques données statistiques sur l’imposition en France des fortunes privées,” *Etudes statistiques* ([supplement of *BMS*] no. 1, January–March 1958, pp. 33–37),

- where INSEE provides a retrospective table giving the principal estimates of total French wealth carried out in the late nineteenth and early twentieth centuries.
21. See especially Neymarck (1911).
  22. The fixed multiplier technique can also lose precision as a result of demographic changes: for example, a significant increase in life expectancy causes a structural decline in the coefficient that must be applied to transform the annual bequest flow into total wealth (at least initially). This largely explains the growing gap between estimates of total French wealth obtained through the bequest-devolution rate method and estimates obtained through the “direct” method (that is, asset category by asset category, using sources that directly cover the total volume of assets in question): to keep the estimates consistent, the rate of bequest devolution used at the beginning of the century would have had to be doubled or tripled (Fouquet 1982, 101–103); see also “Quelques données statistiques sur l'imposition en France des fortunes privées,” *Etudes statistiques* (supplement of the *BMS*) no. 1, January–March 1958, pp. 33–37.
  23. See also Séailles (1910, 74–77), who tried to do the same thing using the 1906 bequests statistics by age bracket (the scope of the analysis was obviously limited in that it was not a cross-tabulated table, but it was still an interesting attempt). See also Danysz (1934). Cornut (1963) also used the bequests statistics by age bracket, but his objective was more modest, since it was merely to estimate total French wealth (Cornut also looked at the distribution of total wealth by departments, but never at the distribution by bequest bracket).
  24. All of these tables were published in the same publications as the distribution tables (see the references given in Table J-2).
  25. As was the case with incomes, we noted that estimates obtained using a slightly different threshold of extrapolation from the one ultimately used were practically identical to the estimates ultimately adopted (with discrepancies generally less than 0.1 percent), which shows that bequest distributions, like income distributions, are extremely well approximated by a Pareto law. The only technical problem we encountered comes from the fact that the number of bequests involved in the highest bracket of the raw statistical tables becomes relatively large toward the end of the period (see Tables J-1 and J-4). To correct for this bias, we increased our estimates of the P99.99–100 level and the P99.99 threshold for 1994 (the figures given for P99.99–100 and P99.99 for the year 1994 in Tables J-5 to J-7 are equal to the raw extrapolation results, marked up by 10 percent; this is the only adjustment we made to the raw extrapolation results). This 10 percent markup was determined on the basis of a specific analysis of the 1994 DMTG study carried out at our request by Luc Arrondel (this analysis gives a number of bequests greater than 20 million francs equal to 128, whereas the extrapolation from the 10 million-franc top bracket gives a number equal to 115). These slight uncertainties are of a trivial magnitude compared to the size of the long-term changes shown in our estimates.
  26. See Daguét (1995, 117–119).
  27. See Daguét (1995, 117–119).

28. Which the retrospective statistics gathered by Daguet (1995) do not make possible.
29. The value used for 1902 is equal to the average of the years 1902–1904, the value used for 1903 is equal to the average for the years 1902–1905, the value used for 1904 is equal to the average of the years 1903–1907, etc.
30. Over the 1902–1913 period, the average level for the average bequest of fractile P99.99–100 is equal to around 218 million before smoothing, and 219 million francs after smoothing (see Table J-9).
31. See Chapter 4 (section 1.3), Chapter 5 (section 3.2), and Chapter 6 (section 3).
32. However, the highest marginal rate reached 7 percent for bequests between spouses, 12 percent for bequests in the collateral line, and 18.5 percent for bequests between family relations beyond the sixth degree and between nonrelations.
33. For bequests between spouses, in the collateral line, and between nonrelations (or between relations beyond the sixth degree), the top marginal rates, which also applied to the portion of a bequest share above 50 million francs, were changed, respectively, to 9 percent, 14 percent, and 20.5 percent.
34. The law of April 8, 1910, also determined that this schedule would now apply only to bequests in the direct line in the first degree (that is, between parents and children), and that all marginal rates would be increased by 0.5 percent for bequests in the direct line in the second degree (that is, between grandparents and grandchildren), and again by 0.5 percent beyond the second degree. Also, the law of April 8, 1910, raised the top marginal rates on bequests between spouses, bequests in the collateral line, and bequests between nonrelations (the latter now merged with bequests between relations beyond the fourth degree, as opposed to only beyond the sixth degree) to 12.25 percent, 18.25 percent, and 29 percent.
35. These are maximal estimates, because we do not account for the effects of dividing by the number of heirs, which may be very significant, particularly in the case of a very large family.
36. Here again, these are rates on bequests in the direct line in the first degree. The top marginal rate of the inheritance tax (applied to bequests between nonrelations, or between relations beyond the fourth degree) changed to 36 percent after the law of July 31, 1917, then to 80 percent after the law of June 25, 1920.
37. The “maximal rate” set by the law of August 3, 1926, was 25 percent for bequests in the direct line and between spouses, 35 percent in the collateral line, and 40 percent between nonrelations (and between relations beyond the fourth degree).
38. The top marginal rate on bequests between nonrelations was 80 percent, where it had been set by the law of June 25, 1920.
39. Note, however, that while the decree-law of July 11, 1934, had kept all of the “maximal rates” (25 percent, 35 percent, and 40 percent) set by the law of August 3, 1926, the law of December 31, 1936, kept only the 25 percent “maximal rate”: the “maximal rate” rose to 40 percent for bequests in the collateral line and 50 percent for bequests between nonrelations (and between relations beyond the fourth degree).
40. The decree-law of July 29, 1939, increased the top marginal rate in the direct line to 70 percent, and then the law of November 9, 1940, reduced it to 44 percent for

- bequests with at least three children, 52 percent for bequests with two children, and 66 percent for bequests with one child; the “maximal rate” of taxation was set at 20 percent for bequests with at least three children, 25 percent for bequests with two children, and 30 percent for bequests with one child (in contrast, the law of November 9, 1940, kept the 40 percent “maximal rates” in the collateral line and 50 percent between nonrelations [and between relations beyond the fourth degree] established by the law of December 31, 1936).
41. For all other bequests, the tax became completely proportional: the rate, levied starting from the first franc of a bequest, was 40 percent for bequests between brothers and sisters, 50 percent for bequests between relations up to the fourth degree, and 60 percent for bequests between nonrelations (and between relations beyond the fourth degree).
  42. Bequests between brothers and sisters also entitled the taxpayer to a 30,000-franc deduction, but only if a certain number of highly restrictive conditions were met: unmarried status, cohabitation, etc.
  43. Going by the legal texts, the greatest strictness appeared to prevail, even for the smallest wealth holdings (for example, the law of April 16, 1930, allowed a maximum deduction of 2,000 francs for “final illness costs,” which is relatively modest; also, this 2,000-franc deduction did not exempt bequests smaller than 2,000 francs from the requirement that they be declared); but there are no grounds for assuming that this strictness was actually enforced (the very large number of undeclared deaths (see section 2) suggests that a degree of tolerance always prevailed).
  44. See *S&EF* “supplement” no. 118 (October 1958), p. 1168.
  45. These exemptions seem to date back to the law of November 9, 1940, which created tax reductions up to 100 percent for small bequests within large families, which amounted to creating an exemption at the base for a certain category of bequests.
  46. The 10,000-franc threshold also became the standard exemption for all bequests not in the direct line of succession or between spouses (except in the very specific case, already mentioned, of brothers and sisters who receive an exemption greater than 10,000 francs).
  47. In fact, the standard exemption is currently 300,000 francs for heirs in the direct line of succession, and 330,000 francs for spouses. The standard exemption for brothers and sisters who fulfill a certain number of conditions (see above) is 100,000 francs, and the exemption enjoyed by other heirs is 10,000 francs.
  48. In fact, the schedule for a surviving spouse is very slightly lower: the 10 percent rate applies from 50,000 to 100,000 francs and the 15 percent rate applies between 100,000 and 200,000 francs (the marginal rates then join up with the levels from the schedule for the direct line of succession). Moreover, the 40 percent, 50 percent, and 60 percent proportional rates set by the law of December 28, 1959, for bequests between brothers and sisters, between family relations up to the fourth degree, and bequests between nonrelations have been changed in only relatively minor ways: the rate for brothers and sisters is now 35 percent for bequests below 150,000 francs

and 45 percent for bequests above 150,000 francs, and the rate for family relations up to the fourth degree is now 55 percent.

APPENDIX K

1. According to the authors from the period who used this type of statistics (see, for example, Leroy-Beaulieu 1881, 172–173), these statistical tables for the city of Paris were compiled by combining into a single property all properties associated with the same tax office and belonging to a single owner (two apartment buildings associated with two different Parisian tax offices would thus have been counted as two different properties, even if they belonged to the same owner).
2. Unless the map of Parisian tax offices changed significantly over the course of the period in question: for example, an increase in the number of tax offices would automatically lead to an (artificial) decline in the concentration of real estate ownership (assuming the properties were actually grouped by tax office).



## Works Cited

This list contains only works cited in the book (or in the technical appendixes). Also, this Works Cited list contains only works by authors, in the sense that administrative publications lacking an author's name do not appear here. References to publications lacking an author's name are given in the notes or in the technical appendixes. The line is sometimes blurry: for example, some INSEE publications are given an author's name while others are not; generally speaking, we have attributed all signed administrative publications to their authors (see, for example, Bayet and Julhès [1996]). The tax administration publications presenting the tabulations of income, wage, or bequest declarations are never signed, and exact references to these sources are thus given in the relevant technical appendixes. In the following list, we also give the acronyms that we sometimes used within the book and this Works Cited list to refer to certain periodical publications.

*BLC*: *Bulletin de Législation Comparée* (Finance Ministry, 1941–1948)

*BMS*: *Bulletin Mensuel de Statistique* (INSEE, 1950–)

*BSGF*: *Bulletin de la Statistique Générale de France* (SGF, 1911–1949)

*BSLC*: *Bulletin de Statistique et de Législation Comparée* (Finance Ministry, 1877–1940)

*BSMF*: *Bulletin de Statistiques du ministère des Finances* (Finance Ministry, 1947–1948)

*E&C*: *Etudes et Conjoncture* (INSEE, 1946–1969)

*E&P*: *Economie et Prévision* (Finance Ministry, 1979–)

*E&S*: *Economie et Statistiques* (INSEE, 1970–)

*RE*: *Revue Economique* (1950–)

*REP*: *Revue d'Economie politique* (1887–)

*S&EF*: *Statistiques et Etudes Financières* (Finance Ministry, 1949–1984)

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