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Income and Wealth Inequality in France: Developments and Links over the Long Term

Bertrand Garbinti* and Jonathan Goupille-Lebret**

Abstract – This article sheds light on the long-term development of income and wealth inequality and the link between them in France. Following a sharp decline in inequality that began at the beginning of the First World War, a trend towards inequality has emerged (and continues) since the mid-1980s. The historical perspective makes it possible to illustrate how small changes in inequality in savings, returns or earnings can have strong long-term effects on wealth concentration. Two other major trends have been observed since the 1970s. One is the narrowing of the gap in labour income between men and women – although it remains high. The other is the increased difficulty, for those who only have access to labour income, to access the highest wealth brackets. Finally, our comparisons between France and the United States show that wealth and income inequalities were comparable or even lower in the United States before the 1970s. That country has since become much more unequal.

JEL Classification: D31, E01, E21, N3

Keywords: income inequality, wealth inequality, gender inequality

Reminder:

The opinions and analyses in this article are those of the author(s) and do not necessarily reflect their institution's or Insee's views.

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The issue of income and wealth distribution has become of primary importance for researchers, policy makers and citizens. The issue serves as the prism through which debates on meritocracy, equal opportunities and social justice, notions that are at the heart of the French social model, are focused.

Studying the development of wealth and income inequalities is a difficult exercise, due to the multitude of factors involved. Inequalities are partly the result of individual decisions: thus we can consider labour supply behaviours over the life cycle, choices in terms of savings, investment and wealth transfer, and portfolio choices. They are also influenced by major social, economic and technological changes in society. These changes may be sudden and temporary (world wars and industrial and financial revolutions or crises), but they may also be part of slower developments, reflecting trade union struggles or more structural changes in our societies, such as the democratisation of the education system or the development of paid work among women. Finally, they may result from active public policies (regulation and deregulation of the capital market, development of compulsory contributions and minimum social standards and minimum wage). All these factors are likely to affect the degree of income and wealth inequality and the perception thereof in our society in different proportions and over different time periods.

Understanding and analysing the development of economic inequality therefore requires placing them in a precise economic, historical and social context and understanding their dynamics. This article on income and wealth inequalities forms part of this approach and provides an overview of their long-term development in France.¹ The analysis is mainly based on two recent articles by Garbinti *et al.* (2016; 2018). It is also based on work by Piketty (2001) and Piketty *et al.* (2006, 2014, 2018), which provide additional insights into these developments. Finally, we use the American series created by Saez & Zucman (2016) and Piketty *et al.* (2018) to compare the trajectories of income and wealth inequality in France and the United States. This article is an opportunity to present several important results and to put them into perspective.

First of all, the First World War marks the beginning of a significant reduction in wealth and income inequalities due to the combination of economic and political shocks of unexpected

magnitude. Then, since the mid-1980s, we see a return of the concentration of wealth and the soaring of the highest salaries. However, the wealthiest individuals and the highest paid workers are far from forming a homogeneous group and, since 1970, we witness an increasingly significant dichotomy between the highest fortunes and the highest labour incomes. In particular, it has become increasingly difficult to access the highest wealth brackets with only labour income. In addition, since the 1970s, the inequality of labour income between men and women has steadily declined, as a result of women's increasing participation in the labour market. However, this inequality remains significant due to women's still very limited access to the highest salaries.

Finally, wealth and income inequalities were comparable or even lower in the United States before the 1970s. That country has since become much more unequal. Furthermore, even though national income per adult is 30% higher in the United States, this does not mean that the entire population there benefits from better salaries: the income received by the poorest 50% in the United States is significantly lower than that received by the poorest 50% of the French population.

The rest of the article begins with a review of the concepts, data and methods, then the subsequent sections are devoted successively to changes in wealth, changes in national pre-tax national income, the development of the link between income and wealth; a final section is dedicated to the comparison with the United States.

Concepts, Data and Methodology²

Concepts of Income and Wealth

The series presented here are based on national accounts concepts. The reason for this choice is not that we believe that the national accounts concepts are perfect, but rather that it is the only existing framework within which the concepts

1. See Atkinson & Bourguignon (2000; 2015), Atkinson *et al.* (2011) and Zucman (2019) for reviews of the international literature on long-term inequality.

2. We present in the most overarching and accessible way possible a summary of the methods used to create historical series of income and wealth. A more detailed presentation of the methodology is provided in the Online complement C2. Link to the Online complements at the end of the article.

of income and wealth are defined consistently on an international basis.³

National pre-tax income (abbreviated as pre-tax income hereinafter) is our base concept for studying the distribution of income received. It is equal to the sum of labour, capital and replacement income (retirement pensions and unemployment benefits) before taking into account taxes, duties and transfers.⁴ To avoid double counting, social contributions financing replacement income are deducted from labour income.

The concept of wealth used is that of personal net wealth. It is defined as the sum of financial and non-financial assets, minus debt, held by the household sector in the national accounts and it is measured based on a breakdown into seven asset classes: non-financial assets are separated into professional assets and property assets, with the latter then being separated into residential property and rental property. Financial assets are separated into four categories: deposits (including current accounts), liabilities (including loans), shares and life insurances.

Wealth and income are calculated for individual adults (over 18 years old). Income and wealth inequality can be represented according to three alternative approaches to the observation unit: inequality between households, inequality between adults and an intermediate level between these two polar opposites, which we call “equal-split adults”. For couples, it consists in allocating half of the wealth and income to each partner. This is what we have chosen here. Representing inequality between households can, in effect, be problematic when seeking to study the development of inequality in the long term or between countries, because the comparison of different sized households can artificially generate a higher level of inequality (or lower, depending on the ratios of couples and singles). Representing inequality between adults seeks to correct this bias. However, this approach implies the absence of redistribution of income and wealth within couples. The concept of equal-split adults, in accordance with which income and wealth are divided equally between partners, makes it possible to overcome these limits and is, therefore, our reference observation unit.⁵ It is worth noting that the selection of the most appropriate observation unit depends on the type of inequality studied. When we present the development of inequality of labour income between men and women, the most appropriate observation unit

will be the labour income actually received, individually, by each member of the household.⁶

Data and Methodology

The construction of the series presented in this article is based on several data sources and methodologies, which are detailed together with the hypotheses, variants and robustness checks in the two reference articles (Garbinti *et al.*, 2016, 2018). Here, we present only a summary version.⁷

First, the construction of the national income and wealth series for the years 1970-2014 is mainly based on the use of the tax micro-data available since 1970. They make it possible to obtain the distribution of taxable incomes at individual level. This “taxable income” does not correspond exactly with the national pre-tax income. The difference between the two comes from three components (untaxed labour income, untaxed capital income and taxes on production), which are imputed to correspond to flows measured in national accounts. The wealth series are obtained by combining the capitalization method

3. These concepts are defined directly based on the international System of National Accounts (SNA 2008). A more comprehensive presentation of the concepts used can be found in Alvaredo *et al.* (2016).

4. It is important to note that this concept of income, which is consistent with that of national income in national accounts, includes undistributed corporate income. Indeed, the profits of companies may be distributed (in the form of dividends) or not distributed. Not taking into account undistributed profits would overlook such income generated by the economy, which may or may not be distributed for tax-related reasons. Given the differences in taxation between countries and variations over time, it seems preferable that a long-term view does not exclude such income. Between 1990 and 2014, undistributed corporate financial income represents an average of 2.9% of national income (2.2% between 1970 and 2014). Such income is negative after the second oil crisis (-1.1% on average between 1980 and 1983) and then virtually nil between 2012 and 2014 (0.3%). When said income is negative, it decreases capital income (which leads to a reduction in inequality, since the holders of such income are the wealthiest) and, when it is positive, it increases capital income. Financial income and, in particular, undistributed income, have contributed to the rise in inequality seen between 1984 and 2008 (see Online complements, Figure C2-IX). Link to the Online complements at the end of the article.

5. Figure C2-VIII in Online complements makes it possible to compare the development of inequality according to the observation unit selected (household, adult, “equal-split” adult). Income inequality among “equal-split” adults is always lower than inequality between households and between adults and, therefore, constitute a lower limit. There are other ways to distribute income and wealth within the household, by taking into account, for example, special marital arrangement, the division of household chores and childcare, economies of scale, etc. However, the introduction of such approaches would go far beyond the framework of this article.

6. Other concepts, which are not presented here, are also used to check the robustness of the results: we have also calculated series by taxable household and series taking into account individual labour incomes, with the equal-split then being applied only to capital income.

7. More detailed versions that provide a more comprehensive presentation of the assumptions made can be found in Garbinti *et al.* (2016; 2018). The codes are also available online: <https://wid.world/document/b-garbinti-j-goupille-t-piketty-data-files-wealth-concentration-france-1800-2014-methods-estimates-simulations-2016/> and <https://wid.world/document/data-files-income-inequality-france-1900-2014-evidence-distributional-national-accounts-dina-wid-world-working-paper-201704/>.

and allocations from survey data. The so-called capitalization method makes it possible to reconstruct asset amounts based on the capital flows observed in income tax returns and the corresponding asset amounts observed in the national accounts. This method can only be used for capital income reported in the income tax returns and, therefore, cannot be used to impute amounts from principal residences, life insurance and current accounts. The use of Insee's Wealth survey (*enquête Patrimoine*) and Housing survey (*enquête Logement*) makes it possible to allocate these assets according to the characteristics of the households, using a method similar to "hot-deck" methods (see Online complements).

Before 1970, the national income series were based on income tax income tabulations produced annually since 1915 by the French Ministry of Finance. These tabulations make it possible to produce series based on the non-parametric Pareto interpolation method developed by Blanchet *et al.* (2017).

Lastly, the wealth series from between 1800 and 1970 are very broadly based on the series developed by Piketty *et al.* (2006). They are the result of work using inheritance data together with a traditional method in the literature

(known as the "estate multiplier" method) that makes it possible to deduce the wealth of living individuals based on that of the deceased.

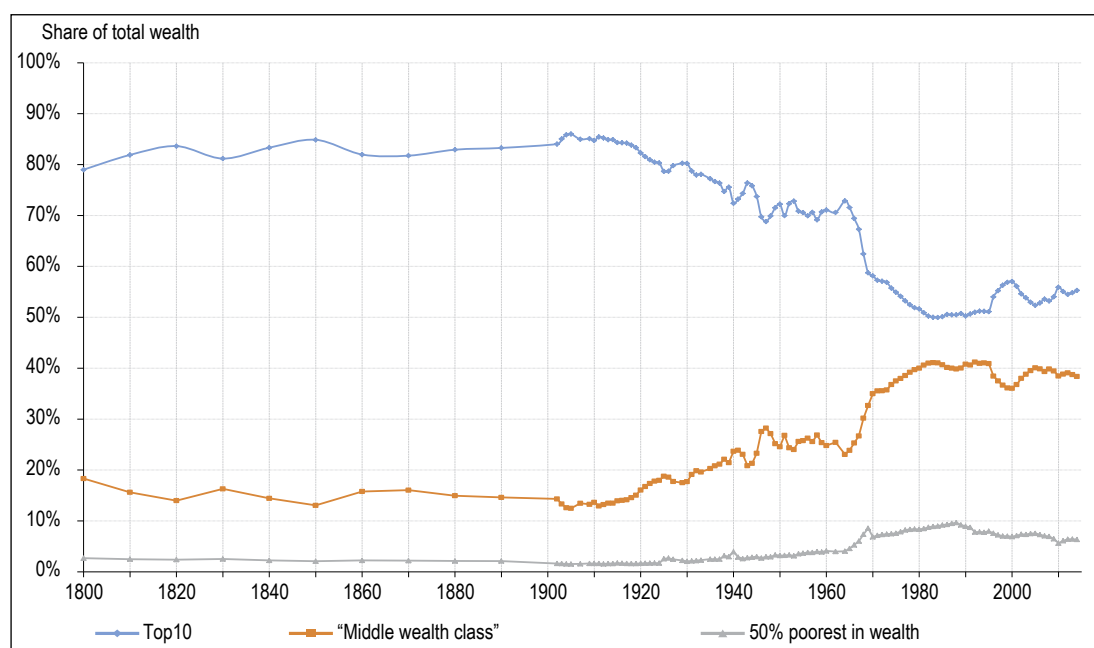
There are multiple benefits to the various methods developed. Firstly, they make it possible to create series that offer a long-term perspective on the development of wealth and income inequalities in France. We present those results first. Then, from 1970 onwards, it is possible to enrich the analysis by studying the joint development of income and wealth. Finally, the consistency of the series with national accounts allows comparisons between countries and we use this characteristic to compare the long-term developments of inequality in France and the United States.

Wealth Inequality 1800-2014

Figure I shows the long-term development of wealth inequality (1800-2014). It represents the total shares⁸ of wealth owned by three

8. This Figure, as others after, presents shares. To complete this information and better illustrate the magnitude of inequalities, levels (of assets, income) are provided in the reading notes.

Figure I
Concentration of wealth in France, 1800-2014



Reading note: The share of total wealth held by the Top10 (the wealthiest 10% individuals) was around 80% throughout the 19th century, then fell from 85% in 1910 to 50% in the mid-1980s. In 2014, the average net wealth per adult is €197,000, and on average €1,075,000 for the Top10, €25,000 for the 50% poorest in wealth and €189,000 for the "middle wealth class" (defined as the 40% of individuals whose wealth is between the poorest 50% and the richest 10%).

Sources: Data and graph from Garbinti *et al.* (2016).

population groups: the most wealthy 10% of individuals (called the Top10), the 50% of individuals at the bottom of the distribution (called “50% poorest in wealth”) and the 40% of individuals situated between these two groups (called the “middle wealth class”).

Three periods appear clearly. Throughout the 19th century and until 1914, an extreme level of wealth concentration persists. The richest 10% hold almost 80% of the total wealth, while the poorest 90% share the rest of the wealth. Therefore, there is no middle class yet.

The First World War marked the beginning of a period of sharp decline in inequality. This change is spectacular: the share of wealth held by the richest 10% decreases from 85% in 1910 to 50% in the mid-1980s. At the same time, the share held by the middle wealth class increases sharply, from 14% to 41%. This striking decrease in inequality between those two dates actually corresponds to two distinct periods and different mechanisms. During the interwar period, the wealth of the richest is subjected to a serie of major negative shocks: destruction of capital during the conflicts, development of progressive taxation on income and inheritances, periods of depression and inflation.⁹ The wealth of the middle class also decreases, but proportionally less than that of the wealthiest, which automatically results in a reduction of inequality. From 1945 onwards, and more particularly from 1968 onwards, there is a different trend at work. The wealth of these two groups increases, but that of the middle wealth class increases more quickly than that of the wealthiest. Following the events of 1968, wage growth and the decline in the wage hierarchy lead to a greater capacity to accumulate wealth for the middle class (see below).

The decline of inequality that began at the beginning of the 20th century ends in the mid-1980s. Then, the share of wealth held by the richest 1% increases continuously.¹⁰ This trend reversal coincides with the deregulation of the financial markets and, more broadly, the so-called “3-D” (Disintermediation, Decompartmentalisation and Deregulation¹¹) policies introduced in the early 1980s. This results in a sharp increase in the weighting of financial assets within the total wealth¹² and within the wealth of the wealthiest (Figure II). Financial assets become predominant at the top of the distribution of wealth from the 1990s¹³ onwards, while housing remains the main asset held by the middle wealth class.

This strong polarisation of the composition of wealth causes significant short-term fluctuations. Indeed, the level of inequality is increasingly sensitive to the changes in the differential price of these assets (property vs financial). This appears clearly around the 2000s, when the CAC 40 reaches its historical high before collapsing following the bursting of the internet bubble, whereas housing prices continue to rise. The increase in housing prices, together with the negative shock affecting financial assets, results in a decrease in inequality between the middle wealth class and the wealthiest individuals. However, the effect is ambiguous and there is no way to conclude that any increase in property prices is a positive factor in reducing inequality. In fact, though an increase in housing prices seems to automatically “enrich” households that are already homeowners, it also acts as an obstacle to access to ownership for households that are not homeowners, in particular for the youngest.¹⁴ Another effect, highlighted in particular by Carbonnier (2015), is that housing bubbles, through their impact on the price of the middle class’s main residence, result in an artificial decrease in the measured inequality.

We have seen that the dynamics of wealth inequality have been strongly affected by the historical, political and economic events throughout the 20th century. To better understand the underlying economic mechanisms, we use a simple formula that breaks down the determining factors of the level of long-term wealth inequality (Box). This formula makes it possible to illustrate the role of three key factors in the development of wealth concentration: inequality in labour income, in the rates of return of assets and in saving rates. The aim of this exercise is not to predict the future but to understand the main factors driving the

9. Piketty et al. (2018) show the important role of the introduction of progressive taxation on the end of the “rentier society” that prevailed in Paris in the 19th century.

10. Based on Wealth surveys (not adjusted to national accounts), Chaput et al. (2011) also find an increase in inequality in France between 2004 and 2011. More recently, Ferrante et al. (2016) find a slight fall in gross wealth inequality between 2010 and 2014, which is also consistent with our series, which show a certain stability in net wealth between those two dates (the share of the Top10 decreases from 56% in 2010 to 55% in 2014).

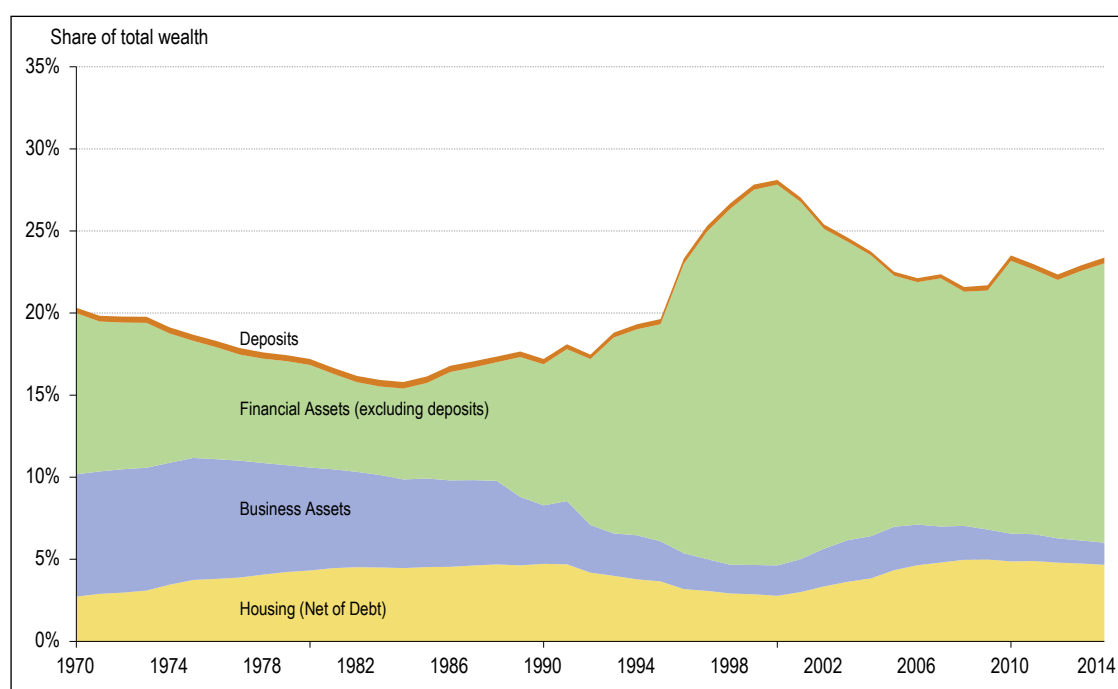
11. According to the expression coined by Bourguinat (1986).

12. See Online complements, Figure C2-1.

13. This increase occurs in parallel with the increase in the power of life insurance within the French economy. See, for example, Goupille-Lebret & Infante (2017) for further details.

14. See, for example, Bonnet et al. (2018) who show that the share of homeowners among the most underprivileged young households has fallen since the 1970s while it has increased among the wealthiest.

Figure II
Breakdown of the share of wealth of the Top 1% in France, 1970-2014



Reading note: From the 1990s onwards, the weight of financial assets in the total assets of the Top 1% (the wealthiest 1% individuals) became predominant. In 2014, the net wealth per adult in the Top 1% is €4,614,000.
Sources: Data and graph from Garbinti *et al.* (2016).

change in inequality dynamics that occurred in the mid-1980s. We study the development of these factors since 1970 before focusing on their impact on the level of long-term wealth inequality.

The share of labour income held by individuals in the Top10 has changed little. Between 1970 and 2014, the latter possess around 18% of the total wealth. Likewise, differences in returns between the portfolios of different wealth groups appear stable over this period (see Online complements, Figure C1-II). The wealthiest achieve higher returns, due to portfolio differences – for example, they have more financial assets with higher returns than deposit accounts or housing assets. However, the difference in returns with the other groups is constant over time. In contrast, the synthetic saving rates developed very differently before and after 1980. It is no surprise that saving rates differ according to wealth groups, with the richest saving more (see Online complements, Figure C2-III). However, although the difference between the saving rates of the Top10 and the rest of the population appears constant until the mid-1980s, it then widens with the rise in the saving rate of the richest individuals, while that of the rest of the

population decreases. The poorest 90% (in terms of wealth) save more during the 1970s than from the mid-1980s, with the poorest 50% even having a saving rate of virtually zero. This structural change appears to be an important element in explaining the increase in wealth concentration that has occurred since the 1980s. Saez & Zucman (2016) observe the same type of change in saving rates in the United States.

A significant limitation of our approach is that it does not make it possible to establish a precise diagnosis of the changes in these synthetic saving rates. In Online complement C1, we propose several elements to provide an explanation; however, our data are insufficient to fully investigate this issue.

We then use the values calculated for saving rates, rates of return and labour income inequality to simulate the inequality trajectories predicted by our formula (Box). A first simulation predicts the level of inequality that would be reached if the average values observed over the 1984-2014 period were to persist (Figure III). The upward trend in inequality previously observed would then continue in a constant manner, until a particularly high level

Box – Wealth Inequality in a Stationary Equilibrium

The change in the wealth of a wealth group p (for example, the Top10 if $p=10\%$) can be shown using the following accumulation equation:

$$W_{t+1}^p = (1 + q_t^p) [W_t^p + s_t^p (Y_{Lt}^p + r_t^p W_t^p)]$$

where W_t^p and W_{t+1}^p denote the average wealth in t and $t+1$ of the wealth group p , Y_{Lt}^p denotes their average labour income in t , r_t^p denotes the average rate of return of their portfolio, q_t^p denotes the average capital gains rate (defined as the difference between the average increase in the price of the assets and inflation) and s_t^p denotes the synthetic saving rate in t . This equation makes it possible to calculate the synthetic saving rates based on other values observed.

Garbinti *et al.* (2016) derive the following formula based on this equation, which reflects long-term wealth inequality or wealth inequality in a stationary equilibrium (defined in economics, as a standard, as a situation in which economic variables such as growth, saving rate, wealth/income ratio, etc., develop at a constant rate):

$$sh_w^p = \left(1 + \frac{s^p r^p - sr}{g - s^p r^p} \right) \frac{s^p}{s} sh_{YL}^p$$

where sh_w^p (or sh_{YL}^p) is the share of wealth (or of labour income) held by the wealth group p , g is the economic growth rate, s is the aggregate saving rate, r is the aggregate rate of return, s^p is the synthetic saving rate of the wealth group p and r^p is the rate of return of its portfolio (depending on the composition of the latter).

This expression provides highly intuitive results. For example, if there is no inequality in returns or saving rate between the different groups ($s^p = s$ and $r^p = r$),

then $sh_w^p = sh_{YL}^p$: wealth inequality is equal to labour income inequality. However, if the wealthiest have higher rates of return and saving rates than the rest of the population ($s^p r^p > sr$ and $s^p/s > 1$), then labour income inequality is increased by a factor that leads to a multiplicative dynamic. The role of growth as a brake on this dynamic also seems clear: when g increases, the first ratio decreases, lessening the multiplicative effect. If growth is infinite, the ratio disappears and the previously accumulated wealth no longer matters, only inequality in labour income and savings matter.

We define synthetic saving rates in the same way as Saez & Zucman (2016). We observe the variables W_t^p , W_{t+1}^p , Y_{Lt}^p , r_t^p and q_t^p in our series and, from there, we calculate s_t^p as the synthetic saving rate that makes compatible the development of the observed wealth in one year within a wealth group p with the wealth observed the following year. We call this the “synthetic” saving rate because it must be considered as a form of average saving rate (taking into account all intergroup mobility effects). Obviously, that does not mean that all individuals in the wealth group p save the same amount. Here, we are not attempting to study this mobility process, *per se*. We are focusing on this approach using the synthetic saving rate to perform simple simulations to illustrate some of the main forces involved. It should also be noted that these saving rates include direct and indirect savings by individuals and, in particular, undistributed profits (as indirect savings). The synthetic saving rates calculated here appear to have a gradient and levels that are consistent with previous studies on French individual saving rates (see, for example, Garbinti & Lamarche, 2014; Garbinti *et al.*, 2014).

of inequality is reached, close to that at the start of the 20th century: the richest 10% holding a share of around 80% of the wealth. Conversely, if the economic conditions (saving rates, rates of return and income equalities) of the years 1970-1984 had persisted beyond that period, the decrease in inequality observed until the mid-1980s would have continued until a low level had been reached (with the richest 10% holding a share of around 45% of the wealth, cf. Figure III).

This is not, of course, a matter of attempting to predict the future development of inequality, as a sharp increase would certainly not go unnoticed and could lead to political, institutional and economic measures aimed at containing it. Rather, it is a case of illustrating how differences between the key factors in the development

of wealth inequality can lead to strong multiplicative effects, which take decades to come to fruition.

Income Inequality 1900-2014

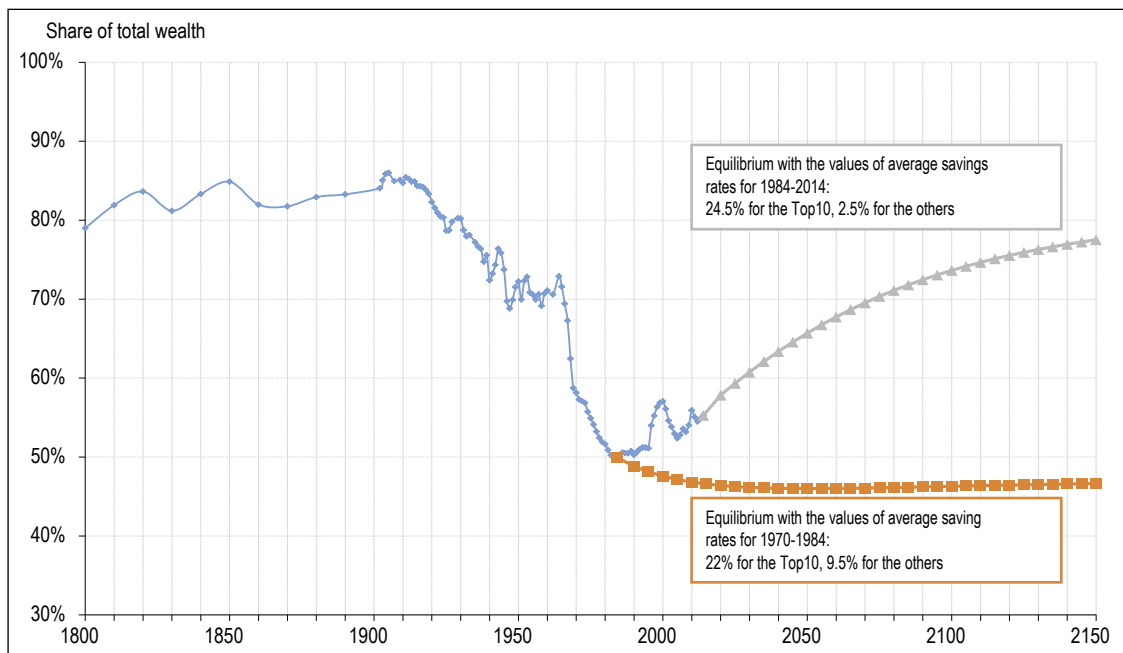
Before studying the development of income inequality and how growth has benefited the different population groups, it is useful to bear in mind the overall developments of national income per adult¹⁵ in France.

Between 1900 and 2014, it grew considerably, from EUR 5,000 in 1900 to EUR 35,000 in 2014.¹⁶

15. National income divided by the adult population.

16. All figures are expressed in EUR at their 2014 value.

Figure III
Share of wealth held by the Top10 at the equilibrium, 1800-2150

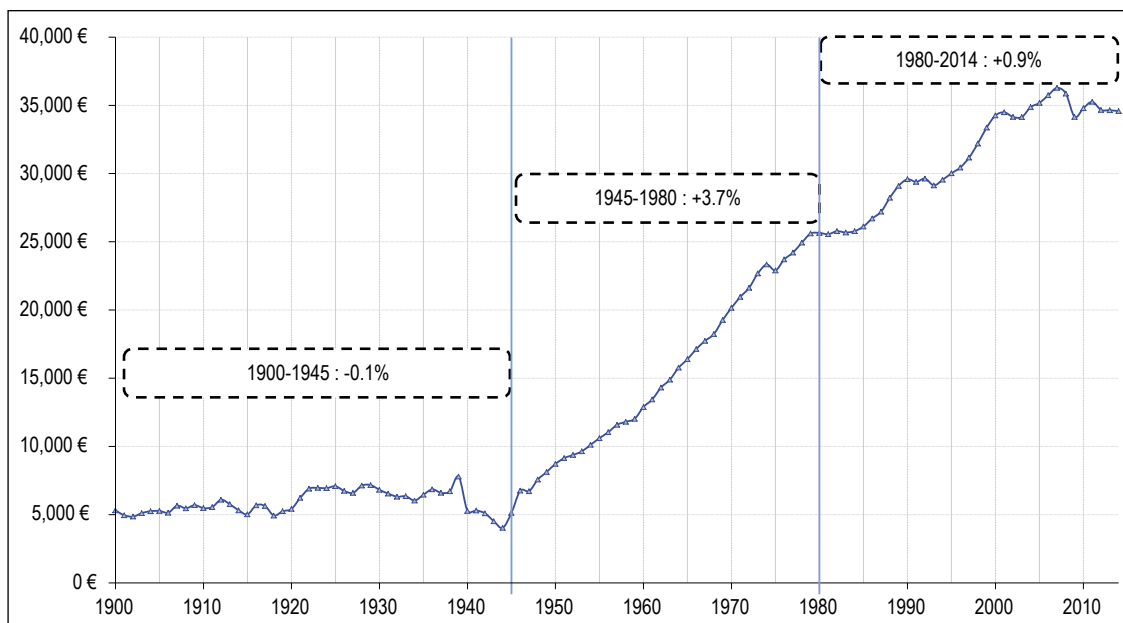


Reading note: Top10 refers to the wealthiest 10% individuals.
Sources: Data and graph from Garbinti *et al.* (2016).

This increase was not continuous and occurred mainly between 1945 and 1980, i.e. during the post-war boom (Figure IV). Indeed, while the growth rate for national income per adult was

negative between 1900 and 1945 (-0.1% per year), it grew by 3.7% between 1945 and 1980 and then divided by almost four between 1980 and 2014 (0.9% per year).

Figure IV
The irregular increase in national income per adult in France, 1900-2014 (in Euros 2014)



Notes: National income (GDP - Capital Depreciation + Net Foreign Income) divided by the adult population.
Reading note: Between 1980 and 2014, national income per adult increased by 0.9%. It averages €34,580 in 2014. Between 1900 and 2014, the growth rate of national income per adult is 1.9% per year.
Sources: Data and graph from Garbinti *et al.* (2017).

These developments in aggregate national income do not fully reflect the developments in income inequality. From 1900 to 1945, the collapse of income inequality is as striking as that previously observed for wealth inequality (Figure V). The share held by the Top10 decreases by 50% in 1914 to 30% in 1945.¹⁷ This fall in income inequality is very closely linked to developments in wealth: the collapse of very high incomes is a collapse of capital incomes. Therefore, this double reduction in inequality is due to common factors (depression, inflation, the destruction of capital, etc.).

From 1945 to 1983, the development of income inequality is more uneven than the development of wealth inequality. From the end of the Second World War onwards, the wage hierarchy is rebuilt and the proportion of capital within the French economy recovers¹⁸, resulting in an increase in income inequality.¹⁹ The events of May 1968 mark the end of this upward trend. Following the significant rise in the minimum wage²⁰, it will increase steadily, raising purchasing power by 130% between 1967 and 1983. The wage hierarchy is then compressed, resulting in a reduction in income inequality.²¹

From 1982-1983 onwards, faced with steadily rising unemployment, successive governments

will decide that minimum wage increases will henceforth be much smaller in order to reduce the rate of increase in the cost of unskilled labour. This marks the end of the period of decreasing income inequality that began in 1968. From the early 1980s, the share of income held by the richest 10% increases slightly. In contrast, very high incomes experience a much more significant increase. The share of income held by the top 1% increases from 7% in 1983 to 11% in 2014, representing an increase of over 50% (Figure VI). The higher the position in the distribution of income, the stronger the increase. Another indicator makes it possible to grasp the extent of the reversal that occurred

17. In the first paragraph dedicated to wealth, individuals are classed in accordance with their net wealth. In this paragraph dedicated to income, they are classified according to their (pre-tax) income. Although there is some overlap, these categories therefore do not represent exactly the same individuals.

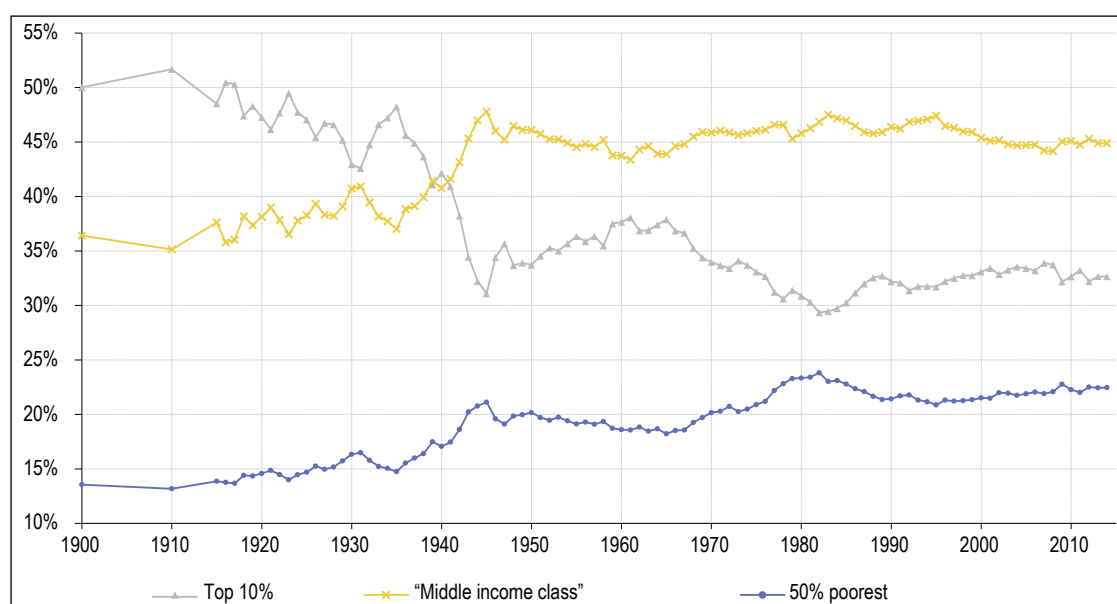
18. Several studies have highlighted the link between the proportion of capital within the economy (i.e. the proportion of the national income distributed as capital income) and income inequality, see Bengtsson & Waldenström (2018) or Piketty (2014, Chapter 6), for example.

19. During this period, high wages increased relatively faster than those of the lower and middle distribution groups, increasing wage inequality. Furthermore, the proportion of profit within the national income has increased, mainly benefiting the highest incomes. Thus, these two effects contributed to the increase in income inequality from 1945 to 1983.

20. 20% increase in EUR at a constant value.

21. The periodisation of political and economic life presented here is relatively standard and has been the subject of multiple studies (see Piketty, 2001, 2003).

Figure V
Share of income by wealth level in France, 1900-2014



Notes: Distribution of national pre-tax income (before taxes and transfers, with the exceptions of pensions and unemployment benefits) among adults. "Equal-Split" series (income of married couples divided by 2).

Reading note: Between 1914 and 1945, the income share of the Top 10% (the 10% individuals with the highest income) fell from 50% to 30%. In 2014, the average national income per adult is €34,580, and €112,930 on average for the Top 10%, €15,530 on average for 50% poorest and €38,800 on average for the "middle income class" (defined as the 40% of individuals whose income is between the 50% poorest and the 10% richest).

Sources: Data and graph from Garbinti *et al.* (2018).

in 1983: between 1950 and 1983, while actual income per adult increases at a rate of 3.5% per year for almost the entire population, high incomes experience an annual increase of 2.3% (see Online complements, Figure C2-IV). From 1983 onwards, the trend reverses. Very high incomes continue to grow at a rate of 2.2% per year, compared with less than 1% for the rest of the population.²²

How can this recent increase in inequality be explained? The increase in very high incomes, which was particularly pronounced between 1983 and 2000, derives primarily from the combination of two factors specific to capital income. First, we observe a significant increase, of almost 30% over the period, in the proportion of capital income within the economy. As such income is predominantly held by those with the highest incomes, its increase naturally leads to an increase in inequality. Then, over the same period, we observe a greater concentration of these incomes. The share of the total capital income owned by the 1% of individuals with the highest incomes increases from 26% in 1983 to 35% in 2000. This increase in the concentration of capital income is linked to the increase in the concentration of wealth observed during this period. This can be explained through the high level of inequality in terms of rates of return and saving rates (cf. Box). A detailed analysis of the determining factors of the increase in the share of capital income within the economy and

of the increase in the concentration of capital income within the highest income groups is beyond the scope of this article; however, interested readers may refer to Autor *et al.* (2017) and Benhabib & Bisin (2018).

The Increasing Concentration of Labour Income

Although the increase in high incomes can be explained mainly due to factors specific to capital, since the start of the 1990s, we also observe a significant increase in the concentration of labour income (see Online complements, Figure C2-V). Therefore, other explanations must be used to enable a complete understanding of this phenomenon.

Technological changes leading to changes in the labour demand have sometimes been advanced to explain this phenomenon: the education system would take time to adapt to this demand for new skills or to a higher demand for skilled labour. Therefore, there would be a period with

22. This decrease and then increase in inequality is also observed by Boiron (2016), who studies living standards based on Household tax and social income survey (enquête Revenus fiscaux et sociaux, not adjusted in line with national accounts). Over the most recent period and despite a different methodology, our results are comparable with those of Cazenave (2018), who shows that between 2013 and 2014 the share of the 1% of the highest incomes increased slightly (+1.5% and +6.3% for the top 0.1%), while our series conclude that there is a certain degree of stability between these dates.

Figure VI
Share of income of the 1% highest incomes in France, 1900-2014



Notes: Distribution of national pre-tax income (before taxes and transfers, with the exceptions of pensions and unemployment benefits) among adults. "Equal-Split" series (income of married couples divided by 2).
Reading note: The share of income of the 1% highest incomes rises from 22% in 1900 to 7% in 1983 and then to 11% in 2014. In 2014, the average national income per adult is €34,580 and €374,200 for the 1% highest.
Sources: Data and graph from Garbinti *et al.* (2017).

a shortage of certain qualifications, leading to a significant increase in the salaries of individuals with the most in-demand skills. This type of explanation, based on the “race between technology and education” (Goldin & Katz, 2009) is more appropriate in the United States (where the share of income held by the Top10 has increased extremely strongly since the 1980s) than in France, where it is mainly the very high incomes (from the top 0.1%, or even the top 0.01%) that have soared. However, this theory is of interest in highlighting the importance of investment in the education system and, more broadly, of public policies in the field of education (cost of studies, continuing professional development, etc.) as ways of affecting pre-tax income inequality.²³ The role of the financial sector has also been examined. Financial deregulation is thought to have created a greater complexity of tasks, resulting in higher salaries and the emergence of annuities, which would explain the very high salaries observed in this sector. However, this does not exhaust the issue: for example, Philippon & Reshef (2012) estimate that the share of the increase in wage inequality due to the financial sector in the United States since 1980 is between 15% and 25%, leaving 75% to 85% of the increase unexplained.²⁴

Therefore, further explanations are required. The decline of trade unions and collective bargaining processes has probably played a role. In particular, the pay²⁵ of very senior executives seems to follow an astonishing logic: several studies have shown that it had little to do with their performance but depended above all on positive external events (hence the term “luck-based pay”).²⁶ In this context, the very process of negotiating very high incomes and the incentives to pay more or less to senior executives become of primary importance. Tax changes concerning very high incomes have also been noted as potentially having a decisive role. A strong link has been established between the reduction in taxation on very high incomes and the increase in inequality.²⁷ The reasoning is as follows: during negotiations on their pay, senior executives will be all the more inclined to demand increases because they are taxed at a low rate on such additional remuneration, and a board of directors that needs to make a decision regarding an increase will probably be reluctant to grant it if it knows that it will be taxed at 80% or even 90%, as was the case in Britain and the United States from the 1940s to the 1970s (and around 70% in the 1980s). Therefore, changes in taxation play a significant role on the methods of determining the income of senior executives.²⁸

Persistent Labour Income Inequality between Men and Women

At present, we are analysing the development of labour income inequality between men and women.²⁹ The increase in the proportion of women within the active population is effectively a groundswell, which began in the 1960s, and is likely to affect the development of income inequality between individuals. After having fluctuated at around a third of the labour force, the proportion of women rises steadily to reach almost half of the working population by the end of the 20th century (see the article by Marchand & Minni in this issue). However, this growth has also been achieved with a significant increase in part-time work (see, for example, Afssa & Buffeteau, 2006), which has limited catching-up in terms of labour income.

The analysis of income inequality conducted so far is based on the concept of equal-split adults. Such an approach which consists of equally dividing income within couples does not make it possible to study the effect of women’s increased participation in the labour market on inequality or, more generally, the development of inequality between the sexes. Unlike the rest of the article, our analysis here is therefore based on individual series of labour income actually received by each household member.

Figure VII shows the development of the ratio of men to women work income, by age, between 1970 and 2012. The gap has narrowed

23. On the importance of the primary redistribution system on income inequality in France, see Bozio et al. (2018).

24. Recently, Boustanifar et al. (2018) have studied salary increases in the financial sector between 1970 and 2011. While the financial sector represents only a 6% share, on average, of the total skilled labour, they show that the increase in the wages of skilled workers in finance explains 31% of the average increase in the salaries of skilled workers in developed economies between 1980 and 2005. Financial deregulation is the most important element in explaining this increase: “the significant increase in ICT intensity in finance can be explained, mainly, due to the broadening of the range of banking activities to include risky and complex activities on the financial markets (trading, market making, transfer of risks to derivative products markets, etc.), enabled by the removal of regulatory barriers and a relaxation of supervision. This increased complexity of their activities has allowed skilled workers to increase their bargaining power and, consequently, to obtain extra pay.” (Reshef, 2017).

25. The pay of very senior executives can take the form of both labour income (salary) and capital income (dividends and stock options, in particular).

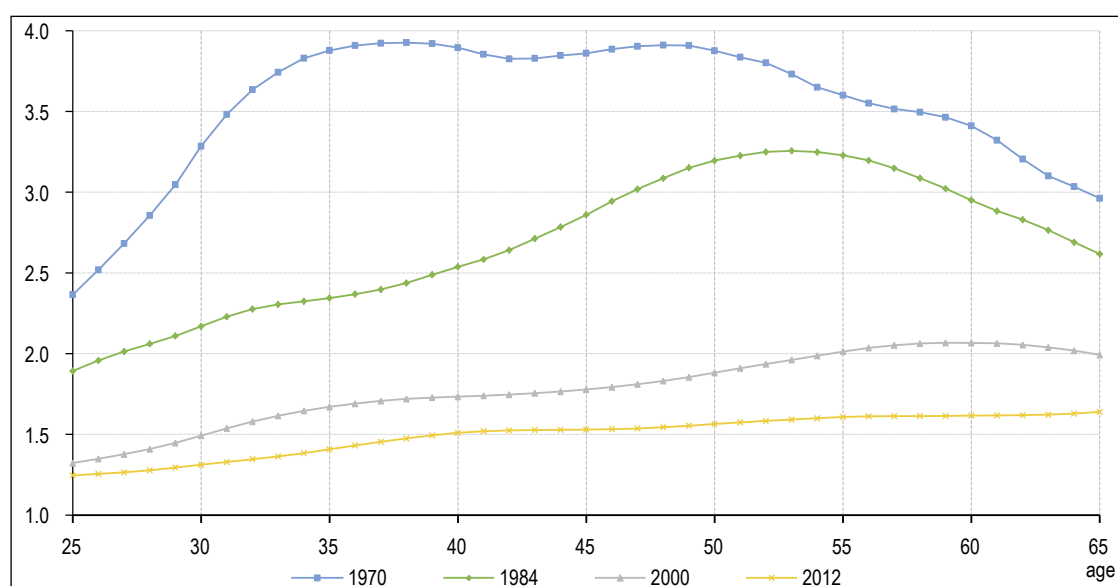
26. See, for example, Bertrand & Mullainhantan (2001). Garvey & Milbourne (2008) confirm this analysis and show that executives are not penalised in the event of “bad luck”.

27. See Piketty et al. (2014).

28. See also Piketty (2014), Chapter 9.

29. We limit ourselves here to income inequality. Our methodology does not make it possible to identify wealth levels. Indeed, very broadly, wealth is obtained based on the capitalization of capital income reported together with tax returns. For information on wealth inequality between women and men, see for example Frémeaux & Leturcq (2013; 2016).

Figure VII
Gap in work income between women and men in France, 1970-2012



Notes: Ratio between the average work income of men and women, including non-participants in the labour market. Work income includes wages, pensions, unemployment benefits and 70% of the self-employed mixed incomes. Mixed income includes (by definition) both work income and capital income. As is standard practice, 30% of this income is considered to be a remuneration for capital and 70% for work.
 Sources: Data and graph from Garbinti *et al.* (2018).

considerably since the 1970s, but it remains significant.

In 2012, at 25 years of age, men receive an average³⁰ of 1.25 times more pre-tax income than women of the same age, and 1.65 times more at 65 years of age. The fact that women are less likely to be promoted to the highest paid jobs over the course of their careers (cf. Gobillon *et al.*, 2015) plays certainly a significant part in this difference.

This gap has been much more marked. In the 1970s, men between 30 and 55 years old earned 3.5 to 4 times more than women of the same age. However, less than one in two women received labour income at that time (see Online complements, Figure C2-VI).

While the income gap between men and women has narrowed considerably over time, it nonetheless remains clear that women still do not have access to the highest paying jobs (see the article in this issue by Meurs & Pora). In 2012, only 30% of women were among the 10% of individuals receiving the highest labour incomes. They account for only 16% within the top 1% and 12% in the top 0.1%. This proportion indeed increases gradually over time, but at a very moderate rate. For illustrative purposes, if we extrapolate the trend observed since the

mid-1990s, we reach the conclusion that it would take until 2102 for parity to be seen within the top 1% and until 2144 for parity within the top 0.1% (Figure VIII).

The Changing Links between Wealth and Income from Capital and Labour

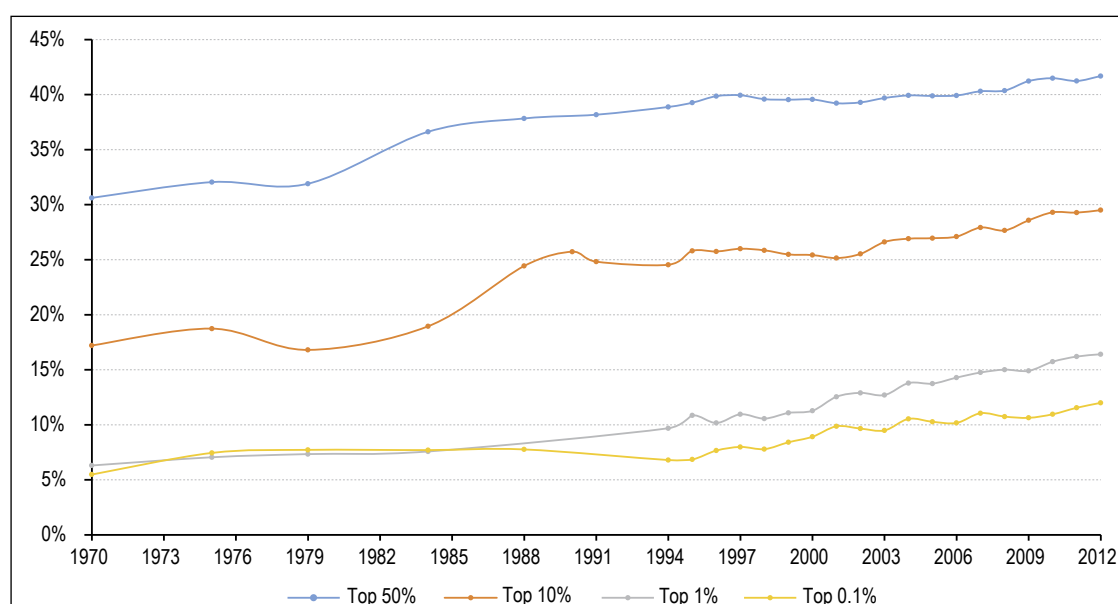
The trends identified above suggest the link that exists between capital income, labour income and wealth. In France, as well as in other countries, there have been few studies concerning this link, due to a lack of data. One advantage of the series used here is that they make it possible to study jointly how income and wealth develop.

To understand the composition of the income of the wealthiest individuals, we have shown the proportion of all capital income received by the wealthiest 1% of individuals and the proportion of labour income (Figure IX, the blue curve and orange curve, respectively). Two findings emerge.

First of all, capital income is highly concentrated, more so than wealth. The wealthiest 1%

30. All individuals are considered here, whether in employment or not.

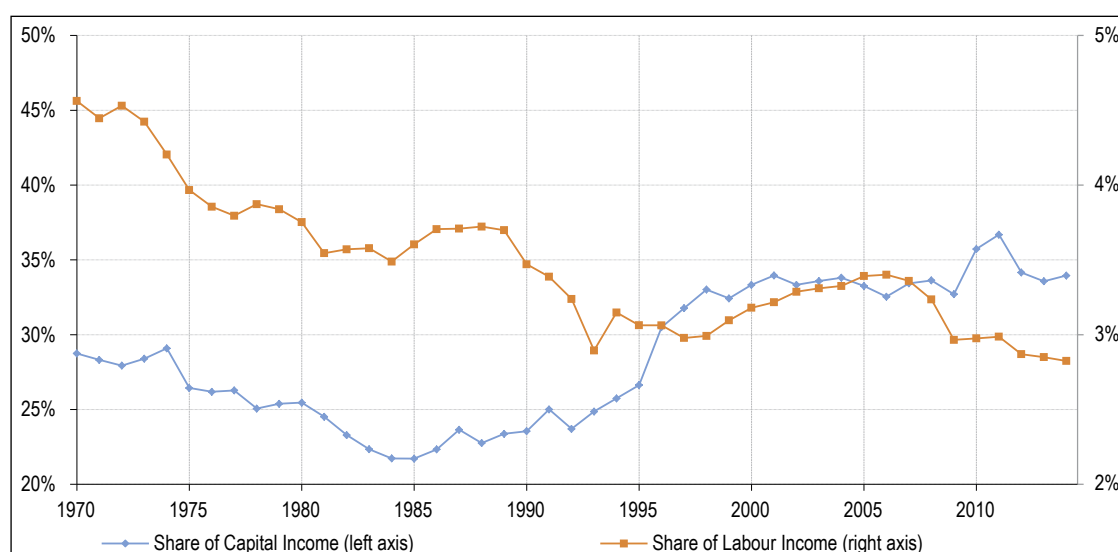
Figure VIII
Share of women in the highest work income groups in France, 1970-2012



Reading note: In 1970, 6% of women were in the 1% highest work incomes (Top 1%), 10% in 1994, 16% in 2012. If the trend observed since the mid-1990s was extrapolated, they would be 50% in 2102. Following this trend, it would take until the year 2144 to achieve parity in the highest fractile (Top 0.1%, the 0.1% highest).

Sources: Data and graph from Garbinti *et al.* (2017).

Figure IX
Share of work income and capital income received by the wealthiest 1% in France, 1970-2014



Reading note: In 1970, the 1% wealthiest received 28.7% of total capital income and 4.6% of labour income. In 2014, they received respectively 34% and 2.8%.

Sources: Calculations by authors based on data from Garbinti *et al.* (2016).

of individuals receive between 30% and 35% of total capital income, while they hold between 20% and 25% of the total wealth. Their share of labour income is much lower (between 3% and 5%).

Then, the shares of capital and labour income followed diametrically opposite directions. The

share of labour income received by the wealthiest 1% of individuals has fallen constantly, from 4.6% in 1970 to less than 3% in 2014 (which is a decrease of 38%). In contrast, the share of capital income has increased significantly since the mid-1980s, growing by 56% between 1984 and 2014. Most of this increase occurred between 1984 and 2000, which corresponds to

a period of a strong increase in the concentration of capital income and of the proportion of capital within the economy. Therefore, this increase in the proportion of capital within the economy has mainly benefited individuals with wealth and has increased income concentration.

The following formula makes it possible to analyse how the correlation between the owners of the highest wealth levels and the owners of the highest incomes (from labour and capital) has developed over time.

$$sh_{Y_{tot}}^{p,w} = (1 - \alpha)sh_{Y_L}^{p,L} \frac{Y_L^{p,w}}{Y_L^{p,L}} + \alpha sh_{Y_K}^{p,K} \frac{Y_K^{p,w}}{Y_K^{p,K}}$$

$sh_{Y_{tot}}^{p,w}$ means the share of total income held by the $p\%$ of the wealthiest individuals (the Top10 wealthiest individuals, where $p=10\%$) and $sh_{Y_L}^{p,L}$ (or $sh_{Y_K}^{p,K}$) the share of labour income held by individuals receiving $p\%$ of the highest labour (or capital) incomes. The alignment coefficient $\frac{Y_L^{p,w}}{Y_L^{p,L}}$ (or $\frac{Y_K^{p,w}}{Y_K^{p,K}}$) is the relationship between the total labour (or capital) income held by the wealthiest $p\%$ of individuals, and the total labour (or capital) income held by the richest $p\%$ in terms of labour (or capital) income. This ratio shows the extent to which those holding the highest labour (or capital) incomes also hold the highest wealth. A coefficient

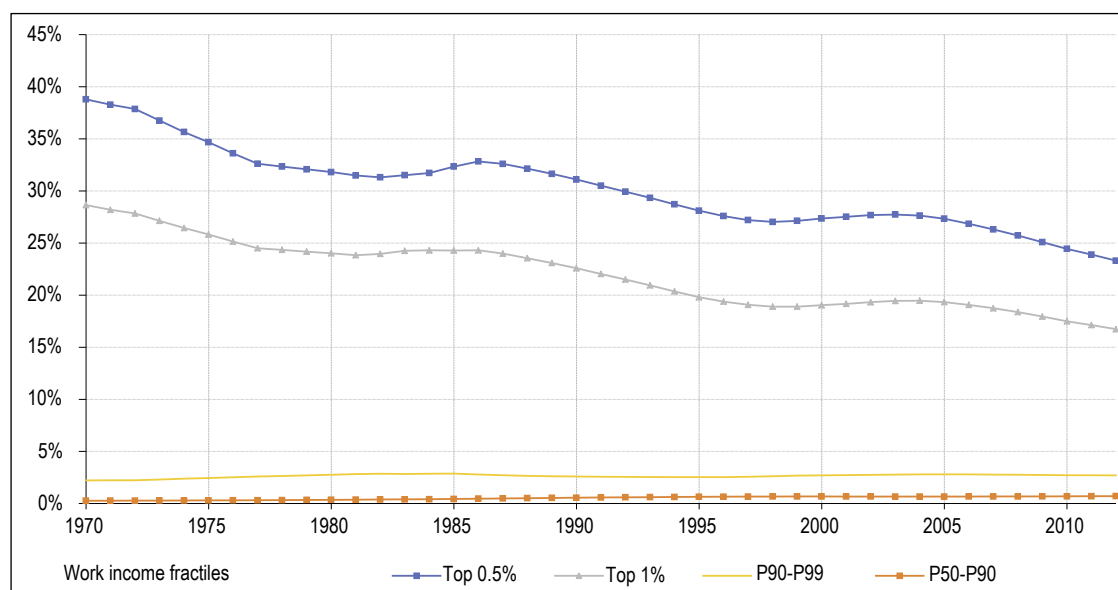
of 1 means that the $p\%$ of individuals receiving the highest incomes are also the wealthiest $p\%$ of individuals. A coefficient of 0 means that these two groups do not overlap.

The alignment coefficients for the Top 1% are shown in Figure C2-VII in the Online complements. For capital income, these coefficients are above 0.9 for the entire period and virtually 1 from the mid-1980s: the wealthiest individuals are also the individuals with the highest capital income. At the same time, the alignment coefficient for labour income decreases from 68% to 59%. Thus, greater polarisation seems to be emerging between the wealthiest individuals, on the one side, and the “working rich”, on the other.

Figure X confirms this result very clearly. For the 1% of individuals with the highest labour incomes, the probability of belonging to the group of the 1% of wealthiest individuals has fallen, from 29% in 1970 to 17% in 2012. The decrease is of the same order for individuals receiving the highest 0.5% of labour incomes: 39% of them used to belong to the wealthiest 1% of individuals, but only 23% of them do in 2012.

Two contradictory effects could be in opposition here. On the one hand, the recent increase in

Figure X
Probability of individuals with the highest work incomes to belong to the wealthiest 1% in France, 1970-2012



Notes: P90-P99 refers to the 9% of individuals with work income between the highest 1% and lowest 90%. P50-P90 refers to the 40% of individuals with work income between the highest 10% and lowest 50%.
Reading note: In 1970, the 0.5% highest work incomes had a 39% probability of belonging to the wealthiest 1%; this probability was 23% in 2012.
Sources: Data and graph from Garbinti *et al.* (2017).

very high labour incomes could make it easier for people receiving these incomes to accumulate large amounts of wealth. At the same time, significant increases in both the wealth/income ratio within the economy³¹ and the flows of inherited assets³² make it more difficult for people with only labour income to access the highest wealth levels, if they do not have any family fortune. Our results suggest that it is this second effect that is the most important. This result is consistent with estimates by Piketty (2011), who compares the living standards of individuals with the highest incomes with those of individuals receiving the highest inheritances and concludes that the living standards of the richest heirs have recently caught up with those of the richest earners of labour income.

Comparisons between France and the United States

One of the advantages of creating series that are consistent with the national accounts is to allow comparisons between countries and over time through a unified framework. For pre-tax income inequality, we compare our series with those produced, using a similar

methodology, by Piketty *et al.* (2018) and, for wealth inequality, with those produced by Saez & Zucman (2016).

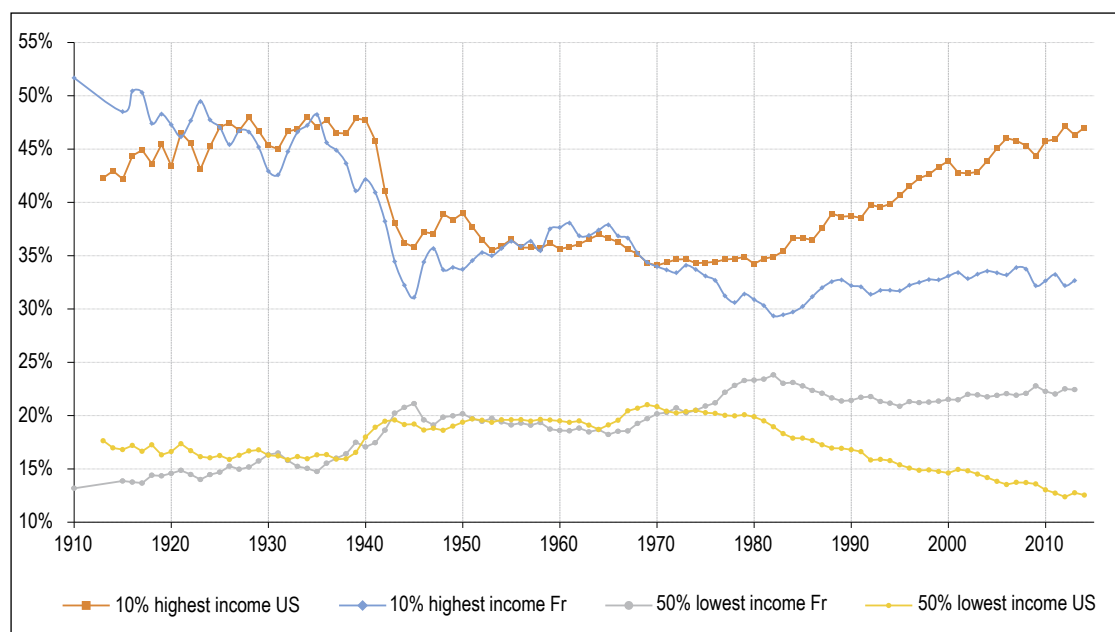
Since the 1980s, pre-tax income inequality has increased substantially more in the United States than in France (Figure XI). However, France appears more unequal than the United States until the First World War, whether in terms of pre-tax income or wealth. During the years 1960-1970, the levels of income inequality were roughly similar in both countries; at present, the United States has become much more unequal.

This divergent evolution is interesting because it highlights how differences between countries in terms of inequality can vary considerably over time and depend on the institutional and political regimes specific to each country's history. The explosion of inequality in the United States from the 1980s is probably the result of a complex combination of factors such as changes in labour market rules

31. See, for example, Piketty & Zucman (2014).

32. See Alvaredo *et al.* (2017) for an estimate of the recent increase in the share of inherited assets as part of the accumulated wealth.

Figure XI
Share of income held by the 10% highest and 50% lowest income in France and United States, 1910-2014



Notes: Distribution of national pre-tax income (before taxes and transfers, with the exceptions of pensions and unemployment benefits) among adults. "Equal-Split" series (income of married couples divided by 2).

Reading note: Between 1910 and the Second World War, the share of income held by the 10% highest income in the United States was around 45%, then fell to around 35% until 1980, before rising. In purchasing power parity, in 2014, the average national income per adult in the 10% highest incomes in the United States is €248,810 (€112,930 in France) and €13,280 for the 50% lowest (€15,530 in France).

Sources: Data and graph from Garbinti *et al.* (2018).

(including a significant decrease in the Federal minimum wage³³), a highly unequal education system (with a widening funding gap between the best universities and the rest), or even changes in rules of governance and incentives that influence the setting of remuneration for the most senior executives (with, in particular, a very significant fall in top marginal income tax rates).³⁴

This high level of inequality is sometimes presented as not being of primary importance: given that the United States has a national income per adult around 30% higher than that of France, its level of inequality would not necessarily be a problem if everyone there received higher incomes than in France. This is clearly not the case: in 2014, the poorest half of the French population has pre-tax incomes 20% higher than in the United States.³⁵ This difference is considerable.³⁶ The highest national income per adult observed in the United States does not, therefore, translate into higher economic well-being for the entire population. The finding is even worse: the poorest half of the American population receives less than half that of the poorest half of the French population.

These pre-tax series also make it possible to observe the fall in the share of income received by the poorest 50% of Americans since the 1970s. This share is collapsing, falling from 21% to 12.5%. This is the opposite to the development for the highest incomes and is very different to that observed in France. While the incomes received by the poorest 50% were higher in the United States in the years 1950-1960 and despite the rise in unemployment in France since the 1970s, the actual average income (excluding inflation) of the poorest 50% has not increased in the United States since those same 1970s and has gradually been overtaken by that of the French. Once again, this suggests that institutional and

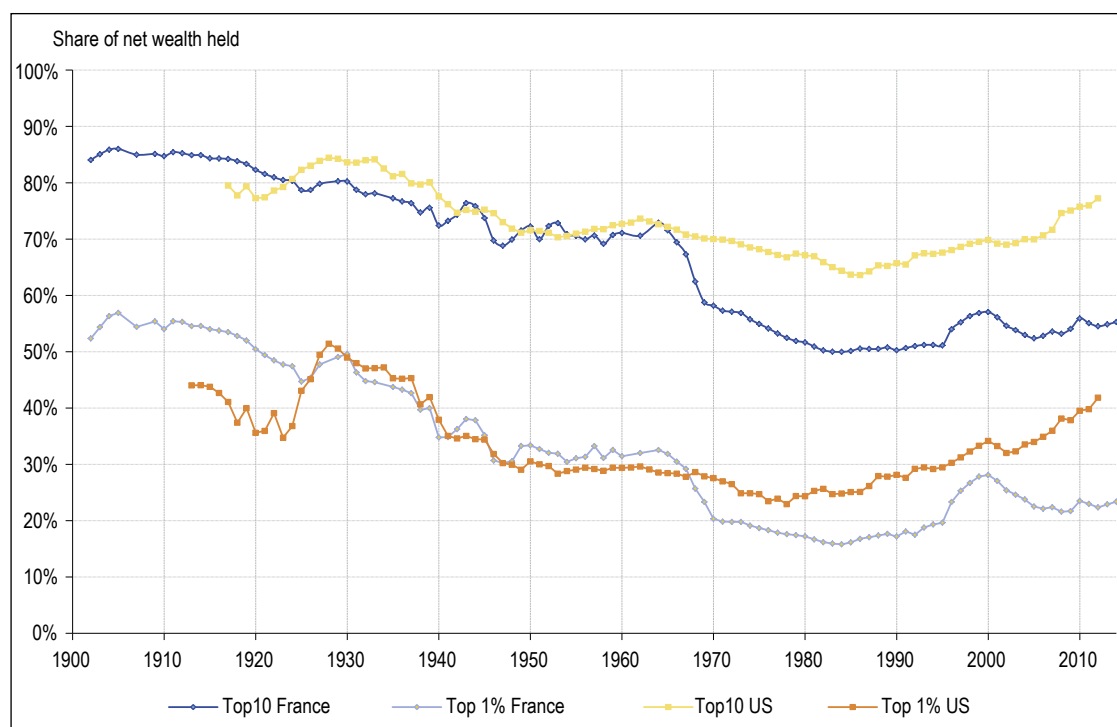
33. The Federal minimum wage remained frozen between 1980 and 1990, under the Ronald Reagan and George Bush (Snr) administrations, without review to take account of inflation, resulting in a significant fall in its purchasing power in real terms. Following two small increases (end of the Bush administration and under Bill Clinton), it was again frozen by George W. Bush for ten years. It was then reviewed multiple times under Barack Obama (see Figures 9.1 and S9.2, Piketty, 2014).

34. See Piketty (2014) and Piketty et al. (2014).

35. In a project that is currently ongoing (Bozio et al., 2018) we show that, after tax, this difference is lower but still exists (it is around 5%).

36. For this comparison to be meaningful, it is made in euros of PPP (purchasing power parity), based on coefficients calculated by the OECD. There may be a certain degree of uncertainty in how to evaluate these coefficients. However, given the size of the difference between France and the US, variations in the coefficient used would not affect our conclusion.

Figure XII
Wealth concentration: France vs US, 1900-2014



Note: The Top10 refers to the 10% highest wealth level.
Sources: Data and graph from Garbinti et al. (2016).

policy differences can contribute to significant differences in the distribution of income, opportunities and well-being for large segments of the population. This also suggests that these institutional and policy differences can have a strong effect on pre-tax inequality and not only on inequality after taxes and transfers.

Lastly, to compare wealth inequality between the two countries, the shares of the total net wealth held by the richest 10% and 1% in France and the United States are shown in Figure XII.

As with income, wealth inequality were higher in France than in the United States at the start of the 20th century. The trend then reversed and those inequality subsequently became much higher in the United States. The analysis framework presented in the first section allows for interpretation of this development. The lower level of inequality in the United States at the start of the 20th century could be the result of a “New World” effect: at that time, the American population was rising very quickly and the concentration of wealth there was probably far from stable. For the recent period, the significant increase in income inequality in the United States may easily have resulted in a much higher level of wealth inequality and may also have contributed to an increase in saving rate inequality within the population. Thus, the stagnation of the incomes of the poorest 50% in the United States could explain the very low level of saving observed by Saez & Zucman (2016).

These questions, which are fundamental to our understanding of the economic developments at stake here, are not settled at this stage. They

need to be studied in further detail, in particular with the help of series covering more countries.

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In this article we have presented a historical perspective of the development of income and wealth inequality based on the construction of long-term series combining tax, survey and national accounts data.

The trends highlighted and the comparison with the United States have made it possible to highlight that the level of inequality can vary significantly over time and between countries, according to historical events and policy orientations. Events such as the World Wars or the Great Depression have led both to massive destructions of capital and to the emergence of new political regimes leading to less inequality. The slowdown in growth and ideological changes since the 1980s have led to a new rise in inequality that seems to be ongoing. We have seen how minor changes in inequality in saving rates, rates of return or labour income can have significant long-term effects.

New series available in the World Inequality Laboratory database (wid.world) should make it possible to extend the results presented here on these crucial issues. First of all, by supplementing the results on pre-tax income with studies on the redistributive effect of the tax system. Then, as encouraged by comparisons between countries, by seeking to understand the effect of public policies, such as education and health policies, for example, on pre-tax inequality. □

Link to the Online complements: https://www.insee.fr/fr/statistiques/fichier/4253029/510-511-512_Garbinti_Goupille-Lebret_complements_FR.pdf

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