

After the Rentier Society

The Great Shocks of the Twentieth Century Reconsidered:

A Parisian Perspective 1872-1952

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Abstract. TO BE ADDED

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Introduction

It is now common to attribute the relatively low levels of income and wealth inequality observed in the 1950s and 1960s to a combination of the negative shocks of the first half of the twentieth century and to increased fiscal pressure on capital (see Piketty 2014, Atkinson and Piketty 2007 and 2010). It is also accepted that the evolution of income concentration largely depends on the evolution of the distribution of wealth, but good long-term individual data sets on wealth inequality are, to say the least, hard to come by. Thus inferences about the relative importance of different shocks to changes in inequality are either made by extrapolating short term changes (e.g. the Reagan tax shock) or by using turning points for aggregate series. But neither of these approaches are good substitutes for direct evidence on the evolution of individual wealth portfolios over time.

Over the last decade and a half we have been collecting data on the wealth at death of Parisians, and we have assembled a data set that includes the population of estates for every fifth year from 1807 to 1952, except for the two war years of 1917 and 1942. For 12 of these 28 cross-sections (starting in 1872) we have collected detailed data on social status and portfolio composition for a stratified sample of decedents.¹ Our target is confined to the 100 square kilometers of the French capital and thus to a population that ranged from 580,000 in 1807 to a peak of 2.9 million in 1921. Yet, these data have the advantage that they are ideal for comparisons over time. Indeed they come from a homogeneous source (estate tax records) whose practical details changed only once (in 1901-2) when progressivity was introduced. Before then, taxes relating to moveable wealth were filed in the bureau of the primary residence of the decedent while taxes relating to real estate wealth were paid in the bureaus where the assets were located. Hence before 1902 we do not observe non-Parisian real estate wealth. Second, before 1902, taxes were paid on gross estates, while after 1902 they were paid on net estates.

¹ Specifically 1872, 1882, 1892, 1897 and every cross sections from 1907 to 1952. The stratification strategy is simple: we collect details for every member of the top two percent of estates, every other member for the members of P95-P98, every fourth member of P87-P94, and every eighth for all individuals below the 86th percentile of the wealth at death distribution.

The data set includes 665,000 individuals, of which 198,600 have positive wealth and 30,400 have detailed information about portfolio composition (for more details see Piketty, Postel-Vinay and Rosenthal, 2006 and 2014).

Paris is a good laboratory to investigate the rise and fall of inequality because inequality was both high and changing over time. Paris represented about 5% of French population at the beginning of the 20th century, but about 25% of total national wealth (see figure 1). After reaching nearly 65% in the late nineteenth century and early twentieth century the top 1% wealth share began an irregular fall that brought it back down to 49% in 1952, its level in 1807 when our data series begin (see figure 2). While we cannot yet track the rise of the share of inherited wealth in the nineteenth century, its decline after WWI is equally impressive since it plummeted from about 70% around 1900 to about 44% after WWII (see figure 3). Average wealth in 1912 francs had an even more catastrophic trajectory, falling from about 43,000 francs around 1900 to about 6,300 francs after WWII (see table 1).

Clearly the three great shocks of the first half of the twentieth century (WWI, the Great Depression, and WWII) are part of the explanation for all these phenomena but exactly how? At the national level, one can estimate that there three broad mechanisms explaining the fall in the aggregate national wealth-national income ratio (from over 700% at the eve of WW1 to about 250% on the aftermath of WW2): war destructions and foreign asset expropriation (Russian bonds, etc.); low investment (a large part of private saving was absorbed by public deficits aimed to finance the war); decline in relative asset prices (largely due to inflation, rent control, and other policy changes). Each of these three factors seem to account for approximately one third of the aggregate fall in the wealth-income ratio between 1910 and 1950 (Piketty and Zucman, 2014, table 8). The fall in the annual flow of inherited wealth has been twice as large (from about 25% of national income at the eve of WW1 to less than 4% in the aftermath of WW2), because the war shocks also induced a radical change in the age profile of wealth, with a decline in the relative wealth of older groups (Piketty, 2011). However in order to push these decompositions further, and in particular to decomposition the evolution of wealth inequality, one cannot simply rely upon national aggregate data.

This paper offers a Parisian micro-level perspective on these issues. Our detailed, individual-level data on Parisian estates allows to better disentangle the contribution of each of the key mechanisms and to shed new light on the underlying microeconomic processes. First, we are able to document very precisely the evolution of wealth inequality and intergenerational wealth mobility in Paris over the 1872-1952 period (Section 1). Next, we further investigate the role played by demographic change and differential mortality (Section 2). We then use our detailed asset-level data on financial portfolios in order to analyze the evolution of asset diversification and its impact on inequality dynamics over this period (Section 3). Finally, our Parisian database allows us to compute the evolution of effective estate tax rates at the individual level, thereby offering a unique perspective on the spectacular rise of fiscal progressivity over this time period and its contribution to the compression of wealth inequality (Section 4).

Section 1. The Evolution of Inequality and Mobility

As noted in the introduction and as Table 1 shows, from 1807 to 1907 average wealth at death per Parisian increased by a factor of almost five and a half (or at a rate of almost 1.7% per year), but in the next 40 years all those gains were erased. In fact, on average the real value of estates in 1947 and 1952 was about the same as it had been under Napoleon. This pattern of a steep rise in wealth followed by an equally steep decline is also observed in the share of wealth of the top 1%: it rose from about 50% before 1830 to about 65% in the first decade of the twentieth century (See Table 2 and Figure 2). The decline from 1907 to 1952 brought the top 1% share back to 50%. The next 9% saw a reverse movement from about 40% in the first third of the 19th century to a low of about 34% just before WWI and then a recovery to not quite 40% after WWII. The seventh and eighth decile after followed the 'next 9' U-shape up to WWI. They started the nineteenth century above 10% only to fall to a low of 7% around 1907. But then their wealth started to grow quite quickly and reached to 22% of all wealth at death in 1952. This transformation, which created the first large scale middle class wealth in Paris, proved durable

and it is also found elsewhere in France (see Bourdieu et al XXXX). The bottom six deciles of the wealth distribution never left any bequests during our sample period.

As discussed at length in Piketty et al 2014, French estate tax data provide information on the wealth an individual inherited for most of the spouses that are first to die in a marriage. The reason for this is that French law treats marriages as partnerships that dissolve when a spouse dies. While individuals can contract over the details of this partnership, in the most common form it requires establishing seven accounts. To start each spouse has an account for inherited assets (real or financial) that remained unsold during the marriage (*reprises en nature*). Then each spouse has a reimbursement account for inherited assets that had been sold during marriage, cash inherited or received as an inter-vivos transfers (*reprises en deniers*). In addition, each spouse has a debit account for any cost incurred by the household for the upkeep of inherited assets (*récompenses*). The seventh account is for the community; it receives all income flows (including those from inherited assets) and as well the net value of reimbursement accounts. When the first spouse dies his or her estate includes unsold inherited assets, the nominal value of the reimbursement and debt accounts, which are thus interest free loans, and a contractually specified share of the community account with reimbursements deducted and debits added. That share is almost always one half. The estate is then divided depending on whether there are children or not. When there are n children, the estate has to be divided into $n+1$ shares, and each child has to receive at least one share, the last being allocated by the deceased. The surviving spouse has the right to the usufruct of at least a quarter of the estate (but potentially all of it). In most cases estates are divided equally among children and other bequests are small. When there are no children, the deceased can bequeath his or her estate to whom he or she wants. In the absence of a will, the estate is divided among the nearest kin.

We compute first the un-capitalized share of inherited wealth in estates. In Paris, at least, it was never small. The uncanceled inherited wealth share was 45% in 1872, rose to 55% in 1907, and then declined to about 30% after WWII (Table 3 gives both the average inheritance w_{ti} , and the uncanceled inherited wealth b_{t0}). We also compute the capitalized wealth by adding to the uncanceled inherited wealth the income flows (rents, dividends, interest...) that accrued

to the community during the marriage (b_{ti}^* in Table 3). If we ignore the individual level constraint that the share of inherited wealth in total wealth cannot exceed 100% (as one does when using a Kotlikoff and Summers' definition, and simply compute the inherited wealth share as b_{ti}^*/W_{ti}) then that is above 100% for every year except 1952 when it is 95%. Once we take into account the individual constraint, the wealth shares become more reasonable. The capitalized wealth share ϕ_t is much larger and very stable before WWI: it starts of around 66% then rises to 70% just before WWI. It also experiences a significant decline falling all the way to about 46% after WWII. Because we compute these values at the individual level, we establish the size of a group, the "rentiers", whose members' capitalized inherited wealth is larger than the bequests they made. These individuals consume all their labor income plus some inherited wealth income. This group is always about 10% of the population (see p_t in Table 3). And its share of wealth (π_t) was near 60% before WWI and fell to about 37% after WWII.

If we now look at the very rich (top 1%) they are not surprisingly dense in 'rentiers.' Before WWI, 60% of the top 1% inherited large bequests and did not save any labor income. After WWII less than half of the top 1% qualified as rentiers. Yet it is important to note that few of the top 1% had inherited nothing since the share of the top 1% with separate assets and reimbursement accounts is near 95% in every year. Thus the pure self-made person was always rare among the very wealthy. In the next 9% the drop in rentiers is also impressive (from about 47% to about 30%). Among this group there is always about 40% of decedents who inherited nothing. Thus we find both evidence of a great deal of permanence at the top (60% of the individuals at the top were there because they had inherited enough wealth that they could consume all their labor income and part of their capital income and yet leave a considerable estate). At the same time, we find considerable evidence of mobility since in the next 9% a large number of individuals started with nothing and yet leave an estate of more than a 100 years of French labor income. Of course perfect mobility would have led two thirds of the top 1% to have inherited nothing, and only 10% to have been rentiers.

The final element is the demography-wealth nexus and it involves two components. The first is age at death (we consider only adults aged twenty or more). In each cross section there

is a strong positive relationship between wealth at death and age at death (see Figure 4). There is also a massive transformation over time in age at death but it is quite different from what we see for wealth since there is no collapse. The top 10% of the population dies ever older over time: age at death with the top 1% moves steadily up from an average of about 60 years in the first third of the nineteenth century all the way to 72 or so after WWII. For the rest of the Parisian population, the first six decades of the nineteenth century were hard. Average age at death declined by about four years to a nadir of 46 from 1807 to 1857.² It then began a steady climb to about 63 after WWII. Social difference in age at death peaked just before WWI at almost 18 years or a nearly 35% advantage in length of life for the very rich. It is important to emphasize that the massive decline in wealth at death, we observe in no way interrupts the process of age at death convergence.

The second component is wealth by age at death. This is in effect a transformation of the data in Figure 4 (since instead of averaging age by fractile, we average wealth by age group). What is striking is that the century before WWI is marked by a steady steepening of the age-wealth profile (Figure 4B). That profile was essentially flat in 1807 but in the four decades before WWI, decedents in their 60s had almost twice the wealth of those in their 50s; for those in their 70s it was 2.6 times and for those in their 80s four and half times. Then after WWI the profile flattens (see Figure 4C). By the late 1930s the age wealth profile matches that for the Second Empire (decedents in their 60s have 40% more wealth than those in their 50s, those in their 70s 90%, and those in their 80s 150%). But one thing is clear, however dramatic the three great shocks may have been, they were not enough to eliminate the positive age-wealth profile. France only had one Revolution.

This small avalanche of facts comes from the savings vs consumption decisions made by the 660,000 Parisians whose wealth at death we observe. Possible sources for the extraordinary variation we see include demographic factors like changes in the composition of the Parisian

² This was a period of rapid urban growth that preceded the reconstruction of Paris often associated with Baron Haussmann and the arrival of water and sewer infrastructure.

population, changes in life expectancy, and complete family size. A second set of plausible explanations involves variations in nominal aggregate returns to assets and changes in rates of inflation. Finally, there are policy variables that include taxation both of assets and of asset income; here we will consider estate taxes. Some of these changes would have pushed inequality up while others would have pushed it down. We take each category up in turn.

Section 2. Demography: labor scarcity vs long term changes

When considering the impact of demography on changes in inequality in Paris one must confront three set of issues: migration, life expectancy, and the number of children per decedent or to be more precise the number of direct lines of descent.

We have to take into account the fact that Paris was not a closed economy. In fact, it was the open economy *par excellence* since there were no barriers to trade in inputs with the rest of France and the octrois (excises levied on goods that entered the city taxes had limited effect on trade in output (since they were assessed mostly on goods Paris did not produce). More important there were few restrictions on the flow of individuals in and out of the city, and as we shall see that flow was large. Given the long running debates on the contribution of immigrant characteristics to inequality it is not something we can ignore. Because immigrants tend to be poor relative to natives, one might well worry that the ebb and flow of migration into Paris could have a big effect on inequality. The census published data on Parisians' birthplaces from 1861 until 1901 and, during this entire period, the number of locally born Parisians—those born in the *department* of the Seine—never reached 40%. The city published death statistics by place of birth from 1879 to 1885 and those totals show that 40% or so of the individuals who died in Paris had been born there. The figure is only about 20% for adults. This low figure comes from a period that follows the 1870 siege of Paris and the Commune so that it may be that the proportion of residents born in the city was unusually low.

We can ascertain where the people who left bequest as well. They have the advantage of covering every fifth year from 1872 to 1952 and the disadvantage that they do not cover those who left no bequests. Most of the data comes from spouses whose birthplace was recorded

because they had to verify their age so that the tax authority could value their usufruct. Only about 30% of decedents or spouses that reported a place of birth had been born in Paris (somewhat more than the population as a whole). Remarkably, the proportion of native Parisians does not change over time (see Figure 5A). Migration decisions seem to occur early in adulthood; indeed our data also tell us where people married and about 70% of all couples for whom we have this data married in Paris (see Figure 5B). This figure also essentially does not change over time. Despite large population shocks, including a cholera epidemic as in 1832, the deaths of the siege of Paris and the Commune in 1870-71, or WWI, the population structure evolves on a steady long-term trend based on very large scale immigration, mostly from the French countryside. In fact, the city rebounds quickly from each demographic crisis and there are no persistent shocks to the population structure. As a result, the long term distribution of the population drifts slowly towards older ages. This is apparent in the gendered age distribution of the population. WWI is followed by a noticeable drop in the share of men -- in the 1921 census, the male population in Paris is less than 40 % – but that drop is completely made up by 1926. Beyond the aging of the population, the primary long term change is the growth in the female share of the population that is slightly accelerated by WWI. It is clear that Parisian natives are over represented among the wealthy but that relationship does not change over time. While there is clearly selection through migration of the individuals we observe at death it does not seem to be a good path to pursue to understand the evolution of inequality because this selection seems constant over time.

A second demographic element comes from life expectancy. In any precautionary savings' model, to the extent that increases in life expectancy are unanticipated, then both average wealth and the fraction of individuals who died with any wealth should decrease. Conversely, if they are anticipated, then the peak of the age wealth profile should occur later and wealth conditional on age should increase. Initially average age at death lingered in the low 50s and for those who died with some wealth in the mid-50s, thus for most of the population there was no period of retirement, individuals (and in particular men) overwhelmingly worked until they died. By the post WWII period this landscape had changed and even among those who died

poor average age at death had risen by 9 years. Given that this process started in the 1870s and was on going at the end of the period it seems hard to assume that this change was unanticipated.³ On their own life expectancy gains should have pushed people to save more, and thus for the share of individuals to die with nothing conditional on age to fall. Yet the decline in the top 1% share of wealth at death that begins at the earliest around 1900, occurs a full three decades after the beginning of the rise in age at death. Meanwhile the increase in the share of individuals who die with some wealth does not begin until after WWI (and as we shall see is more likely due to the expansion of pension programs for army veterans and their families).

Life cycle savers, however important, cannot account for why individuals even at an advanced age have estates valued at ten or more times their annual incomes. The primary motivation for accumulating estates of significant size has to be to transmit that wealth to a set of heirs and perpetuate the wealth of a dynasty. French inheritance laws encouraged, and bequest practices affirmed, a general practice of equal estate division among heir lines (each child and his or her progeny constitutes an heir line). Thus to the extent that dynastic savers (henceforth dynast) seek to provide bequests that allow their heir lines to remain in the same fractile of the distribution as they themselves had enjoyed, the amount of wealth that must be accumulated critically depends on the realized number of heir lines (and of course on the growth in aggregate wealth). Simply put, a dynast with one heir needs half the wealth of a dynast with two. Because the French went through a famously early demographic transition, the number of heir lines was falling slowly throughout our period.⁴ Moreover, during our timeframe one of the more dramatic demographic transformations was a decline in infant and child mortality. This, until WWI at least, made the number of heirs more predictable, and thus the share of the middle class who ended up with at least one child could have gone up, spurring more of them to accumulate bequests. In practice, however, the change is tiny. In fact, the share of individuals

³ The extent to which anyone at any particular time is able or willing to extrapolate past gains into the future is unclear, see Lee (2003).

⁴ Most notably, fertility was below replacement during a number of years in the interwar period, but the tiny cohorts do not appear in our data because the children born during a decade wait another three to four decades before receiving any bequests. For the 1920s it is the demography of the 1880s and 1890s that matters most.

with no direct heir who leave an estate is about 40% in each cross section (see Figure 5C. It is significantly smaller for the top 1% (25%). Among those who have direct heirs on average they have nearly 2 in the late nineteenth century and only 1.8 after WWII. Again this pattern is highly correlated with fractiles since the top 1% with direct heirs generally have about 2.5 heir lines at death. Unlike everyone else, the number of heirs of the top 1% goes up slightly—something that should have prompted greater rather than lesser savings.

To say that demographic change is irrelevant to the evolution of inequality would be ludicrous. Nonetheless, our review of the data points to relatively small changes between 1870 and 1952: certainly nothing that could explain both a 90% drop in the average value of estates and nearly 50% increase in the fraction of adults who left an estate.

Our data show that in Paris alone, the demographic losses of the crises were minor relative to the long term improvements in life expectancy at all fractiles of the wealth distribution. In fact, these traumatic years were actually good for the wealth share of the third quartile P50-P75 because people in this bracket benefited from the rise of mandatory savings and pension programs begun in the last third of the nineteenth century. Moreover because the rich were individually better diversified than the poor, the negative shocks created more turbulence in the mid-range of the wealth distribution than at the top (in fact at the very top, there is no evidence of a decline in concentration), thus the negative shocks themselves (aggregate losses to war or economic dislocation as well as the redistribution of capital income flows from private purses to public coffers) were mostly driving wealth down.

Section 3. Aggregate shocks and asset diversification

It has now become commonplace to put the three negative shocks of the twentieth century front and center of any explanation of the decline in inequality. Yet we have to remember that average wealth (in real terms) declined by 80% between 1912 and 1952 while the share of the top 1% fell from 60% to 50% or less than a sixth. Each of the crises contributed

roughly a 3% decline in the share of wealth held by the richest 1% (Table 3). For the top one tenth of one percent, WWI leads to a drop in their share of wealth from 25% to about 21% and the next two shocks do not have any consequence. Although, inequality declined and thus the rich did bear more of the decline in wealth than the average wealth holder, the stunning fact remains that massive impoverishment had a limited effect on the distribution of wealth, in particular at the very top.

One reason that the rich may have resisted as well as they did has to do with the structure of their wealth. As we showed in prior work, the distribution of assets across fractiles is rather similar (all have a wide distribution of equities, bonds, real estate). The top 1% did hold more equities and more foreign assets but not dramatically so. The rich can protect themselves from negative shocks better than say the middle class because they have the means to diversify their portfolios. One would expect that the incentive to diversify one's wealth increased for everyone in the 1920s because WWI and the Russian Revolution showed that there could be very significant correlated shocks by asset class or geographic origin. The Russian repudiation of foreign claims after 1917 is a dramatic illustration of such a negative correlation, but there were also positive correlated shock (such as for Swedish or American assets in WWI). Because most assets were held directly by individuals (rather than through mutual funds or other financial intermediaries) there were serious limitations to the ability of the middle class to diversify.

The first step of our analysis thus examines the portfolios of different individuals. To do so we focus on the stratified samples that we collected. This includes some 25,000 individuals for whom we have a complete enumeration of the assets they held on the day of their death. These 630,000 assets include a wide variety of items and we leave aside a variety of sources of wealth where nominal returns at least were zero (moveable goods, cash, claims on family members, bank accounts, and other various revenues). Thus we focus on the 429,000 income producing assets (equities, bonds, and real estate). The distinction is somewhat arbitrary because in fact a cash position has a variable (and often negative) return. Moreover cash is clearly going to be part of a risk diversification strategy, as might be commodities. The findings below, however, are not sensitive to what definition of assets we use.

Let us start with the most basic approach and look at the number of assets held. The evidence is quite dramatic: people in the middle class (P70-80) held an average of 3 assets in the 1870s and 1880 and that number doubled after World War I (See Table 3). For individuals in the top 1% (P99-99.9) they held about 28 assets early on or nine times more than the middle class, but by the Great Depression that number had jumped to 150, or twenty times more than the middle class. Clearly, the rich became far more diversified over time. There are two problems with using the number of assets as a measure of diversification. First because interest rates varied greatly from 1900 to 1952, governments and private actors issued an ever greater variety of debt instruments. It is technically true that different bonds, issued by say the Austrian government, have a different risk-return profile because of different coupon values and maturities. Buying a portfolio of Austrian bonds, however, provides far less diversification than buying bonds from different entities—so might well want to regroup all sovereign Austrian obligations. Second, part of the portfolios include assets that had massively depreciated in value, (e.g Panama Canal Russian bonds or Swedish Match but which heirs list in the estate declaration to establish their title in the remote hope that they will recover some of their investment someday. One may thus have a lot of assets but be very poorly diversified because all the value of the estate is one or two items.

A better measure involves the Herfindhal index of asset concentration. The Herfindhal is the sum of the square of the wealth share of each asset, so 0.5 would be the index value for a portfolio with two equal investments, 0.1 with 10). As Table 3 Panel B shows, for the middle class the Herfindhal index is most often above 0.5, consistent with individuals holding nearly 80% of their wealth in a particular asset after WWII rather than 95% before WWI. For the rich diversification proceeded further since the Herfindhal declines from 0.4 to 0.3. If we look at the share of wealth in the top three assets (not reported in the table) it is never less than 80% for the middle class and about 60% for the top 1%. As the rich were much better diversified than the middle class, they were more likely to experience an average decline in wealth from the negative shocks, while middle class individuals (because their portfolios were more concentrated) must have had greater variance in outcomes.

If we contrast men and women (data not reported in tables), there are essentially no differences except at the very top of the wealth distribution where men have more assets than women in the same fractiles and are also less concentrated in their investments but the differences are slight except for the top 0.1%. The fact that men are less concentrated speaks against the commonplace view that men are more likely to be entrepreneurs with substantial stakes in their firms than women. We can also contrast rentiers with savers, and again we find that top 1% rentiers are more diversified than savers of the same wealth but differences are slight and do not hold up if we look at top 3 asset shares. Diversification, it seems, depended on wealth not on gender or whether one had inherited one's fortune.

We can also look at the type of assets people held and thus divide the income producing assets into two categories, first bonds and equities from firms that are listed in either the *Cours Authentique de la Bourse* (the official price list for the Paris bourse) or the *Investor's Monthly Manual* (the private analog for the LSE) and those assets that are definitely not listed, such real estate, equity interest in general or silent partners, as well as the debt of private companies or individuals.⁵ At the time of this writing, this effort is complete through the price list up to 1912. This classification is obviously incomplete because there are some assets whose status we cannot determine (for instance shares of firms that were traded over the counter (*en banque*)). But we can classify about 80% of assets either by number or value (see Table 4 panel A). This is in part because we take an expansive view of publically traded (namely an asset is publicly traded if any assets of that company ever appears on one of the lists).

As Table 4 panels B and C show, the share of listed assets is about half for the middle class (P70 to P95) either by number or value and shows no real trend before the end of WWII when listed assets would have been little more than half both in number and value. As we move across the fractiles in any year, the share of listed assets tends to rise significantly so that for the top 1% 80% of assets by number tended to be publicly listed. Nevertheless by value the effect is not

⁵ The authors thank Pierre Cyrille Hautcoeur and Angelo Riva for sharing their photographs of the relevant issues of the Bulletin des agents de changes de la Bourse de Paris.

nearly so dramatic and the listed share tops out between 60 and 70%. Here we do find differences by gender, women tended to hold more listed assets than men in the middle class (P70 to P95). But the effect essentially disappears in the top 1%. One possibility is that middle class widows and spinsters were more likely to hold safe assets like public debt (a listed asset) and richer women more likely to hold real-estate. There are no stable differences between rentiers and savers conditional on wealth. In any case, the data confirm that the wealthy could and did enjoy both more liquidity and more diversification. That there are few differences between men and women and between rentiers and savers suggests that there were common responses to the common shocks of the World Wars and the Great Depression. Because rentiers are generally better off than savers, they are more likely to have a diversified portfolio and to hold listed assets.

Our conclusion is that the financial market of the latter 19th and early 20th century provided ample opportunity for the rich in general, and for rentiers in particular, to cushion the fall in asset prices. Had these shocks been strictly associated with changes in capital income the distribution of wealth would have been little changed at the top. The top of the Parisian wealth distribution may have been more invested in Russian, Ottoman and Central European assets and thus suffered more from the collapse of these assets. Similarly, the very rich's higher share of equities may have made them more exposed to the Great Depression, we see nothing that would have prevented their rebuilding their wealth over time (much had been the case in past crises).

Section 4. Progressive taxes and government intervention

Inequality fell persistently not just because of negative shocks but because the policy response to those shocks involved tilting the flow of capital income from private individuals to the state. It would also involve tilting the flow of real estate income from owners to renters through a variety of renter protections, including the famous law of 1948 that gave renters a life-time reduction in their rents.

The obvious place to start is with the estate tax. Before delving into the details of the estate tax system it is important to note that changes in estate tax rates have direct and

immediate effects on the wealth of inheritors. Consider an economy whose wealth grows at 2% a year and where the return on capital is 6% and suppose initially there is no estate tax. Now Mr. Dupont dies and leaves his daughter an estate of 100,000 francs. She, by saving a third of the capital income (2%), leaves her heirs 30 years later an estate of 181,000 francs. The estate of the daughter, all other things remaining equal, will represent the same share of total wealth as that of Mr. Dupont. Now consider the same situation except that there is an average estate tax of 20% for all estates of 100,000 francs or more. To begin, it does not change the value of Mr. Dupont's estate, but the tax reduces what the daughter receives by 20% to 80,000 francs. If she adopts the same 2% savings plan she will leave an estate 30 years later that is only 145,000 francs, or 80% of what it would have been in the absence of the estate tax. If aggregate wealth accumulation still proceeds at 2% then that heir will leave her heirs a smaller fraction of total wealth than she inherited. To maintain her estate's share of total wealth she would have to increase her savings to 2.7% and thus reduce consumption. If we only look at wealth at death the impact of estate taxes will be delayed by a generational interval (from Mr. Dupont's death to his daughter). Yet the wealth of the living is reduced over time as more and more estates become subject to the tax; something that we cannot observe in the wealth at death data. What is not delayed, however, is the change in the wealth flow from Mr. Dupont to the state. Given that states impose taxes to raise revenue we will consider both the immediate effect on revenue and the longer term effects on inequality.

Importantly for what follows, French estate taxes bear not on the estate but on inheritances, and the tax liability depends on the relationship between the deceased and the inheritor. Prior to 1901 estate taxes were linear and very low for children at 1.25% of wealth, while spouses paid 3.5%, other kin 6.5%, and heirs without a close relationship 9%. 1901 saw the introduction of modest progressivity with small inheritances received by children paying 1% and a maximum rate of 2.5% for sums above 250,000 francs. The highest marginal rate was 18.5%, and applied to bequests above a million francs to heirs without a close relationship. Given that the top 1% threshold was 730,000 Francs in 1902 that marginal rate applied to few estates since less than a third of estates did not have direct heirs. From 1902 to 1934 there were seven reforms

of the estate tax rate structure which more often than not raised rates. Then in 1929 discounts were introduced for decedents with at least two children and these would continue henceforth to varying degrees. Then in 1934 maximum average rates were introduced, and by 1937 they were massively lower than the top marginal rates. For instance the top marginal rate for bequests to heirs without a close relationship was 80% (for bequests larger than 150 million francs) but the maximal average rate for such bequest was 50% a level that was reached at a million francs where the marginal rate was 60%. It remains unclear why legislators opted for such complex schemes.⁶ But one thing is for sure-- political economists interested in the development of progressive taxation need to take a much more careful look at tax codes than simply taking into account the top marginal rate in direct line of descent (see Scheve and Stasavage 2012). Nevertheless as Figure 6A and 6B demonstrate the average rate of taxation on estates rose, and it rose faster in Paris than in the rest of country because wealth was higher and more concentrated in the capital than in the provinces (Figure 6A)

We can compute the estate tax paid by each estate but we need to simplify the computation. To do so we classify the primary heir of each estate in three steps. To begin, we separated those estates with children from those without. Among the latter we classified estates that went to the spouse versus those that went to relatives or people outside the family. Finally for those that went to relatives we broke parents off from siblings and others. For those where children were heirs we tracked the number of children. This classification is incomplete and it tends to understate the fiscal burden faced by inheritors, because we pick the category that is least taxed to represent the inheritors for each estate.

We measure the impact of fiscal changes by simulating the tax burden for each of the estates in our detailed surveys for different tax regime from the pre 1873 regime until the reform of 1951, which is the last one that is relevant to us. Because we collected information on who the heirs are for all the estates, whether or not they entered the stratified sample, we run the

⁶ We are greatfull to Clement Dherbecourt for sharing his collection of estate tax schedules, Dherbecourt's (2013) work forcuses exclusively on the very top but he finds a very important role for collateral inheritance and thus a very important role for the progressivity of collateral inheritance taxation

simulation on the full 109,314 individuals with positive wealth.⁷ Figure 7 shows the results of the simulation. Each observation is the total tax revenue that would have been extracted from a particular cohort of decedents if a particular fiscal regime had applied relative to what these decedents would have paid if they had faced the 1872 regime. The regimes that prevailed before WWI were universally modest, revenues ran from 3 to 5% of wealth overall. 1917 proved to be a real innovation and despite the adoption of maximal average rates and discounts, the revenue raised in 1952 based on the 1951 tax law was eight times what would have been collected if the 1872 rates had been used. Of course had the most aggressive law been applied (that of 1937) revenues would have been another 50% higher. Yet because inflation eroded the value of assets in real terms the revenue raised in 1951 was of similar magnitude as to what had been raised in 1900, even though the average tax rate was now 20%.

Yet we are interested not just in the total tax burden, but in its distribution. Figure 8 shows that the fiscal innovations that followed 1914 revenue raised the total paid by top 1%. Indeed while before 1902 their share of the fiscal burden averaged 90% of their share of wealth, largely because the very wealthy were unlikely to die childless and thus faced the least aggressive tax schedule. In the interwar period their tax burden did increase. After the rise of progressive taxation their share of the tax burden jumped to 115% of their share of wealth and while it moved up and down over time it did so without trend. In 1951 the top 1%'s share of the estate tax was 111% of their share of wealth; real redistribution had happened but it was also limited.

Yet as we note above even the strictly proportional regime was very concerned with the pathways of intergenerational transmission and wealth transmitted in direct line of descent was always taxed significantly less. In 1920 for example, for estates less than a million francs the tax rate for direct line of descent heirs was a third of that for transmission to siblings and a fifth of that to people with distant or no relations to the testator. Figure 9 shows a surprising result,

⁷ Roughly 13,000 observations mostly in 1912 and 1922 were missing information on who inherited the estate. Because we fully sample the top 2% we did not have to impute anything at the top of the distribution, for the rest distributed heir information so that the missing data have the same distribution of heirs as the data for which it exists. The skeptical reader can simply discard these two years which we collected early on and with less detail than the rest.

although legislators firmly announced their efforts to protect families with large number of children, the result of the fiscal policy was actually to increase the fiscal burden of individuals receiving inheritances. The reason for this variance between practice and speech are not hard to find. Before WWI nearly three fourth (73%) of all wealth was transmitted by parents to children. Moreover that value changes little over time; it is a little lower (69%) in the interwar period and a little higher after WWII (74%). Because rates were already substantially higher for other types of heirs, they could only rise so much. Because rates were extremely low (1.25 on average) for direct lines of descent, it was a place where substantial revenue could be found. And these rates did rise leading to a 10% increase in the share of revenue coming from direct lines of descent, from less than 45% to about 55% after WWII.

Overall, however, the increase in rates combined with bracket creep led to an increase in the average tax rate on inheritance from 3% to 20% over the first four decades of the twentieth century. The introduction of progressive estate taxation did contribute to the decline in inequality, but only to a limited extent because taxation remained modest. In fact the maximum average rates introduced in 1934 and then maintained in one form or another limited the extent to which estate taxation reduce inequality. As a result, the 20% average rate from 1937 on is very close to the maximum average of taxation imposed on direct lines of descent (mostly 25% from the mid-1930s to 1952). Though modest the progressivity was real, the P70-90 group, paid about 10% while the 1% paid above 20% on average in estate taxes.⁸

To the extent that estate taxation contributed to the decline in wealth inequality it did so only modestly before WWII, since the 1902 tax schedule produced a 2% average tax rate for the middle class and an 8% tax rate for the rich, while the 1910 schedule moderated the rate for the rich to about 5%. Thus the inheritors who we observe dying in the 1930s and 1940s who received their bequests before WWI were barely affected by progressive taxation. Those who received them after the reform of 1917 suffered both because of the adverse shocks to asset prices

⁸ The reader may wonder how a 22% average tax rate on the wealth of the top 1% and a 10% tax rate on the rest combine for an average tax rate of 20% when the rich and the middle class have roughly the same amount of wealth, but that omits transmission to relatives where rates were a good deal higher.

engendered by the war, and because they now received less than 90% of the gross inheritance. Those inheritors from the late 40s and early 1950s are in fact the first to have received bequests that were substantially reduced by taxation. Still it is important to put the 10 to 15% reduction in inheritance transmitted to direct line heirs due to estate taxation among the very rich in the perspective of the 50% reduction in the value of pre-1914 French bonds due to inflation, or the 90% loss in the market value of Russian and Eastern European securities. It is not surprising then that the changes in inequality are small relative to the changes in wealth. Recall from table 1 that the average positive estate falls by 90% between 1912 and 1947 and the average estate falls by a factor of more than five. Recall from table 2 that inherited wealth dropped from 70 to 45%. At the same time the wealth share of the 1% fell from 60% to 49%.

Of course estate taxes were only one of the policy instruments that were deployed that had important impacts on the distribution of wealth. Others included progressive income taxes, and new forms of business taxes that reduced the private return to capital. These policy responses also encompass inflation, rent control policies (which reduced income from real estate assets in Paris, a form of investment dominated by the top 10%), and many other policies that would change the divide between the public and private sector. This broad view is necessary if we are to understand how policy affected wealth distribution. Consider railroads. Prior to the wholesale nationalization of the industry railroad in 1937, stocks and bonds were widely held. Changes in estate taxation and income taxation, inflation and business taxes would already have had considerable impact on the private return to holding a railroad share. Even if the economic returns to the Paris Lyon Méditerranée railroad for example had remained constant, changes in taxation would matter to the private returns and thus the shares' price. After nationalization, the value of railroads would still appear in private wealth because the government would have to borrow to buy the outstanding shares. At the instant of purchase some form of Modigliani-Miller applies. From then on, however, changes in the underlying economic value of the railroad no longer appear in private wealth—except through the bonds the government issued to purchase the PLM. But the inflation that raged from 1937 to the early 1950s wiped out most of the value of the bonds the government issued in 1937, and as a result the real value of the

railroad passed into the hands of the state and private individuals seem 'poor.' Changes in wealth distribution thus depend not just on what individuals own private wealth but on the private public divide. This is an issue we plan to further address in our future research.

Conclusion

The pace of history that one writes depends dramatically on the observatory one has at one's disposal. The Parisian (and French) estate tax data are extraordinarily abundant and detailed, but they chart the impact of shocks and policy responses on a generational frequency. Indeed this is how long it takes for all the individuals who are exposed to an event to die and thus for us to see how that event is reflected in their estates. One important element that we must consider in more detail in further research is the rise of middle class wealth. Throughout the 19th century, Paris had essentially no middle class wealth, all the changes in wealth distribution concern changes within the top 10% (see Saez and Zucmann on similar findings for the contemporary U.S.). Hence it is easy to write the narrative that the rise of middle class wealth was made possible by the redistributive policies of the period after 1914. And, at first glance, the data are consistent with this. Middle class wealth at death rises only *after* the imposition of progressive estate taxation. Yet when we consider when the people who died in 1922 accumulated their wealth, it is clear that the process actually began in the 1880s. It certainly continued in the 1920s and 1930s under a fiscal burden that was higher than it had been in the classic linear tax period. The same is true except in a more dramatic fashion for age at death. This is not to say that left to the market the highly unequal wealth regime of the Second Empire would have sowed the seeds of its own decline. Rather it is to say that public policy on pension and forced savings that progressively diffused under the Third Republic was quite important, as was the investment in publicly owned water and sanitary infrastructure (Rosenthal and Kesztenbaum 2014). In fact, one might go so far as to argue that the gyrations of the estate tax were partly due to the difficulty of allocating the political costs of increasing estate tax revenue between the middle class and the rich.

Beyond documenting the decline in wealth, wealth inequality and inherited wealth, this paper has shown that the effects of the three great crises of the twentieth century should be broken down into two parts. The first part involves the negative shocks directly. These we often surmise are responsible for the nearly secular decline in wealth inequality in Europe. In Paris, at least, they seem to have mostly reduced wealth for all classes rather than redistributed it. To be sure there was considerable churning as some people were left absolutely destitute by one or another of the catastrophes, but others did not fare so badly and that was true in every segment of society. For WWI, the Great Depression, and WWII, the dominant impact was a very large reduction in average wealth at every fractile above the 70th percentile. Negative shocks are an extraordinarily inefficient way to tackle inequality.

The second element was the policy response. And there WWI ushered in a very serious effort to tilt the burden to the rich. By the 1930s the 1% was paying an estate tax rate twice as high as the middle class. As we note, this has no effect on the value of estates in our cross sections at the time. However, the higher tax does lead inheritances to be smaller at the top than they had been before, and thus can have a long term effect on inequality if it has none at the moment. Such a higher burden was the result of dramatic changes in estate taxation, and after WWII the share of the 1% in estate tax revenue was quite a bit above its share of wealth. This rise in the burden paid by the 1% came about because the progressivity finally offset the demographic advantage the rich enjoyed. More generally, the experience of the interwar period stands in stark contrast with a very long history of very severe crises in which the rich were not targeted by aggressive forms of taxation (e.g. Waterloo, the Commune...). We should redouble our efforts to understand why in this and latter periods citizens and politicians have or have not been willing to make the rich pay.

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Table 1: Inheritance in Paris, 1807-1952 - Summary Statistics							
	N. decedents (20-yr +) (full sample)	% decedents with net estate > 0	Average estate (net estate > 0)	Average estate (all deced.)	Consumer price index (1912=100)	Average estate (net estate > 0)	Average estate (all deced.)
			(current francs)			(1912 francs)	
1807	11,617	31%	16,541	5,069	68	24,489	7,504
1812	11,266	34%	17,684	5,982	98	18,000	6,089
1817	11,654	27%	21,347	5,764	107	19,947	5,386
1822	13,057	29%	27,966	8,158	61	46,205	13,479
1827	13,834	27%	31,991	8,700	66	48,626	13,223
1832	31,380	22%	33,156	7,280	72	46,095	10,121
1837	16,603	29%	33,933	9,941	69	48,966	14,345
1842	16,936	26%	46,499	12,133	72	64,645	16,867
1847	17,831	27%	47,666	12,676	80	59,713	15,880
1852	16,577	27%	52,608	14,265	69	75,916	20,585
1857	18,906	31%	51,026	15,597	89	57,594	17,605
1862	24,428	28%	63,687	18,007	83	76,424	21,609
1867	27,989	26%	72,386	18,745	91	79,346	20,547
1872	21,287	28%	88,070	25,088	96	92,110	26,239
1877	28,161	29%	100,674	29,114	95	106,267	30,732
1882	31,720	26%	98,558	25,230	96	103,079	26,387
1887	31,399	31%	111,415	34,348	89	124,522	38,389
1892	32,695	26%	152,705	39,864	90	169,013	44,121
1897	31,197	26%	136,755	36,086	85	160,722	42,410
1902	33,424	28%	134,196	36,978	87	154,528	42,580
1907	35,755	26%	134,195	35,490	88	152,982	40,459
1912	34,840	28%	133,547	37,362	100	133,547	37,362
1917					166		
1922	28,278	32%	166,297	53,886	311	53,553	17,353
1927	28,258	34%	257,836	88,105	571	45,151	15,428
1932	26,533	38%	273,200	104,202	534	51,141	19,506
1937	24,546	42%	220,017	92,951	613	35,883	15,159
1942					1,241		
1947	22,059	45%	871,734	391,231	6,370	13,685	6,142
1952	22,676	39%	2,640,764	1,030,056	16,362	16,139	6,295

Note: Years with stratified samples estates with complete information on assets are shaded grey, for the other years we only have total moveable and real estate wealth by individual.

Year	Wealth shares per top fractile			
	P80-100	P90-100	P99-100	P99.9-100
1807	100%	96%	50%	16%
1812	100%	98%	58%	23%
1817	100%	97%	58%	29%
1822	100%	97%	50%	15%
1827	100%	99%	54%	15%
1832	100%	98%	51%	16%
1837	100%	98%	59%	22%
1842	100%	98%	57%	23%
1847	100%	98%	59%	22%
1852	100%	97%	53%	14%
1857	100%	97%	55%	20%
1862	100%	98%	57%	18%
1867	100%	97%	52%	18%
1872	100%	97%	58%	24%
1877	100%	98%	55%	17%
1882	100%	96%	54%	19%
1887	100%	98%	64%	30%
1892	100%	98%	61%	21%
1897	100%	98%	63%	25%
1902	100%	98%	65%	26%
1907	100%	98%	64%	25%
1912	99%	96%	60%	27%
1917				
1922	99%	95%	57%	22%
1927	98%	94%	57%	26%
1932	97%	92%	52%	21%
1937	97%	89%	52%	21%
1942				
1947	97%	89%	49%	22%
1952	97%	89%	49%	22%

Table 2: Inheritance in Paris, 1872-1952
Inherited wealth vs self-made wealth (rentiers vs savers decomposition)
(Estimates with individual financial market rates of return)

	Total population			Rentiers			Savers			ρ_t	π_t	φ_t
	w_{ti}	b_{to}	b_{ti}^*	$\varphi_t^{KS} = \frac{b_{ti}^*}{w_{ti}}$	ρ_t if $w_{ti} > 0$	$\frac{(b_{ti}^* - w_{ti})}{y_{Lti}}$	$\frac{b_{ti}^*}{w_{ti}}$	$\frac{(w_{ti} - b_{ti}^*)}{y_{Lti}}$	$\frac{b_{ti}^*}{w_{ti}}$			
1872	70,093	30,717	124,241	177%	30%	418%	273%	62%	25%	10%	58%	68%
1882	81,438	34,752	140,895	173%	34%	346%	269%	70%	23%	9%	57%	67%
1892	105,555	44,402	161,762	153%	31%	402%	246%	92%	25%	9%	54%	65%
1897	108,673	53,850	179,471	165%	30%	492%	245%	78%	27%	8%	60%	70%
1907	110,511	58,157	178,541	162%	34%	438%	236%	80%	27%	10%	62%	71%
1912	124,505	66,235	193,936	156%	28%	519%	233%	93%	25%	8%	60%	69%
1922	135,275	70,004	230,392	170%	33%	315%	275%	57%	24%	11%	56%	67%
1927	230,975	100,009	349,122	151%	28%	280%	245%	50%	19%	10%	56%	64%
1932	227,423	95,564	379,634	167%	27%	182%	300%	30%	21%	11%	50%	60%
1937	209,158	85,996	400,282	191%	23%	175%	299%	17%	14%	10%	57%	63%
1947	748,814	226,107	751,153	100%	24%	71%	220%	30%	12%	12%	38%	45%
1952	2,076,227	617,856	1,967,430	95%	20%	122%	202%	51%	20%	9%	36%	48%

Table B22.

Table 3: Number of income producing assets by fractile							
year	P60-70	P70-80	P80-90	P90-95	P95-99	P99-99.9	P99.9-100
1872		1.6	3.3	5.6	9.1	15.0	27.9
1882		1.6	2.9	5.0	8.9	16.1	26.0
1892		1.5	3.4	6.2	11.4	21.6	58.0
1897		1.4	3.6	6.9	12.1	27.6	47.7
1907		1.5	3.6	8.1	16.1	36.0	72.2
1912		1.3	3.1	7.2	16.1	33.3	66.7
922	1.5	2.7	6.2	12.8	27.6	46.7	87.4
1927	1.4	2.9	7.4	15.5	37.0	74.3	117.7
1932	2.2	3.4	8.8	20.6	35.5	70.3	124.7
1937	2.6	4.7	10.3	22.3	42.3	76.0	153.3
1947	2.8	4.7	8.7	16.2	39.0	76.9	137.2
1952	2.8	4.2	8.4	14.3	32.7	75.3	157.9
Panel B Herfindhal index of income producing assets							
1872		0.9	0.7	0.6	0.5	0.4	0.3
1882		0.9	0.7	0.6	0.5	0.4	0.3
1892		0.9	0.7	0.6	0.5	0.3	0.1
1897		0.9	0.7	0.6	0.5	0.3	0.2
1907		0.9	0.7	0.5	0.4	0.2	0.1
1912		0.9	0.7	0.5	0.4	0.2	0.1
1922	0.9	0.7	0.6	0.4	0.3	0.2	0.1
1927	0.9	0.8	0.6	0.4	0.3	0.2	0.1
1932	0.8	0.7	0.5	0.4	0.3	0.2	0.1
1937	0.8	0.7	0.5	0.4	0.3	0.2	0.1
1947	0.8	0.7	0.7	0.6	0.4	0.2	0.1
1952	0.8	0.7	0.7	0.6	0.4	0.2	0.1

Table 4: Number of assets we can determine whether listed on exchange, or not traded								
year	P50-60	P60-70	P70-80	P80-90	P90-95	P95-99	P99-99.9	P99.9-100
1872			0.96	0.95	0.92	0.89	0.87	0.75
1882			0.92	0.94	0.93	0.91	0.89	0.77
1892			0.95	0.95	0.94	0.91	0.88	0.81
1897			0.85	0.95	0.93	0.91	0.87	0.81
1907			0.91	0.93	0.93	0.89	0.85	0.73
1912			0.94	0.94	0.91	0.87	0.81	0.77
1922		0.93	0.95	0.91	0.87	0.84	0.80	0.69
1927		0.94	0.94	0.90	0.85	0.77	0.72	0.65
1932		0.93	0.89	0.83	0.80	0.76	0.72	0.72
1937	0.91	0.88	0.89	0.84	0.80	0.74	0.70	0.61
1947	0.81	0.87	0.91	0.87	0.84	0.73	0.60	0.57
1952		0.86	0.84	0.81	0.75	0.64	0.55	0.53
Panel B : Ratio of assets listed to assets for which we know status (by number)								
1872			0.55	0.50	0.51	0.56	0.57	0.70
1882			0.57	0.48	0.52	0.56	0.64	0.74
1892			0.53	0.51	0.54	0.64	0.70	0.80
1897			0.54	0.57	0.53	0.62	0.72	0.82
1907			0.31	0.52	0.60	0.63	0.75	0.80
1912			0.26	0.42	0.55	0.63	0.73	0.82
1922		0.10	0.35	0.56	0.68	0.80	0.86	0.87
1927		0.71	0.35	0.53	0.65	0.77	0.85	0.80
1932		0.53	0.43	0.61	0.75	0.77	0.85	0.87
1937	0.65	0.44	0.51	0.66	0.71	0.79	0.88	0.87
1947	0.53	0.43	0.37	0.37	0.43	0.62	0.79	0.87
1952		0.46	0.39	0.42	0.45	0.62	0.79	0.82
Panel C : Ratio of assets listed to assets for which we know status (by Value)								
1872			0.56	0.51	0.47	0.45	0.38	0.58
1882			0.56	0.48	0.49	0.47	0.48	0.56
1892			0.52	0.51	0.51	0.52	0.55	0.67
1897			0.54	0.56	0.48	0.49	0.52	0.58
1907			0.31	0.51	0.53	0.44	0.51	0.62
1912			0.26	0.40	0.49	0.45	0.44	0.65
1922		0.09	0.31	0.46	0.51	0.61	0.66	0.71
1927		0.71	0.33	0.45	0.50	0.55	0.62	0.68
1932		0.51	0.40	0.52	0.58	0.50	0.55	0.65
1937	0.65	0.42	0.46	0.56	0.53	0.50	0.61	0.69
1947	0.53	0.41	0.30	0.26	0.25	0.36	0.49	0.70
1952		0.45	0.33	0.27	0.23	0.32	0.42	0.58

Table 5 Effective average tax rate

Year	ALL Estates		P70-80	P80-90	P90-95	P95-99	P99-99.9	P99.9-100
1872	3.1%		4.1%	4.0%	3.4%	3.5%	3.2%	1.9%
1882	2.9		6.8	3.4	3.6	2.9	2.7	2.9
1892	2.6		5.5	3.8	3.4	2.8	2.8	1.7
1897	2.7		4.4	3.4	3.1	3.1	2.4	2.3
1907	5.2		3.0	3.3	3.8	3.7	4.6	8.2
1912	3.8		0.8	1.1	1.7	3.3	4.1	4.6
1922	16.1		3.5	5.7	7.6	13.4	18.3	20.0
1927	18.2		8.7	10.7	12.6	16.6	21.3	19.2
1932	24.2		7.0	9.1	10.3	16.7	22.5	42.4
1937	20.6		7.4	9.5	12.2	21.4	21.7	26.1
1947	20.7		10.8	11.4	13.4	19.7	24.0	25.4
1952	20.6		14.7	17.2	18.2	19.2	20.9	25.1

Figure 1: Paris share in France, 1807-1952

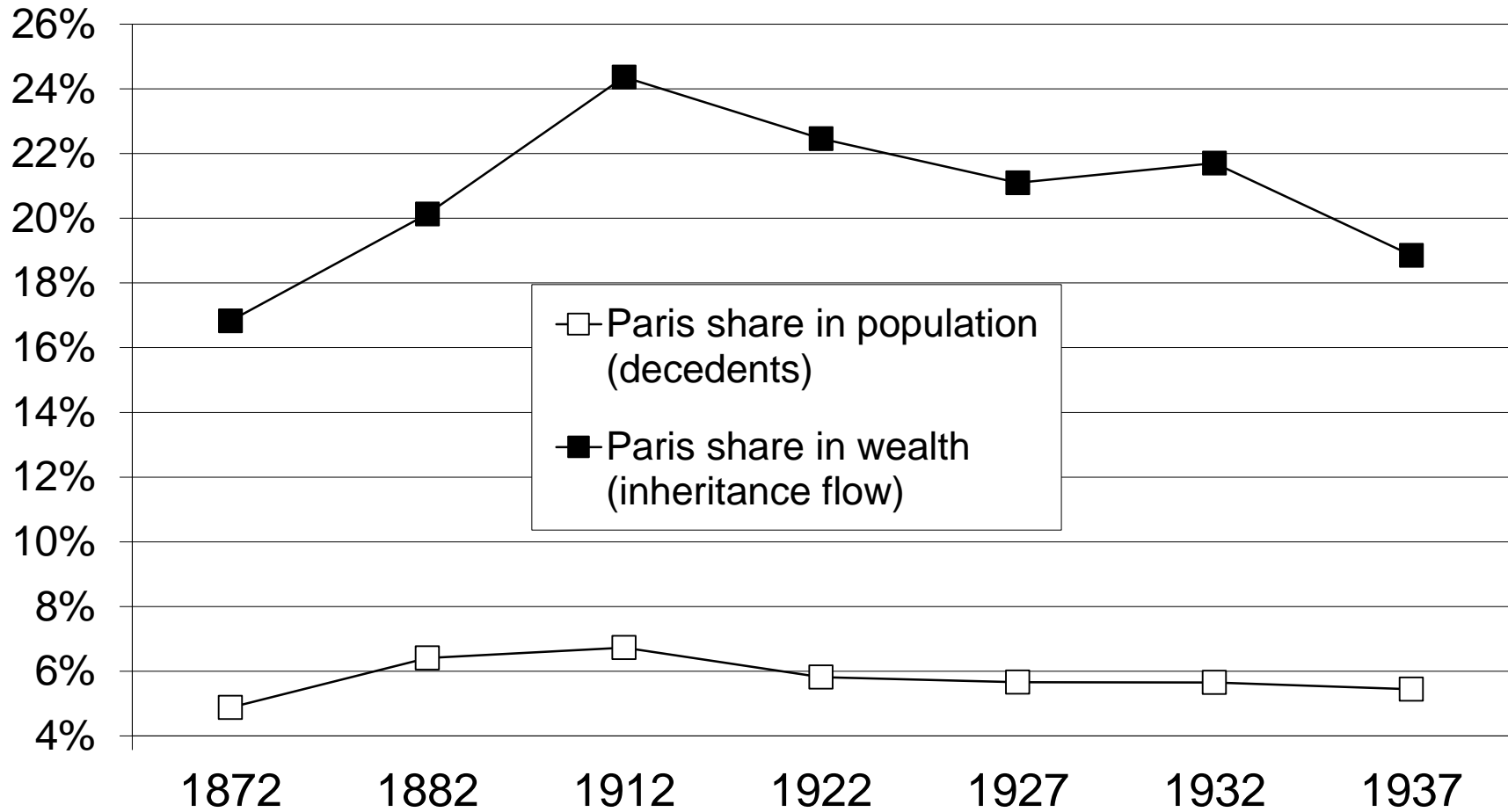


Figure 2: Wealth concentration in Paris, 1807-1952

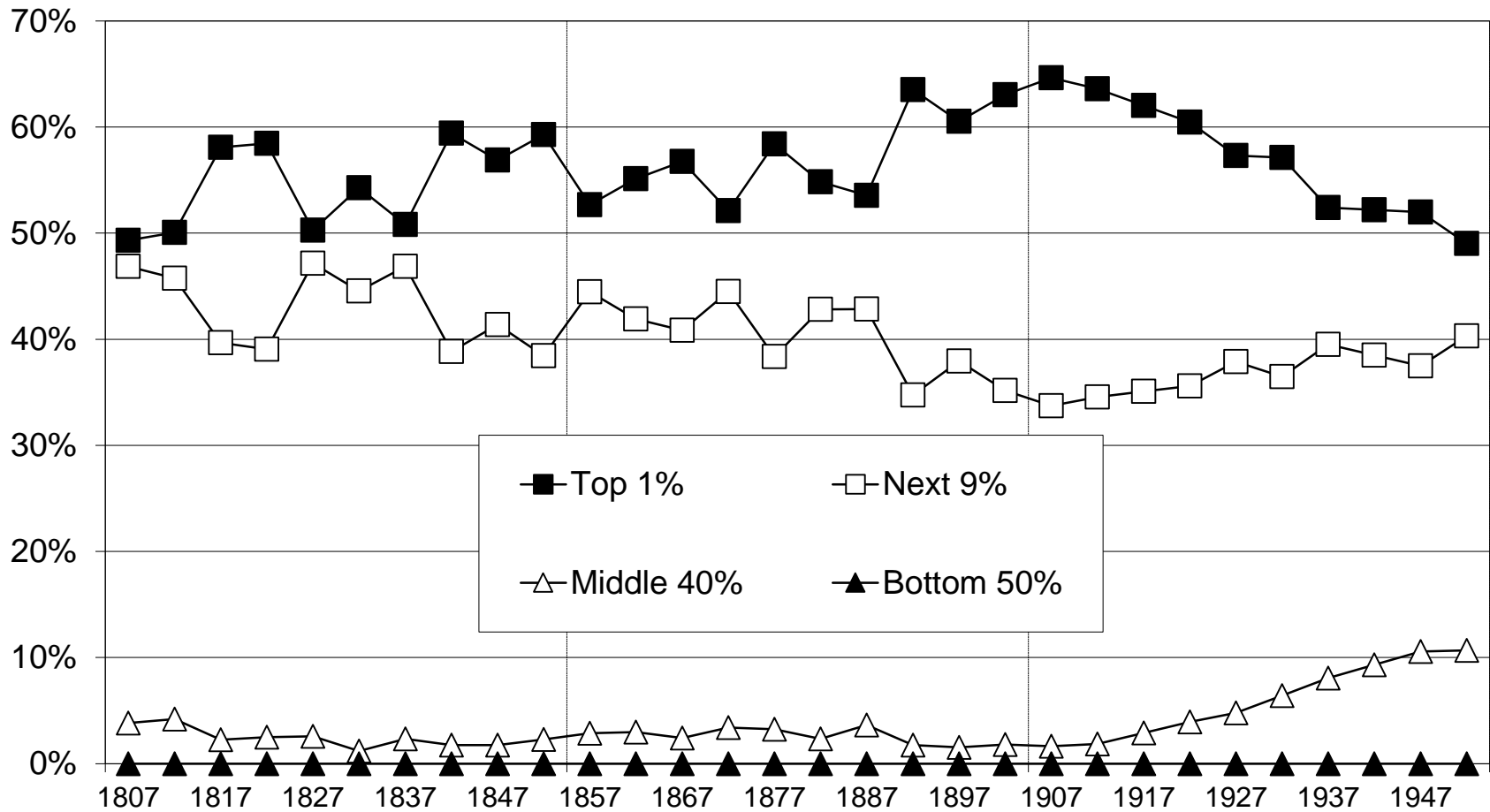


Figure 3. Inherited wealth in Paris, 1872-1952

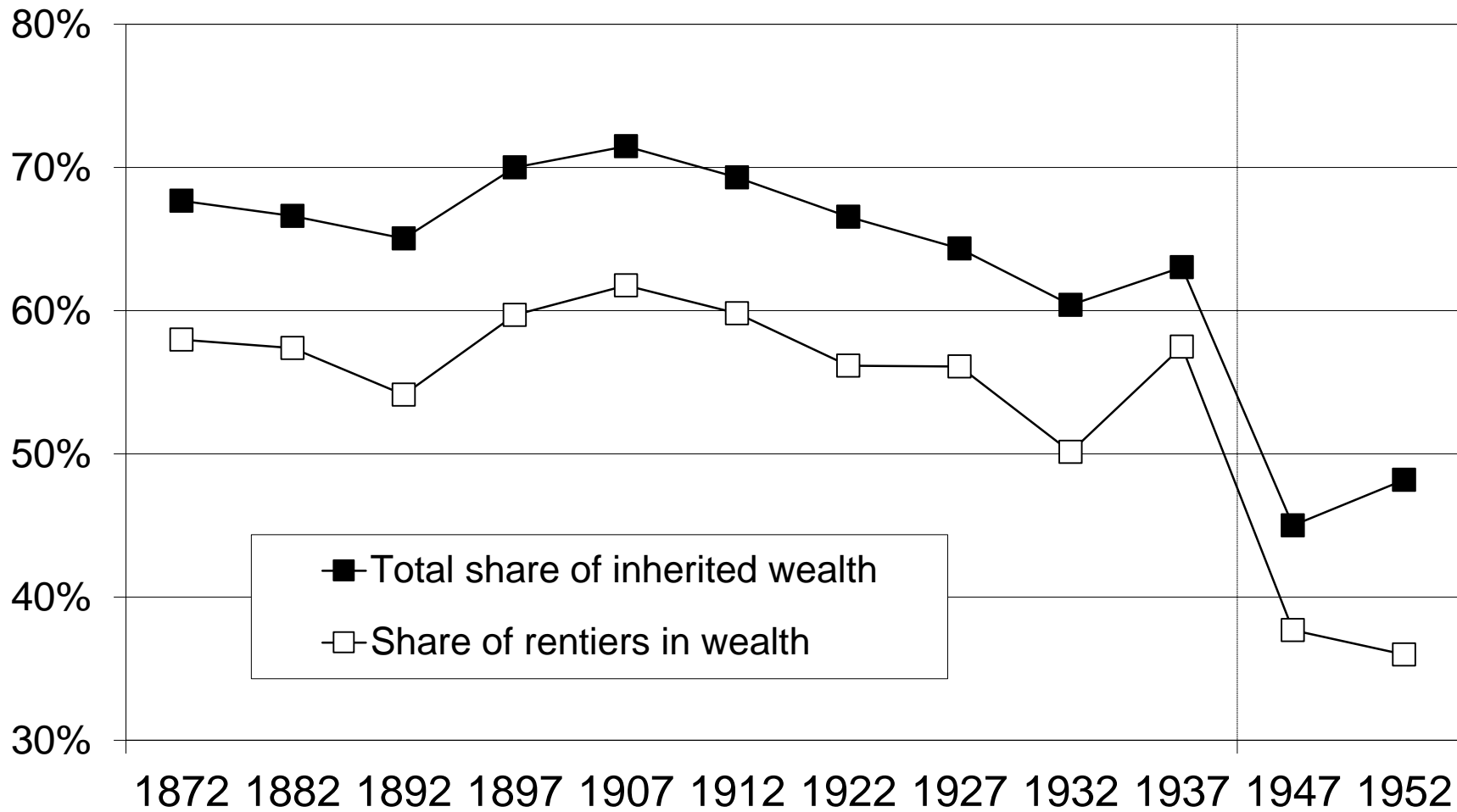
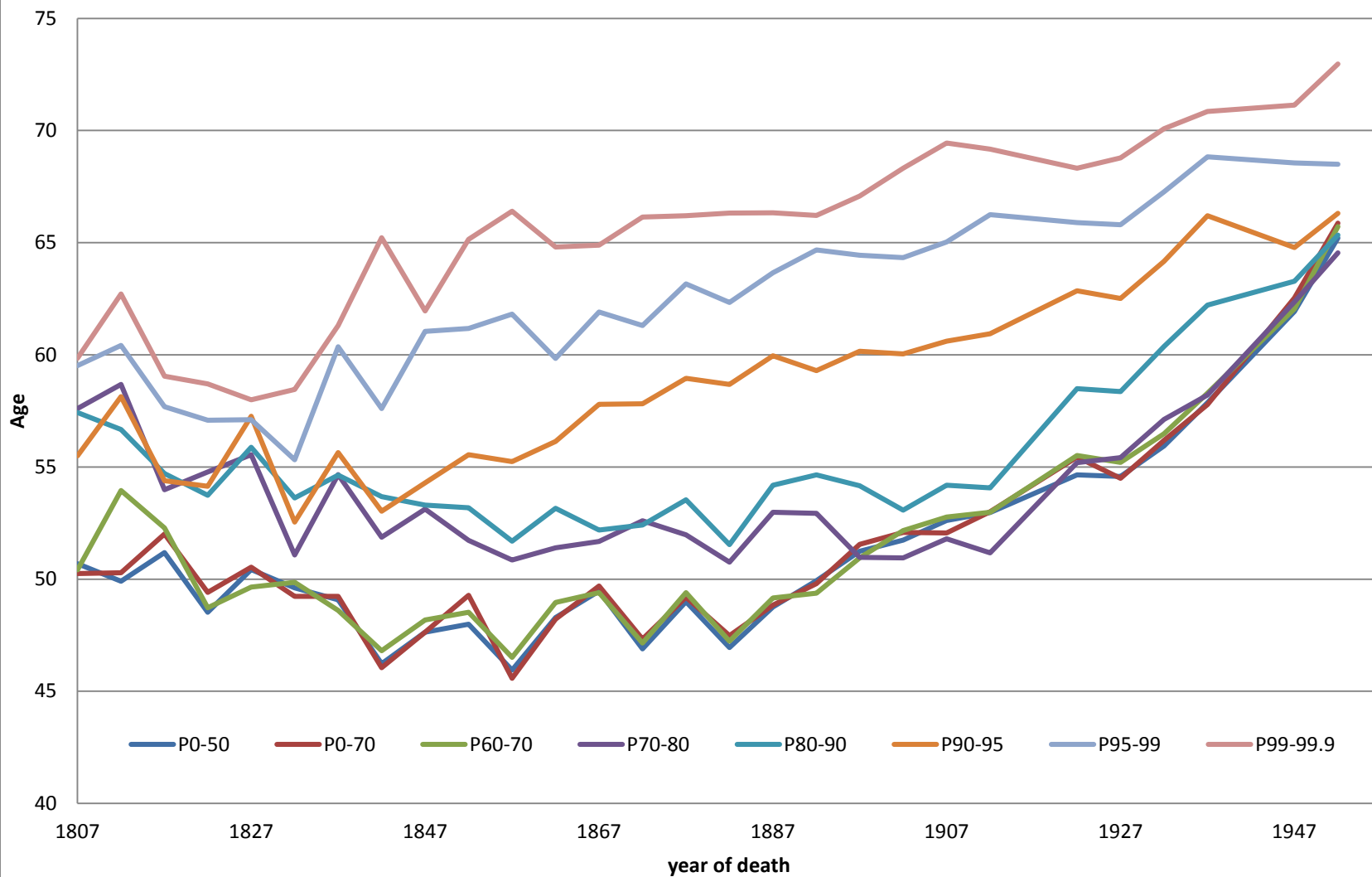


Figure 4A. Average age at death per intermediate fractile



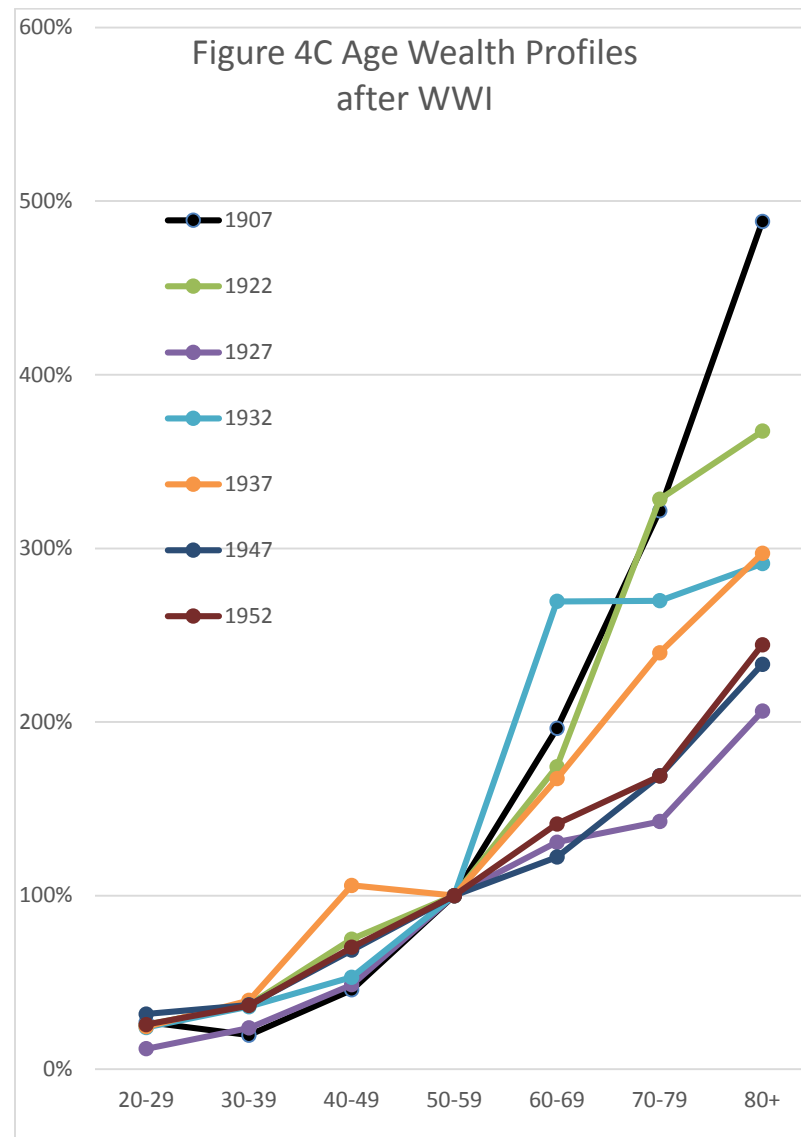
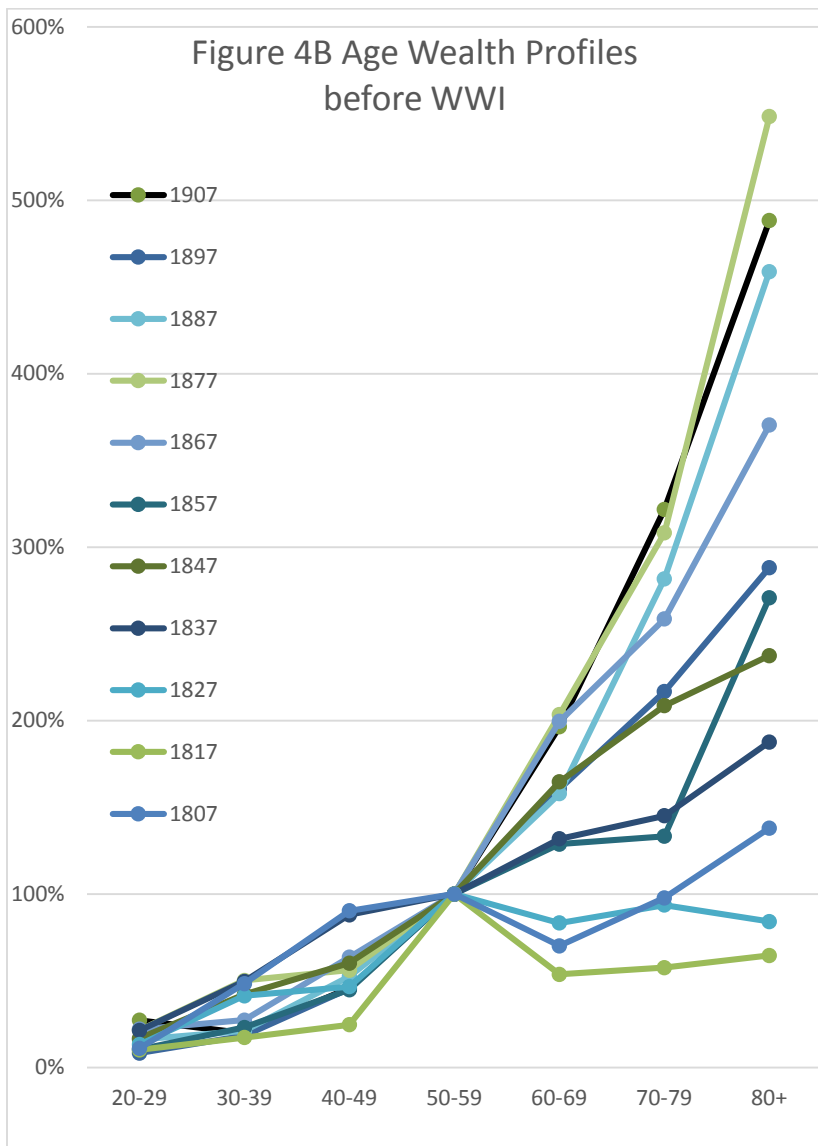


Figure 5A: The Fraction of individuals born in Paris

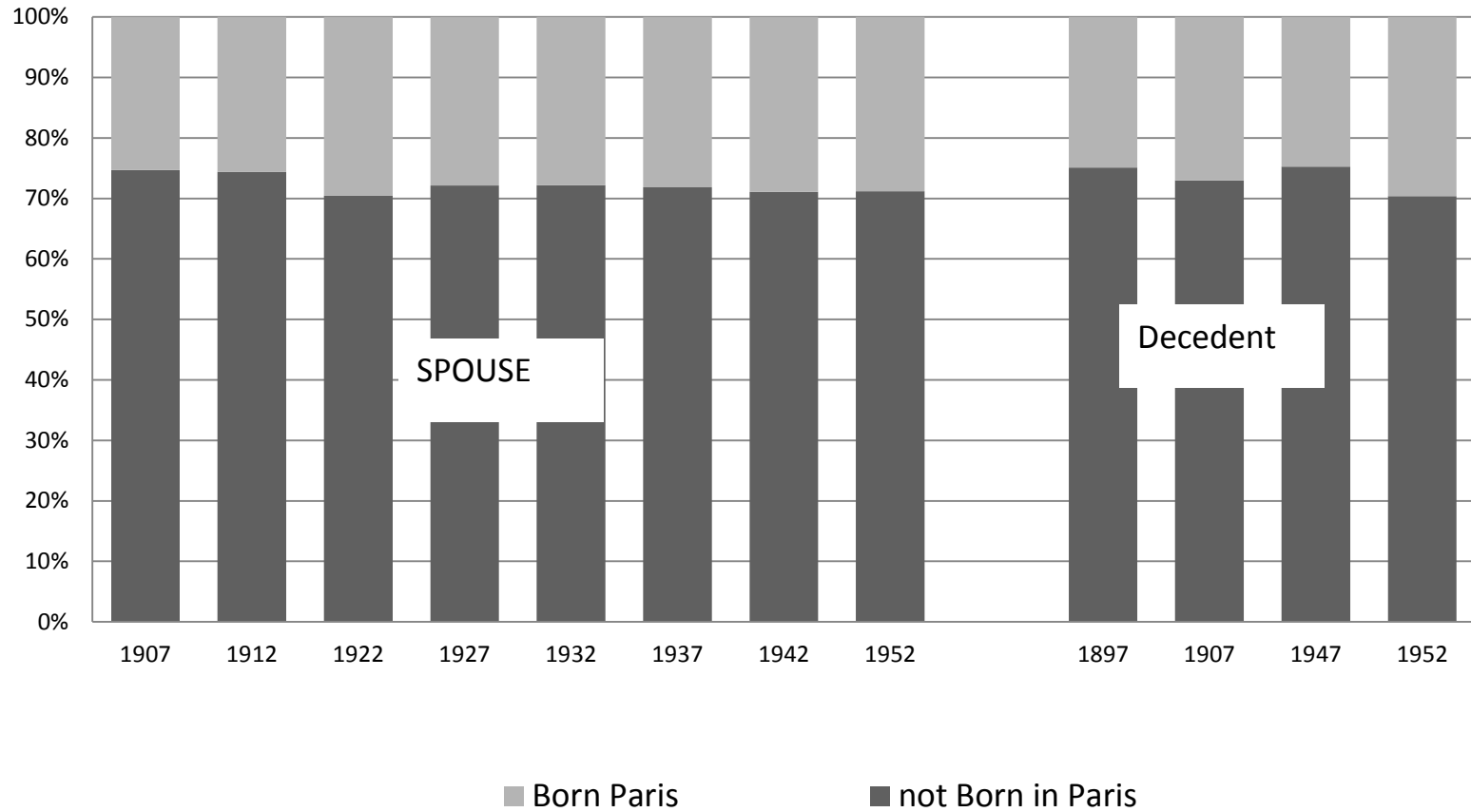


Figure 5B: The Fraction of individuals Married in Paris

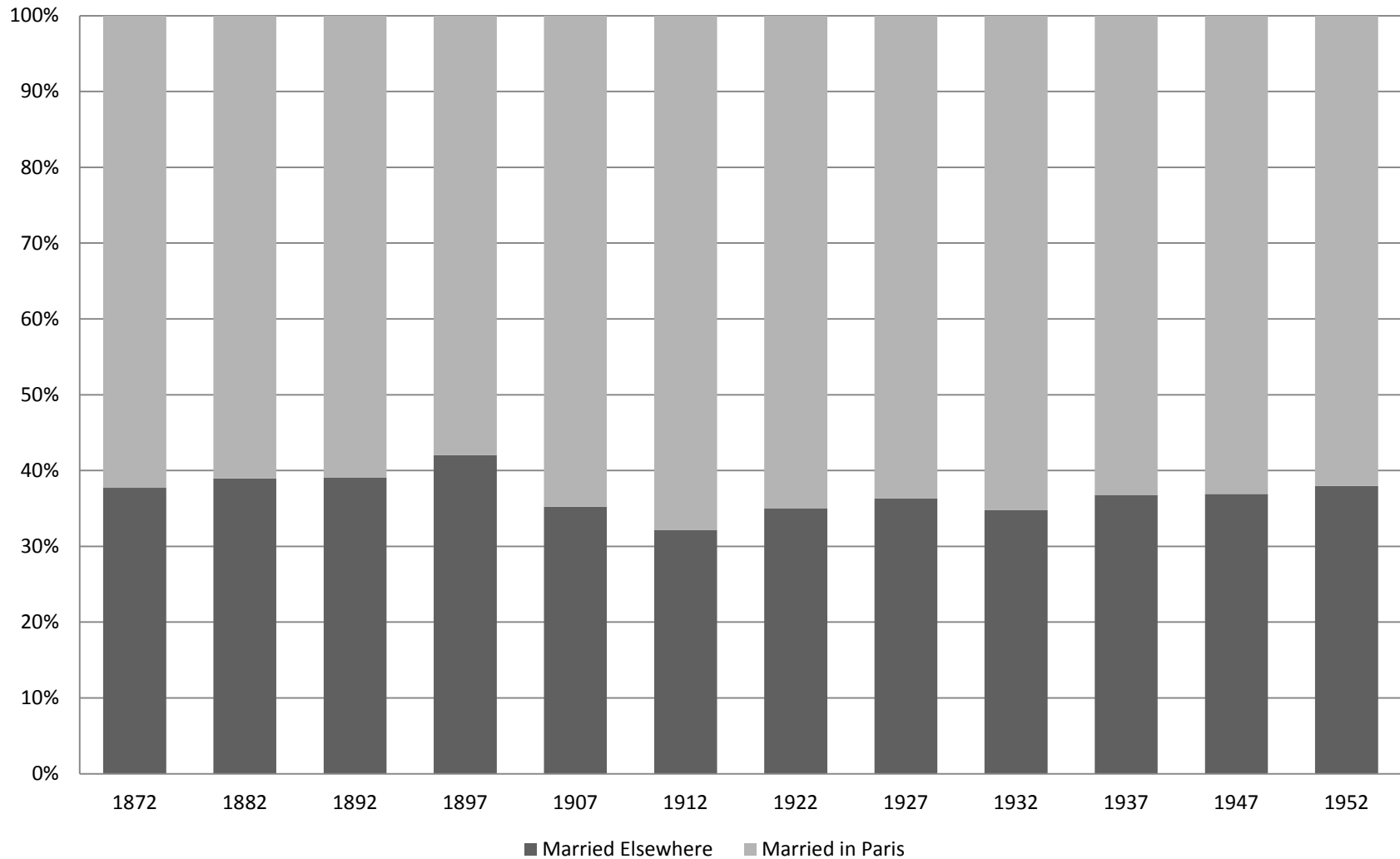
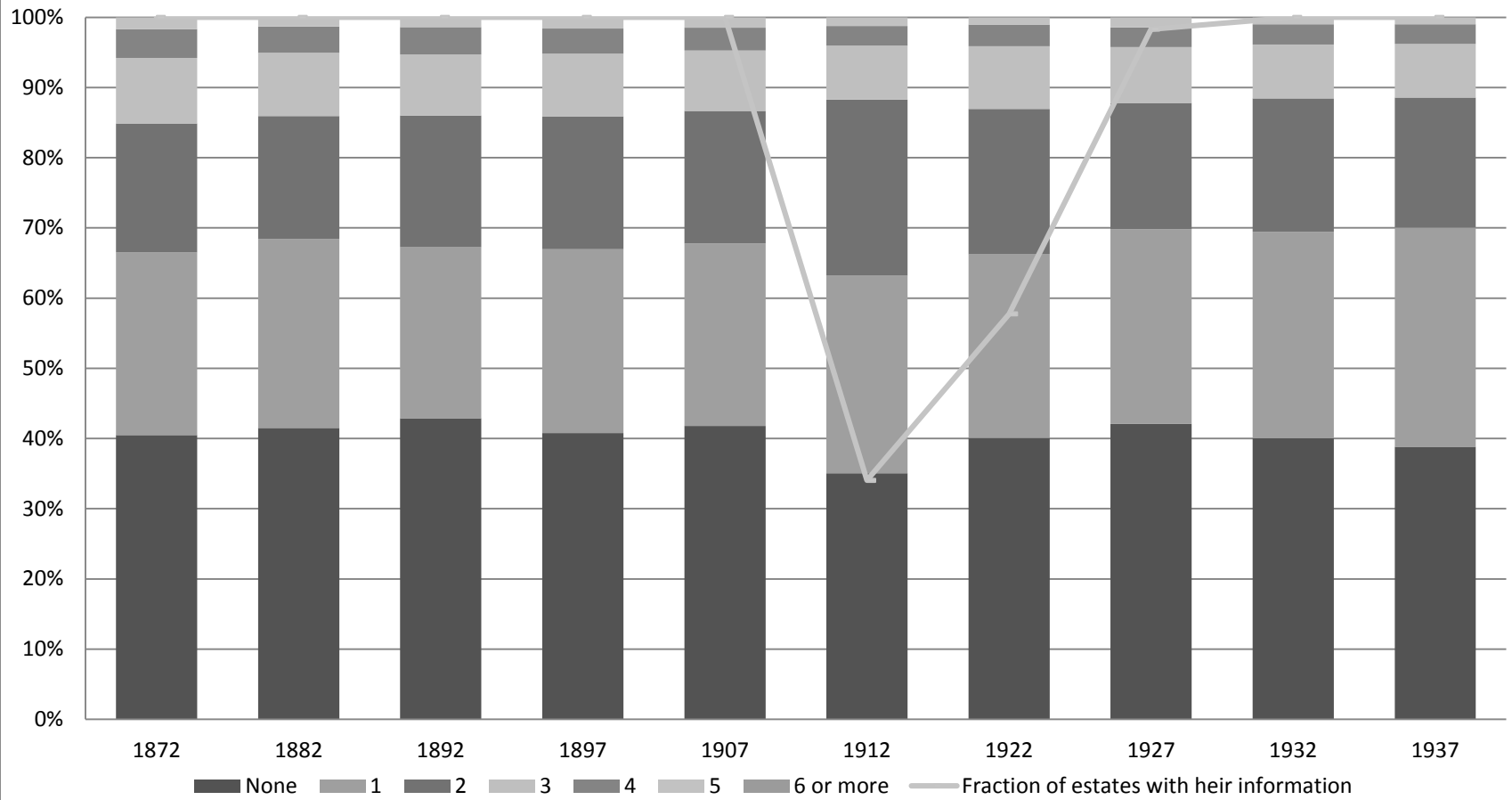


Figure 5C: The Number of Direct Heir Lines



Note: unless information was provided all grandchildren are attributed to 1 additional child. 1912 and 1922 were the first detailed cross sections we collect and social information was gathered only for those individuals in the detailed sample

Figure 6a: Average effective tax rates on inheritance, Paris and France 1872-1952

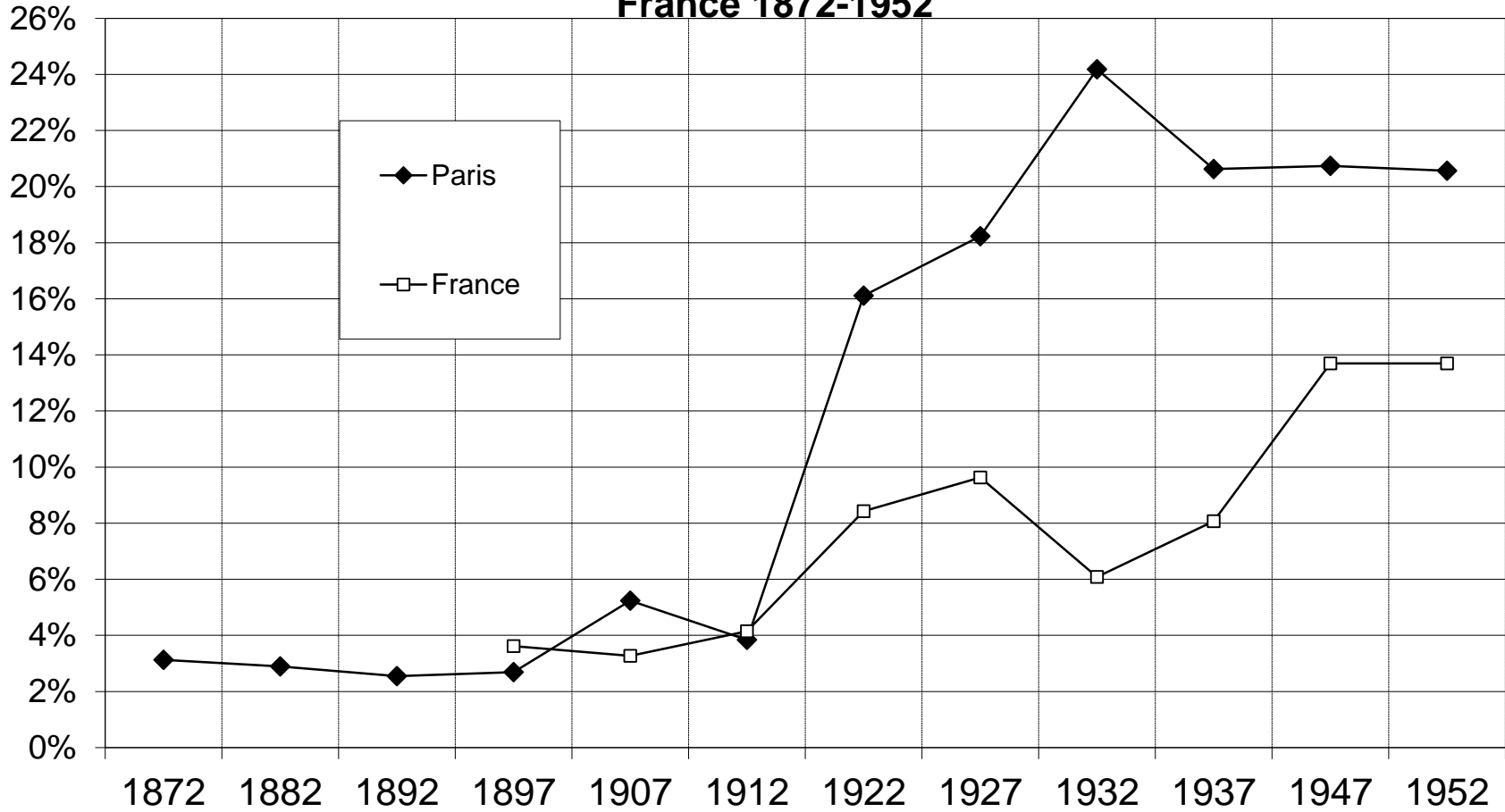
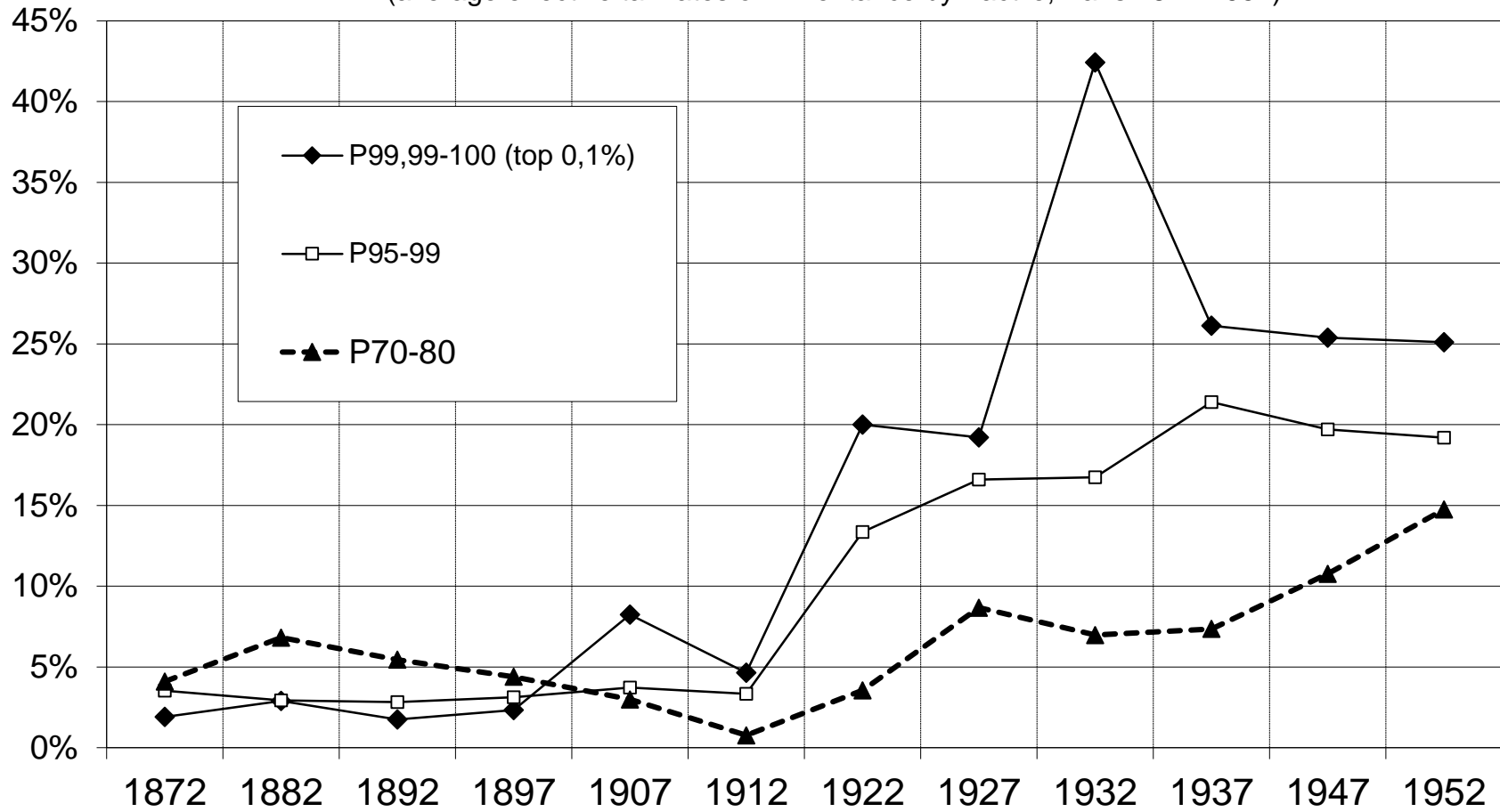


Figure 6b: The rise of progressive taxation
(average effective tax rates on inheritance by fractile, Paris 1872-1952)



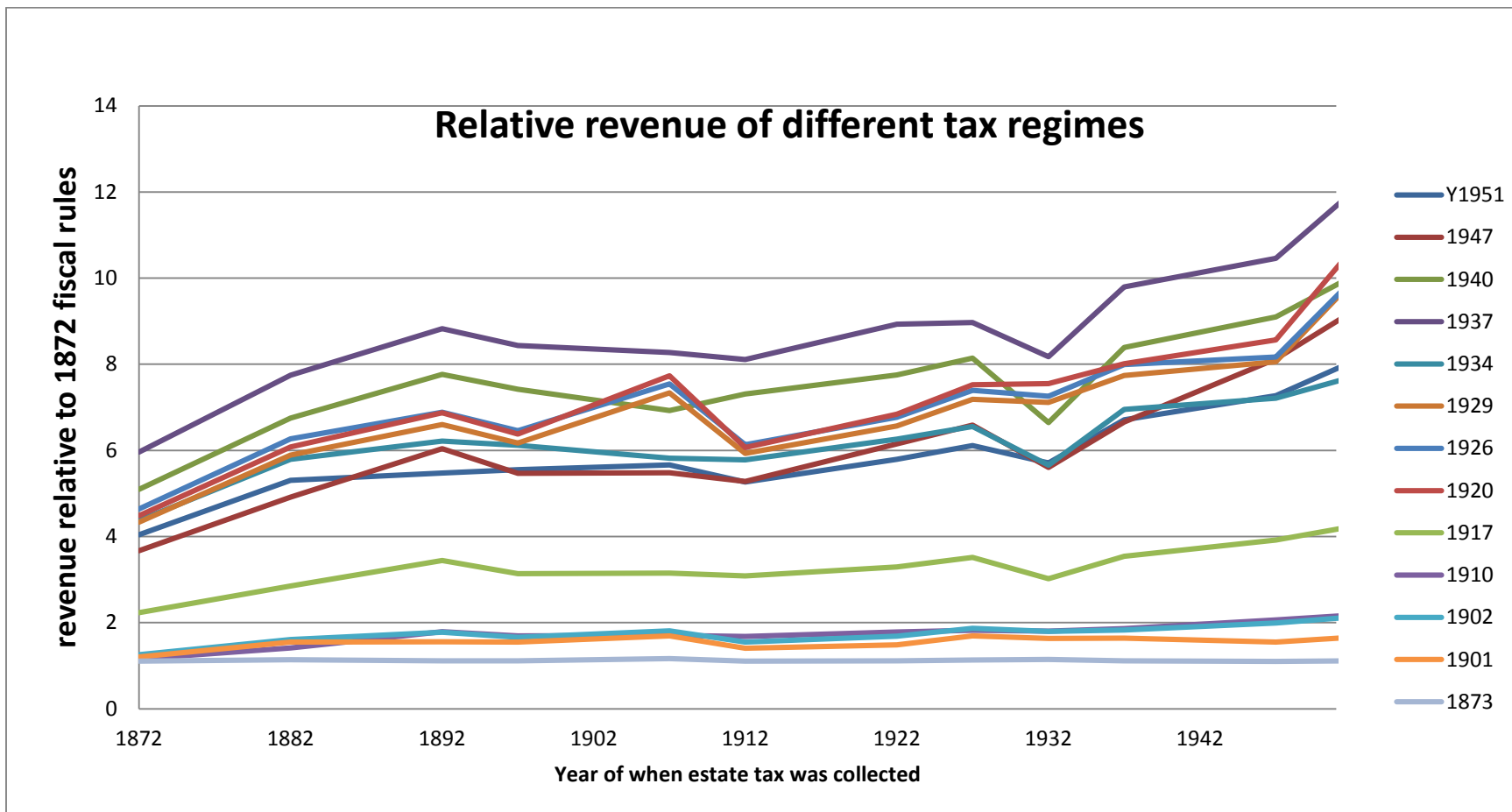


Figure 7:

Note: each observation is the total revenue that would have been extracted from a particular cohort of decedents if a particular fiscal regime had applied relative to what these decedents would have paid if they had faced the 1872 regime. Hence the Green line in the middle of the graph traces out what each cross section would have paid if they had faced the 1917 tax law relative to what they would have paid if they had faced the 1872 regime.

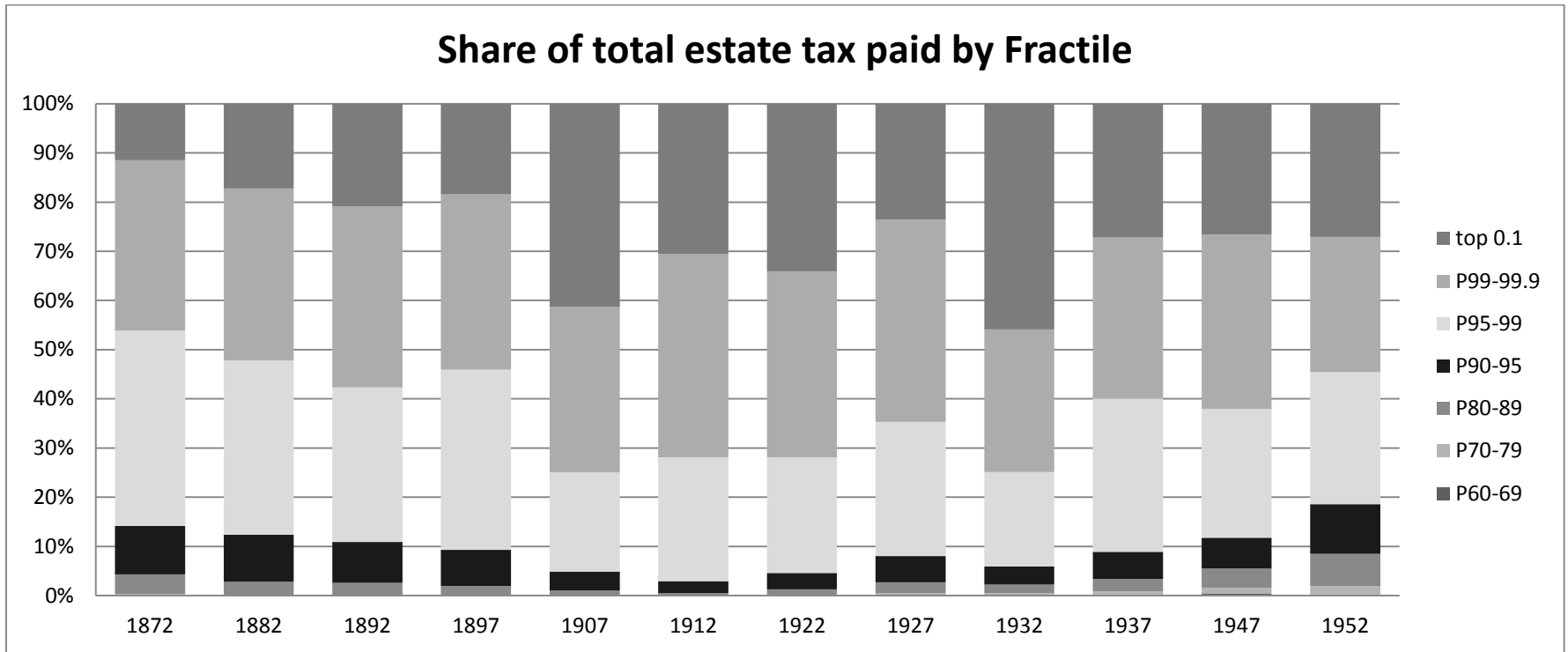


Figure 8

SHARE OF FISCAL BURDEN BY HEIR TYPE

■ Children ■ Spouse ■ Indirect Kin ■ Parents ■ Not Family

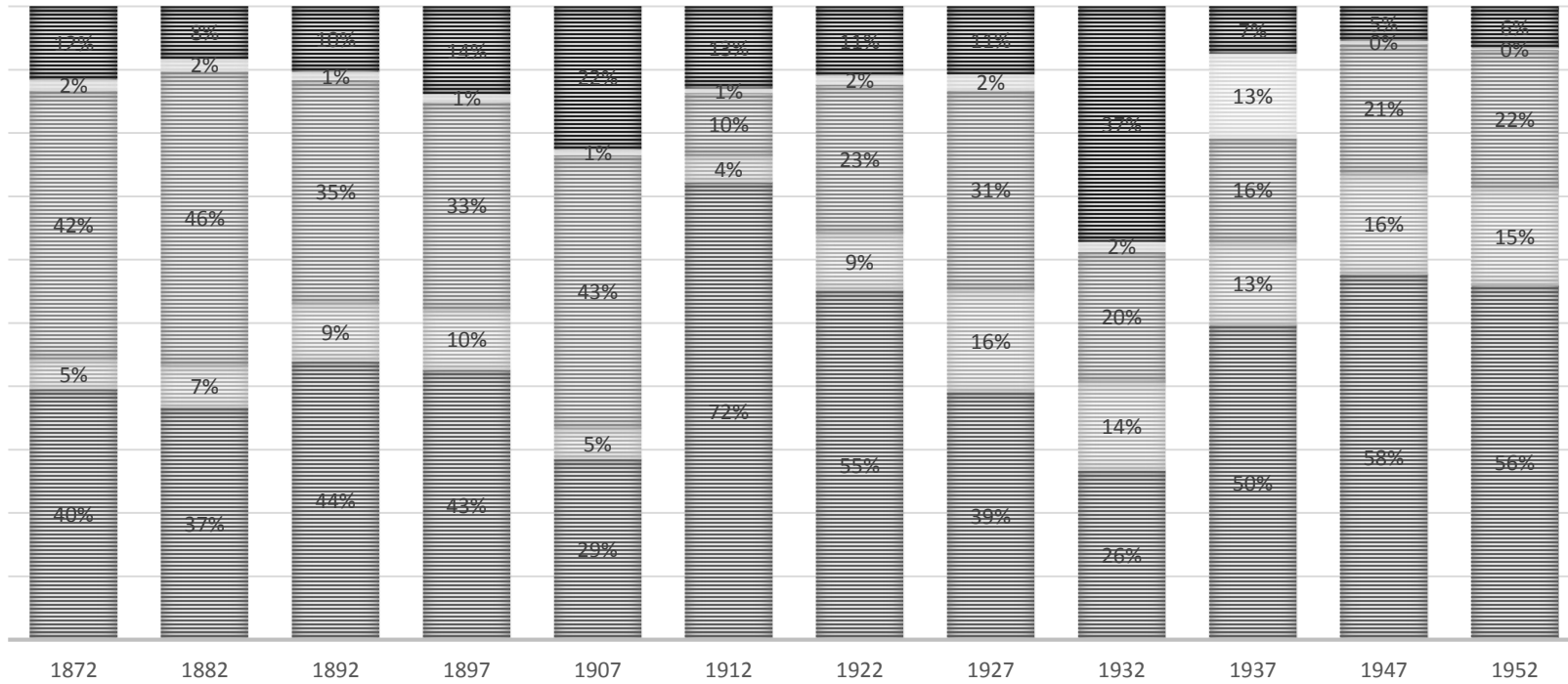


Figure 9