

## Intergenerational wealth mobility in France, 19th and early 20th century

Jérôme Bourdieu (PSE-INRA and EHESS)  
Lionel Kesztenbaum (INED and PSE)  
Gilles Postel-Vinay (PSE)  
Akiko Suwa-Eisenmann (PSE-INRA)

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### **Abstract**

This paper examines intergenerational wealth mobility between fathers and children in France between 1825 and 1939. Considering wealth mobility entails some striking differences with income mobility. We take into account the fact that a rising share of the population leaves no estate at death. This structural long-run change is related to the diffusion of wage earnings in industry and services. We show that intergenerational mobility differs over the wealth distribution. It is also different in rural and urban areas. Finally, the composition of wealth, such as the share of real estate, also matters.

**Keywords:** wealth distribution, France, real estate, inequality.

## 1 Introduction

This paper aims to contribute to the understanding of economic mobility in the long run, defined here as intergenerational mobility of wealth. More precisely, we compare wealth at death of father and child using fiscal records for a period that goes from early 19th century to the first half of the 20th century in France.

Most studies of economic mobility focus on much shorter period of time. This limits their ability to understand the relationships between changes in the structure of the economy, changes in the level of inequality, and changes in the degree of mobility. Recent studies have been interested in how much mobility changes over the last one or two centuries (Long, Jason and Ferrie, Joseph P 2013). But studying economic mobility in the long run is very demanding in terms of data. We use the TRA database which collected all individuals whose name begins with “TRA” between 1800 and 1939. This database encompasses approximately 85 000 individuals and provides information on their situation at death--place of death, marital status, age, and so on--in addition to a detailed account of their wealth.

One important issue for the study of wealth is that it is very concentrated. Indeed, in developed countries until WW1, the richest percentile (the Top 1%) owns more than half of total wealth (Piketty, Postel-Vinay, and Rosenthal 2006). Furthermore they own the wealth that matters, so to say: through their financial assets they control a large share of the economic capital and retain most of their economic power. We do not study this group in particular detail as it would have required over-sampling them. Rather, we are interested in the rest of the population, the bottom 99% so as to tell the story of the wealth owners, and not that of wealth itself.

Wealth is not income. To be sure, it is more concentrated and the top 1% get the lion’s share of total wealth. At the same time at the other end of the distribution many people have no wealth at all, even though they certainly have means of living (Bourdieu, Postel-Vinay, and Suwa-Eisenmann 2003). Typically, they would earn an income that is too low to allow them to save. Indeed, being without wealth doesn’t mean being without resources. Take for instance a wage earner renting his house. Thus those observed without wealth do not result from measurement errors or fiscal fraud but are those who survive without the mean – or the will – to accumulate any savings (Bourdieu, Kesztenbaum, and Postel-Vinay 2011). In fact, in the period we study, the share of these “have-nots” increased together with the share of wage earners. Hence, we will also take into account these individuals without wealth at death and study in which kind of families they appear: was their father also without wealth? And how about their children? The opposite phenomenon is not less important: as the share of the have-nots is growing, the share of have-nots children of a wealthy father also becomes larger. This movement of reduced access to wealth in a time of economic growth has been underestimated in comparison to upward mobility.

In the case of France, historians have focused on the “metamorphosis of the social structure” (Marchand and Thélot 1997) as a determinant of changes in status mobility during the last two centuries. The French Revolution broke down the *société d’ordres* (composed of nobility, clergy and *Tiers-Etat*) into what should have been a much more fluid society where privileges would no longer exist and social mobility would be high. Still a predominantly rural country, at the beginning of the 19th century, France then progressively urbanized and industrialized. As a result, the share of wage earners in the total population grew over time. It should be noted, however, that there was not always a clear cut frontier between independent workers and wage earners. Over their life cycle, some wage earners ended their career as independent workers, shopkeepers,

etc. Here we will show that the increase of inequality, both by the growing share of have-nots and the enrichment of the wealthiest goes hand in hand with moderate economic mobility. That result also contrasts with the economic literature that usually observes a pattern of growth of inequality parallel to a decrease in mobility (Corak, Miles and Heisz, Andrew 1999).

Wealth is a very heterogeneous aggregate and as such it links individuals to a social position more closely than income does. Thus looking at economic mobility through the lens of wealth has a peculiar signification. Wealth heterogeneity might come from its level but also from its composition. The richest have the control of economic capital because, even though they hold wealth in all forms--real estate, mansions or castles--they mostly hold factories and banks. They indeed possess jewelry and paintings but their portfolio of stocks and bonds dwarf all their others assets. This is in stark contrast with the majority of wealth owners whose main asset is real estate.

While current wisdom suggests that all assets are fungible and can easily be converted from one to another in such a way that they can yield an optimal rate of return, in many cases wealth portfolios are not well diversified. Instead of having the most efficient composition in financial terms, they are linked to the economic status of those who own them and are, for various reasons, very uneasy to modify. Hence, people often belong more to their asset than their asset belongs to them and so the fate of their assets impacts their own. Here we try to verify to what extent owning some specific asset--certain types of real estate for example--results in different type of wealth mobility. At the end of the 19<sup>th</sup> century, French agriculture endured a deep crisis and both the price of land and that of rural real estate declined. We test whether children of rural real estate owners inherited and kept a devaluated assets that made them poorer than if they had received only financial wealth.

The key point here is that the large scale changes we associate with economic development matter for the importance and the role of different forms of capital. In other words, intergenerational transmission of wealth can be understood only by taking into account, on the one hand, the general structure of the economy within which that transmission takes place and, on the other hand, the transmission of the kinds of asset that may matter to maintain one's status from one generation to the next.

We start by presenting the data (section 2). We first consider wealth as a homogeneous asset without taking into account its composition. We estimate the intergenerational elasticity and show that this general indicator hides heterogeneous evolutions at both extremes of the distribution (section 3). Next, we consider real estate and see how it is linked with wealth mobility at large; in particular, we distinguish between rural and urban areas, as real estate ownership does not serve the same purpose in the two types of regions. Finally, we introduce some preliminary results on financial assets (section 4).

## 2 Data

We use the TRA database, an extensive survey of the French population over the long run (Dupâquier and Kessler 1992; Bourdieu, Kesztenbaum, and Postel-Vinay 2013; Bourdieu, Kesztenbaum, and Postel-Vinay 2011). This survey collects in various archives all individuals whose name starts by the letter "TRA". In particular, it documents their situation at death, including age, marital status, profession, place of residence and assets. The TRA survey is representative of the French population between 1800 and 1940 (Bourdieu, Postel-Vinay, and Suwa-Eisenmann 2004). One important feature of the survey is its ability to reconstruct genealogy from father to children.

This is the ability we mobilize here, relying on all individuals whose father is also in the database.<sup>1</sup> However, we exclude those who die before the age of 20 since they are of limited interest for the study of wealth accumulation. Our final sample encompasses 6,293 father-child pairs. We further restrict this sample by excluding the children who died before their father. Our final sample contains 5,515 individuals.

The variable used as an indicator of wealth is gross assets at death, deflated by a national cost of living index. The value of assets at death is based on information gathered by the Fiscal Department (*l'Enregistrement*) which, in order to levy a modest (for direct-line successions at least) flat-rate tax, carries out meticulous inquiries into the value and composition of the deceased's assets. These data are complemented by information from birth, marriage and death registers, especially marriage data. Here, we use only part of this information: the value of the gross estate (and its composition in broad assets, financial or real estate) or the explicit indication that there is no estate, as well as personal information (age, place of birth, place of residence at death, occupation, etc.). It should be noted that the Fiscal Department provides a consistent source of data. The only major reform in this respect took place in 1901 and produced progressive taxation and the deduction of liabilities. This reform does not affect the quality of the variables used here. In particular, it did not change the practice of levying tax from the first Franc.

All estates were valued with equal attention by fiscal officials (Daumard 1973)<sup>2</sup> and attempted fraud remained limited. Even though they had to deal with increasingly varied and sometimes complex assets, the fiscal officials developed an informational apparatus which allowed them to avoid a substantial increase in concealment. Indeed, no type of assets systematically escaped the attention of the Registration Department. Moreover the tax brought an important benefit that offset its cost: filling a return was an easy way to register changes in title to property. There is ample evidence that beneficiaries followed the law. Indeed, the tax rates were relatively small until the interwar period, so there was really very little incentive to cheat.

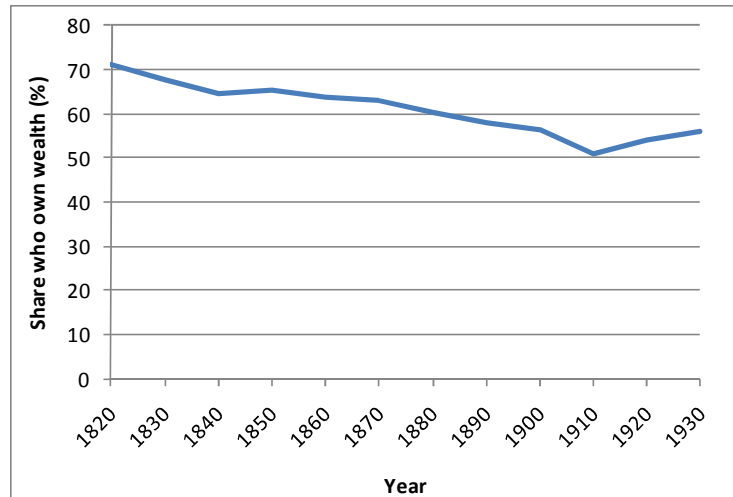
A first issue is the growing importance over time of those who own no wealth at all. We define as wealth owner (resp. non wealth owner) someone with (resp. without) an asset at death. Figure 1 presents the share of wealth owners, for France as a whole between 1820 and 1940. That share decreases over time, especially during the 19th century, from 70 to 50 percent. This is in part linked to changes in the structure of the economy and the growing importance of wage earners. But this also expresses growing inequalities and the concentration of wealth in the hands of a smaller minority. In this paper, we aim at looking at the consequences of this increase in inequality on social mobility. But to do so, we have to take into account the have-nots, those who live (and die) with zero wealth. So we take into account the have-nots, those who live (and die) with zero wealth and we consider both the extensive margin (the probability of owning wealth) and the intensive margin (the amount of wealth).

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<sup>1</sup> More precisely, all individuals in this subset are deceased between 1848 and 1939 (except during WWI), older than 20, and their wealth is known (either 0 or a positive number).

<sup>2</sup> The asset values reported in tax registers are estimated at the asset market prices prevailing on the day of death.

Figure 1. Share of individuals with an estate at death



Source: TRA-database, deceased over 20 years old (see text).

During the whole period, wealth is getting more concentrated within wealth owners and the gap between wealth owners and non wealth owners widens. But, as Table 1 shows, this goes with an increase in wealth at all levels, at least up to WWI. The threshold to access any quartile increases over time until 1914 before decreasing in the last period. It should be noted, however, that the magnitude of the increase is not the same for all parts of the wealth distribution. In particular P90 (the wealthiest 10%) experienced a much higher increase before WW1, but also a higher decrease in the inter-war period. In other words, before WW1, inequalities are getting bigger both at the bottom (larger share of have-nots) and at the top (with an increase in the share of the top 10%). Indeed, this phenomenon is even starker for the very wealthy, the top 1% or the top 0.1% (Piketty 2010; Piketty, Postel-Vinay, and Rosenthal 2006).

Here, as in all of this paper, the amounts are expressed in 1912 FF. Other solutions are possible. One could express all value in current euros or dollars but this solution is only seemingly simple and would be often misleading. However, using 1912 FF requires some guidance and orders of magnitude. Before WWI, for instance, the threshold P25 is close to the price of a horse (or half the average yearly wage) ; P50 is close to the average price of a house in the poorest areas, P75 is the average price of a house in France as a whole and P90 is the price of a house in the wealthier part of the country (Paris excepted).<sup>3</sup>

Table 1 Wealth at different parts of the distribution

	P25	p50	P75	P90	mean
1848-1869	440	1 436	4 164	11 214	7 203
1870-1894	547	2 060	6 006	16 619	18 131
1895-1913	822	2 588	7 592	21 000	21 412
1919 -1939	722	2 089	5 437	12 659	8 155

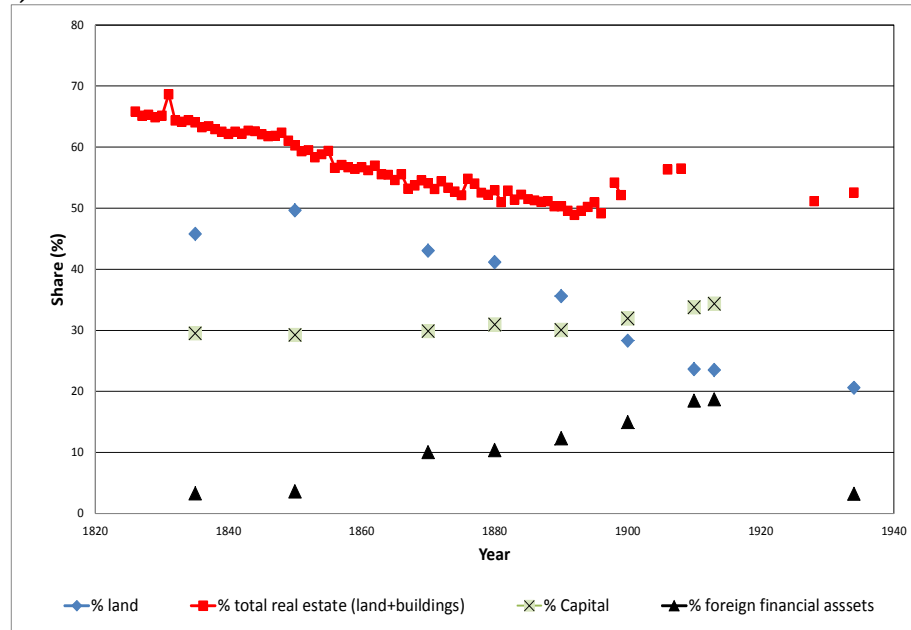
Source: TRA-database, deceased over 20 years old (see text).

If wealth becomes more concentrated into fewer hands during this period, its structure also changes dramatically.

<sup>3</sup> Bardet J.-P., Chaunu P., Désert G., Gouhier P., Neveux H. (1971).

Data at the aggregate level shows how much the composition of capital evolves over time. As Figure 2 indicates, land was by far the primary form of wealth in early nineteenth century France. But capitalism and the interconnection between financial development and industrial growth created new forms of wealth. As a result, the share of real assets (land and buildings) declined: from no less than 2/3 of total wealth at the beginning of the nineteenth century to only half of it at the end. The growing importance of buildings did not reverse this trend because the fall of land prices was particularly severe, especially during the last quarter of the century when rural prices plummeted.

Figure 2. **Evolution of different forms of capital in French wealth (share in % of total national wealth)**



Source: (Lévy-Leboyer 1977; INSEE 1966).

The middle of the 19th century is a convenient starting point since industrialization accelerated under the Second Empire (1852–1870) and the stock market boomed. This sequence of prosperity was interrupted by war, the loss of two rich regions of Eastern France and the Commune in Paris; a long deceleration followed (1870-1895) during which agriculture suffered most.

In the following, the century under survey will thus be divided into four sub-periods, omitting WWI. After several decades characterized by slow economic growth during the first half of the nineteenth century and a deep crisis on the eve of the Second Republic, we isolate a first sub-period, 1848-1869, which covers two decades of marked industrialization during the Second Empire. During the second sub-period, 1870-1895, the economy almost stagnated with lasting unemployment in the industrial sector and falling incomes in the agricultural sector. Growth resumed in the third sub-period (1895-1913). The last one (1919-1939) is characterized by the ups and downs of the inter-war years. These sub-periods of roughly equal length are designed to capture – albeit approximately – the economic context in which each generation evolved and accumulated.

### 3 Wealth as a homogeneous asset

#### 3.1. The intergenerational elasticity of wealth

A standard measure of intergenerational mobility is given by Intergenerational Income Elasticity (IGE) that measures the relation between the log of child's income and the log of father's income, controlling for age (Solon 1992, Corak 2004). An IGE equal to 1 means complete immobility and persistence of income hierarchy across generation. An IGE equal to 0 means complete mobility and reshuffling of social positions. A useful interpretation of the IGE coefficient is that it indicates how many generations it takes to dilute some initial level of inequality. With an IGE of 0.2 initial inequality vanishes in two generations; with an IGE of 0.8 64% of the initial inequality remains after two generations. As such, the IGE measures the speed of the reversal to the mean.

Transposing the measure of intergenerational income mobility to wealth mobility is not straightforward. First, at the bottom of wealth distribution lies a large number of non asset owners that has no counterpart when considering income. Second, the way wealth is transmitted differs at the top and at the bottom of the distribution. Rather than summarizing mobility with one coefficient, we thus adopt here a different setting to take into account what happens at both ends of the wealth distribution.

$$\ln(w_i) = \alpha + \beta \ln(W_i) + \beta_1 d + \beta_2 D + \gamma_1 Z_i + \gamma_2 z_i + t + C + \varepsilon_i \quad (1)$$

The variables  $Z$  and  $z$  take into account individual characteristics, for fathers and children respectively: life-cycle behavior, namely the fact that wealth is declining after retirement (approximated here at age 60) and differences in inheritance and wealth accumulation between men and women. Equation (1) also includes a dummy for periods of children deaths: 1848-1869, 1870-1895, 1895-1913 and 1919-1939.

Instead of characterizing mobility by one coefficient alone, we have three interdependent coefficients  $\beta$ ,  $\beta_1$ ,  $\beta_2$ . The elasticity—the coefficient  $\beta$ —is complemented by  $\beta_1$  that measures the impact of having a zero wealth father ( $d$ ) and  $\beta_2$  that measures the impact of having a father belonging to the top quartile ( $D$ ). These three coefficients work together and one cannot compare only  $\beta$  from one regression to the other without taking into account the two other coefficients. Neither can the slope of the regression be understood without the coefficients of the dummy variables and the constant. Taken all together, they better capture the heterogeneity of the transmission process.

We assume that the two dummies ( $d$  and  $D$ ) reflect some selection mechanisms that are not modelled here. In particular, introducing a dummy variable for zero wealth fathers means that children of such fathers will behave in a different way than children of fathers with a very little amount of wealth. But it might be the case that a zero wealth father is not a perfect predictor that his child will be deprived of wealth as well.

This selection issue holds for the rich as well. Here we choose to isolate the last quartile as suggested by the distribution we observe. One way to contrast the behavior of the richest with the rest of the population is to run a regression on the subpopulation of children having a father among the richest. This leads to a very high IGE.

The average fit between fathers' and children's wealth (the black line) hides strong differences in specific parts of the distribution (Figure 3): first, between the pairs of father and child who neither own property (the green line); second, between the pairs who both leave an estate (the red line); and we can further distinguish the pairs with fathers in the top wealth quartile (the dotted red line).

Figure 3 plots the actual distribution of fathers and children wealth measured in log. At the center lies the cloud of positive wealth pairs. It clearly reveals a positive relationship between father and children wealth. And the slope seems indeed steeper for the higher levels of wealth. The red line represents the regression line obtained when discarding the non asset owners. Its slope measures the IGE among the wealthy, which leaves out of reach a large part of the population. On both axis appear individuals with zero wealth : on the y-axis, the children and on the x-axis the fathers. It makes little doubt that these two worlds are separated from the rest of the population.

Figure 3. Parent and children wealth



Column (1) of Table 2 presents the intergenerational elasticity of wealth (IGE) between fathers and children. Introducing the two dummies of equation (1) impacts the model. First, the effect of the zero-wealth fathers is entirely captured by the coefficient of dummy  $d$ . It has two consequences: it discards the effect of the  $(0,0)$  pairs that would tend to pull the constant  $C$  towards zero and increase the fit ; the  $d$  dummy also measures the impact of some zero wealth fathers having wealthy children.<sup>4</sup> The second impact is that the dummy on the wealthiest withdraws the pull either in slope or through an increase of the constant of the richest that tend to better preserve their father's wealth. But the most stringent impact on the regression line is the presence of zero wealth children of rich fathers that both diminishes the constant and increases the slope as there are more zero wealth children of relatively poor fathers than children of very rich fathers.

Table 2 gives the IGE computed on all pairs of father and child of the sample, with zero wealth owners and without introducing the dummies. For the entire period of the sample (children

<sup>4</sup> It can be negative if this group receives less than the group of the children of father leaving a very small amount of wealth.



deceased between 1848 and 1939), the IGE is 0.33. That means that if a father's wealth is twice above the mean (100% higher), his child will still be 33% above. Initial inequality is diluted over three generations. Columns (2)-(5) of Table 2 shows that the IGE as estimated in equation (1) without the two dummies. The IGE is quite stable over time, being higher in periods of growth (1848-1869 and 1895-1913) and lower in period of crisis (1870-194 and 1919-1939).

Table 2. **Intergenerational elasticity, 1848-1939**

<i>dependent variable</i>	(1)	(2)	(3)	(4)	(5)
	<i>child wealth</i>				
	<i>all periods</i>	<i>1848-1869</i>	<i>1870-1894</i>	<i>1895-1913</i>	<i>1919-1939</i>
father wealth (including 0 value)	0.335*** [0.014]	0.367*** [0.036]	0.307*** [0.026]	0.378*** [0.029]	0.317*** [0.023]
constant	4.069*** [0.179]	4.259*** [0.349]	3.998*** [0.257]	3.362*** [0.289]	4.128*** [0.237]
R2	0.12	0.14	0.09	0.14	0.15
N	5,493	871	1,723	1,375	1,524

Note : robust standard errors, controls : child's gender; age difference to 60 and difference squared (for children and fathers), child's period of death. \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Table 3. **Intergenerational mobility : complete estimation, 1848-1939**

<i>dependent variable</i>	(1)	(2)	(3)	(4)	(5)
	<i>wealth including 0</i>				
	<i>all periods</i>	<i>1848-1869</i>	<i>1870-1894</i>	<i>1895-1913</i>	<i>1919-1939</i>
father wealth (including 0 value)	0.416*** [0.046]	0.575*** [0.099]	0.332*** [0.074]	0.495*** [0.097]	0.364*** [0.089]
father's wealth is zero	0.987*** [0.362]	2.308*** [0.819]	0.365 [0.593]	1.303* [0.779]	0.814 [0.705]
father in the top quartile	0.383** [0.182]	0.344 [0.403]	0.213 [0.312]	0.25 [0.385]	0.730** [0.340]
constant	3.292*** [0.371]	2.370*** [0.787]	3.726*** [0.578]	2.244*** [0.777]	3.381*** [0.706]
R2	0.13	0.16	0.09	0.14	0.16
N	5,493	871	1,723	1,375	1,524
<i>average child wealth of father with 0 wealth</i>	72	108	42	35	29

Note : robust standard errors, controls : child's gender; age difference to 60 and difference squared (for children and fathers), child's period of death. \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Once taken into account the non-linearities at the bottom and at the top of the distribution, the IGE changes over time as do the coefficients of the dummies. What matters most is how these coefficients compare from one period to another.

A first noticeable result is that the children that have not received any estate are not systematically handicapped. On the contrary it has a positive impact on children's wealth albeit small (more on this below).

The slope  $\beta$  and the coefficient  $\beta_2$  of the dummy for fathers belonging to the third quartile have to be interpreted simultaneously: in period of growth, the slope increases and this increase is not complemented by a specific effect on the richest (this supplementary effect appears however when considering the population for all periods). In periods of recession, on the contrary, the slope diminishes strongly, especially during the period of hardship that follows the Second Empire. In the last period, the dummy for the richest fathers has a significant positive impact. Then, as we know, despite the fact that the wealth of the richest is quickly diminishing, they nevertheless tend to transmit their wealth better than people below in the distribution of wealth.

The main advantage of equation (1) compared to the standard IGE model is that by separating the effect at the two ends of the distribution – even in crude way –, it makes the evolution of mobility more visible. We have also estimated an IGE model on the subgroup of fathers belonging to the last quartile to isolate the evolution of wealth transmission among the most wealthy. It confirms the result we obtain above: the IGE coefficient is much higher and follows a path that captures well the fate of the wealthiest.

But to get a better picture of mobility we must improve our understanding of the movements from the bottom of the ladder to the top and vice versa. Mobility matrix is a good instrument for this.

### **3.2. The mobility matrix**

Table 4 presents the intergenerational mobility matrices at the different periods. The rows of the matrix are the wealth quartiles of the fathers; the columns are the quartiles of the children. The "0" row and columns group individuals without estate. The quartiles are held fixed for the whole sample and computed over 1848-1939.

Table 4 a. **Intergenerational mobility matrices (Nb)**

(a) 1848-1869							(b) 1870-1894						
\ child	0	1	2	3	4	total	\ child	0	1	2	3	4	total
father							father						
0	8.7	2.9	3.1	2.6	2.7	20.0	0	9.9	3.9	2.4	2.4	3.2	21.7
1	6.4	5.8	5.7	4.7	2.8	25.4	1	5.6	5.1	3.8	5.1	2.9	22.5
2	3.1	3.4	4.0	4.7	1.9	17.0	2	4.0	4.7	3.8	4.6	3.0	20.1
3	2.9	2.6	4.3	5.9	4.5	20.3	3	3.2	2.0	3.2	5.8	4.0	18.1
4	1.5	2.2	2.8	3.8	7.0	17.4	4	3.0	1.4	2.2	3.9	7.1	17.6
total child	22.7	16.9	19.9	21.7	18.9	100	Total	25.7	17.1	15.3	21.9	20.1	100

(c) 1895-1913							(d) 1919-1939						
\ child	0	1	2	3	4	total	\ child	0	1	2	3	4	total
father							father						
0	15.0	2.3	3.9	4.1	3.7	28.8	0	21.1	3.7	5.1	5.2	5.6	40.6
1	5.5	2.9	2.8	3.5	3.5	18.3	1	4.3	2.4	1.9	2.0	2.3	12.9
2	3.9	2.2	3.8	3.1	2.7	15.7	2	4.3	2.6	3.1	2.8	1.5	14.3
3	3.3	1.5	3.4	4.6	4.1	16.9	3	3.3	1.8	3.0	3.5	2.0	13.5
4	3.5	1.0	2.1	4.3	9.5	20.4	4	3.4	1.2	2.8	4.7	6.6	18.7
Total	31.1	9.9	16.0	19.6	23.4	100	Total	36.3	11.7	15.8	18.2	18.0	100

First, the movements within each matrix are far from negligible. In particular, it is worthy to note that, during the Second period (i.e. during the agricultural crisis), children born from parents in the second quartile experienced downward mobility. More generally, intergenerational mobility is clearly high as only a third of the population is located on the diagonal.

This general pattern stands in stark contrast with the strong intergenerational persistence we observe at the two extremes. As the fraction of decedents with positive estates in the whole population declined over time, the proportion of fathers with zero wealth increased (from 20.0 to 40.6 percent) and so did the proportion of children with zero wealth, albeit at a slower pace in the last period.

At the other extreme the fraction of those who stay in the top quartile grew steadily from the beginning to WW1 but declined during the interwar period.

These three conclusions are reinforced and qualified if, instead of the proportion of individuals, we look at the average value of the estates in each cell of the matrix at different periods (Table 4.b). The impressive mobility among the majority of the population is particularly striking if one considers that in all periods whether one's father belonged to the first, the second, or even the third quartile of wealth, it does not make much difference : in each case, the child ends up, on average, with a roughly equivalent estate. Moreover, the -- never small -- fraction of children who despite the fact that their father had no wealth ends up with a positive estate are significantly wealthier than all children, except those born from a father in the upper quartile. To be sure the average estate of this latter group is usually from six to eight time bigger than the others. Indeed, that's the reason why we choose to isolate this sub-group. But this advantage shrank dramatically

in the interwar period. See Table 4.b

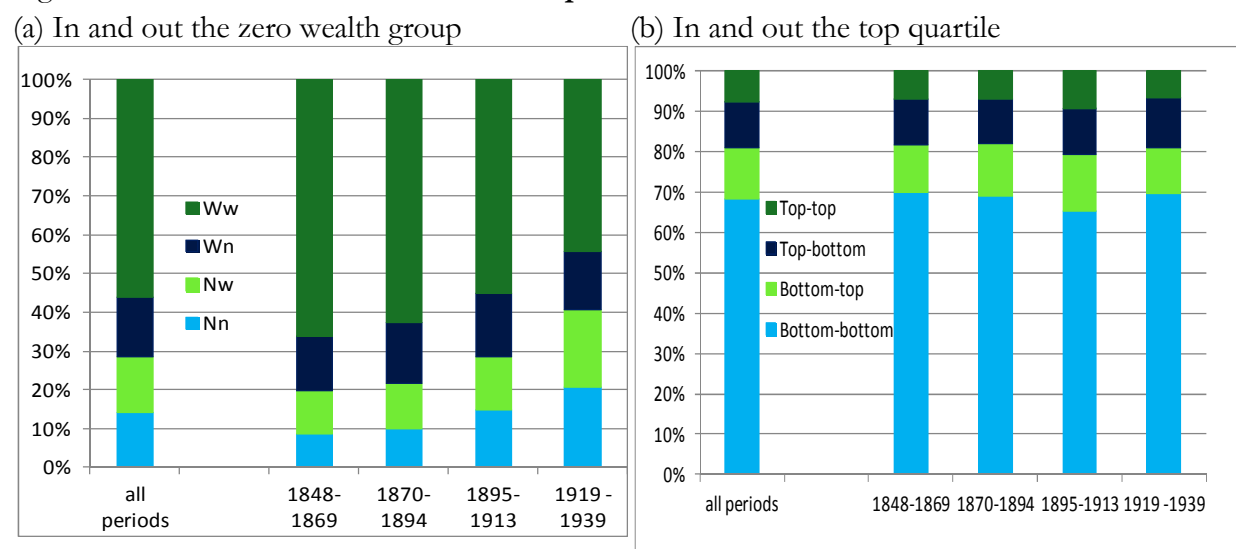
Table 4b **Child's wealth (FF 1912) in the mobility matrix**

(a) 1848-1869							
\child father	0	1	2	3	4	mean wealth	% of non 0
0	0	123	926	3 096	12 995	3 305	57,0
1	0	242	1 000	3 151	11 609	2 556	75,0
2	0	279	927	3 038	10 820	2 763	82,0
3	0	298	1 186	3 467	8 571	3 953	86,0
4	0	151	1 274	4 104	14 059	35 532	92,0
(b) 1870-1894							
\child father	0	1	2	3	4	mean wealth	% of non 0
0	0	185	1 223	3 090	15 832	4 108	55,0
1	0	207	1 005	3 165	12 002	3 532	75,0
2	0	239	924	2 874	8 723	3 664	80,0
3	0	195	1 124	3 458	11 327	6 083	83,0
4	0	111	1 064	3 216	12 479	23 481	83,0
(c) 1895-1913							
\child father	0	1	2	3	4	mean wealth	% of non 0
0	0	243	1 078	3 088	8 800	4 387	48,0
1	0	114	1 003	2 665	11 351	4 387	70,0
2	0	217	1 105	3 170	8 545	4 355	75,0
3	0	334	1 119	3 617	9 740	6 615	81,0
4	0	87	1 301	3 220	15 315	28 393	83,0
(d) 1919-1939							
\child father	0	1	2	3	4	mean wealth	% of non 0
0	0	259	1 207	3 242	8 513	3 226	49,0
1	0	142	836	3 342	8 440	2 599	67,0
2	0	210	870	2 972	12 177	3 183	70,0
3	0	224	1 327	3 651	8 521	3 329	76,0
4	0	339	1 208	3 247	11 731	10 052	82,0

A powerful graphic way of representing those matrices is to focus on the two extremes, and draw the movements in and out zero wealth (the pairs of children and fathers without any asset, in the "00" cell, at the top left of the matrix) and at the other extreme, the movements in and out the top quartile (the pairs of children and fathers who are both in the top quartile of the wealth distribution, the "44" cell at the bottom right of the matrix). Below we define each four possible combinations by two letters : capital letters stand for the father; small letter for the child. W: the father has a positive wealth; N the father (child) has no wealth. Note that, by using these four groups, we neglect the movements in the inner cells of the matrices. Figure 4 shows that the share of the father and child pairs who both own some assets decreases over time from 66% in 1848-1869 to 44% after WWI. In the meantime, upward mobility increases (the share of (Nw) rises from 11% to almost 20%). In the interwar, 1 out of 5 of the father-child pairs has no asset at all in both generations.

There is less action in and out the top quartile (below “bottom” and “top”). On average, 8% of the children-fathers pairs stay in the top quartile over two generations. At the turn of the century, in 1895-1913, there is more entry into the top (the share of "Bottom-top" is 13.8%) and at the same time, more persistence at the top (the share of "Top-top" is 9.4%).

Figure 4 In and out the bottom and the top of the wealth distribution



Note : Top : the father is in the top quartile. Bottom: the father is below P75. The share of Ww (father and child with both positive wealth) stands at 56% for all periods confounded and decreases from 66% in 1848-1869 to 44% in 1919-1939.

Making the distinction between families of rural and urban origin allow a finer characterization. Wealth ownership is more widespread in rural areas than in cities. The minimum price of real estate would be typically low in the countryside, where it could be a tiny plot without any building. By contrast, in cities, the minimum threshold would be a house or an entire residential building with many flats (as the purchase of one single flat will be allowed only in the 1930s and people are more likely to be renting their apartment). As a consequence, real estate ownership is more frequent in rural areas.

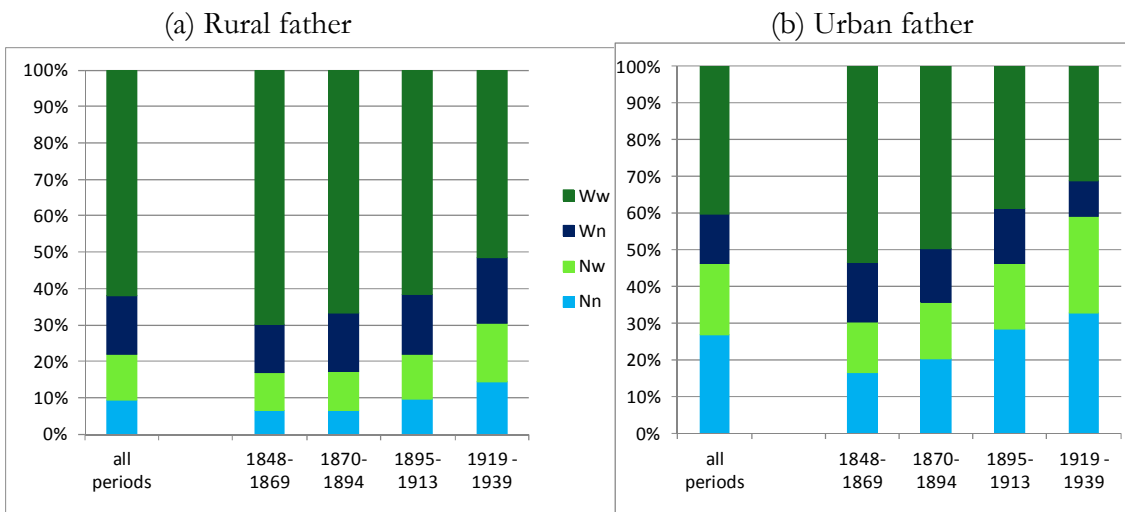
The contrast between families from rural and urban descent (here, characterized by the father's residence at the time of death) is vivid when looking at the bottom of the distribution (Figure 5). Pairs of fathers and children both endowed with assets represent 70% of families of rural origin in 1848-1869 and only half of families of urban origin. Their share decreases to half of 'rural' families and one-third of 'urban' families during the interwar. <sup>5</sup> 'Urban' families are also more likely to be without wealth at both generations (one-third of 'urban' families during the interwar, compared to 14% of 'rural' families). Cities are also a place of opportunities, where the share of those who climb up (wealth-owning children of fathers without wealth) is consistently higher than those who fall down. The divide starts as early as 1870-1894 and rises until the interwar, when ascending families represent twice the share of the descending ones. 'Rural' families, by contrast, are slightly more prone to social decline (the two groups represent 16% and 18% in the

<sup>5</sup> For simplification sake, families with a rural (resp. urban) father are called "rural" (resp. urban) families. Of course, the place of residence of the father at the time of death is an approximation of the place where he spent most of his life; and children are likely to move out. As a result, children of rural family can be living in cities..

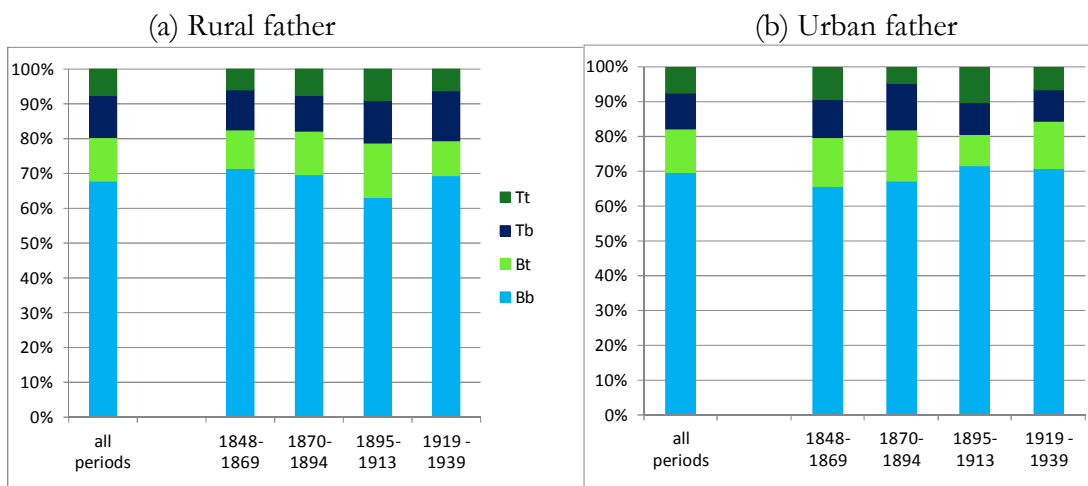
interwar).

Differences between rural and urban origins are less marked at the top of the distribution. It is rather a matter of chronology. The odds of climbing up (from bottom to top) are higher for urban families in 1848-1869 and again in the interwar and for families of rural descent in 1895-1913. Note that being of rural descent does not mean that the children themselves also live in rural areas. Rather, this characteristic could be a proxy of the likelihood of having inherited real estate. The differing chances of intergenerational mobility between rural and urban families could then be related to the composition of wealth.

**Figure 5. Rural vs Urban fathers : in and out the bottom of the distribution**



**Figure 6. Rural vs Urban fathers : in and out the top quartile**



## 4. Wealth composition and transmission

Until now we have considered wealth as a homogeneous entity and computed the intergenerational elasticity (IGE) as an aggregate indicator that summarizes the whole mobility process. In doing so, we have shown that wealth mobility is not the same at the bottom and at the top of the wealth distribution and between cities and rural areas. That latter difference might be related to the composition of wealth, to which we turn now.

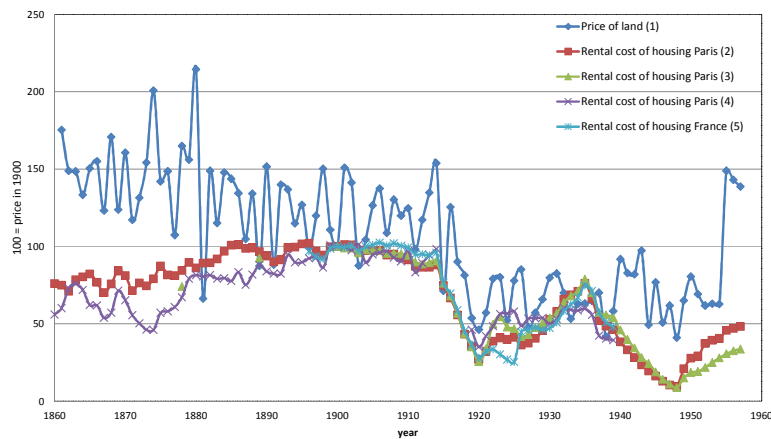
Inherited assets composition might impact wealth mobility in two ways, at the extensive margin, on the probability of holding an asset, and at the intensive margin, on the total amount. Indeed, the degree of liquidity differs by types of assets, some being more easily sold, or more easily accepted as collateral than others. Conversely, certain types of assets—such as a farm or a shop—may lock its owner in a given place and a specific job.

Assets can be characterized in many ways. Without getting into too much detail, we limit ourselves to only two types: financial assets and real estate. Let us start by the latter, the one most often held. Hence we study the impact of a father's real estate on the child's probability of being a wealth owner and on the amount of wealth he owns.

### 4.1 Wealth accumulation with or without inherited real estate

Individual wealth is an aggregate of many different elements. They are valued, monetized, and added into a simple sum. Relying on such a unique metric, one can consider the price as a perfect indicator of all characteristics of a given asset: in this case, the market value is the only useful information. This standard practice has serious limitations. Indeed, different forms of assets—say cows, a small house, rags, treasury bonds, a life insurance, a shoemaker shop...—do have different properties and specific characteristics. It can thus be argued that even two fields with the same size and the same kind of crop will be different according to specific properties of soil, previous agricultural investment, prevailing wind direction, and so on so forth. Rather, let us consider the interaction of those two dimensions.

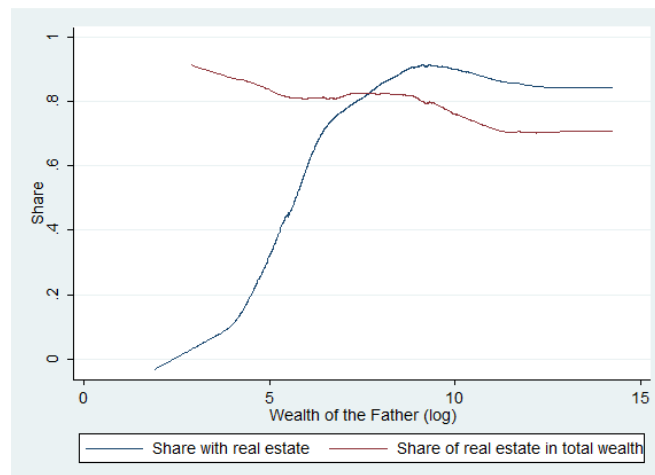
To do so, we have to agglomerate assets into groups pertaining to their similarities. The most obvious choice is to contrast realty and personalty. There are three reasons to choose those two types of assets. Firstly, even though both groups are heterogeneous, there is one obvious opposition between the former and the latter which is, by definition, not mobile; beside the fact that real estate is probably more illiquid than many other assets, it is stuck to a specific place. This characteristic certainly matters here. Secondly, real estate can be an investment (it can be bought as savings) but more often than not it is an asset hold to be used (whether for production or, in the case of a house, for its own intrinsic characteristics). In that sense, contrasting realty and personalty may be considered as a proxy for contrasting assets that are bought only as savings and assets bought for their own usefulness. Thirdly, and this is a key point here, we consider an historical setting where prices of real estate did vary a lot, and not in the same direction as other assets (Figure 7).

Figure 7 Evolution of land prices and rental housing cost (100=1900)<sup>6</sup>

Then, the composition of wealth must matter as the relative prices of different assets evolve over time. But that composition is of course also related to assets' value. Let's consider first real estate. As can be seen on Figure 8, the possession of some real estate is clearly linked with the amount of wealth owned. More than two-thirds of fathers in the bottom wealth quartile have no real estate; it is the case for less than a fifth of fathers in the third quartile and a tiny twelfth for fathers in the top quartile. The relation is thus far from being linear: owning real estate is the exception at the bottom of wealth distribution, the norm at the top, and in between the share of real estate owners rises with the amount of wealth. Hence, real estate appears to set two worlds apart: people who hold a small buffer stock and people who are really able to accumulate wealth.

On the contrary, for those who own some land or a house, the share of real estate value in the total amount of wealth varies little at any point of the distribution. The majority of people hold around 80% of their wealth in real estate - except those at the very top, who diversify out of real estate.

Figure 8 Wealth owners with real estate and share of real estate in their total wealth



Note: the blue curve is the share of wealth owners who hold some real estate in total (fathers) population. The red curve is the share of real estate in the total amount of their wealth.

<sup>6</sup> The Price of land (1) is from Lévy-Leboyer (1972). For the rental cost of housing we rely on several, partly overlapping, series : 2, Marnata, (1961) (*Loyers bourgeois parisiens*) ; 3, Insee, 1966 p. 404 (*Loyer des locaux d'habitation à Paris*); 4, Duon (1943) (*valeur vénale des immeubles parisiens*); 5, Villa (xx) (*Loyers France*).



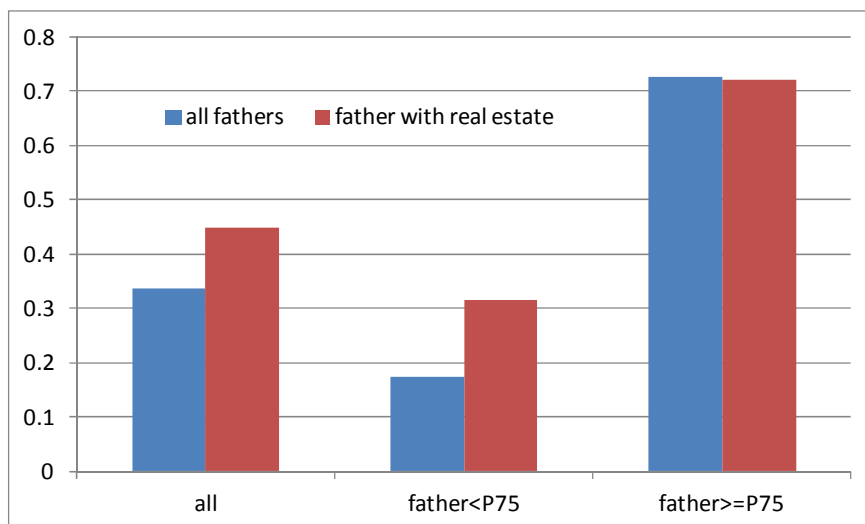
To sum up, the possession of real estate is increasing with wealth – except at the top – while the share of real estate in total wealth (for those who own real estate) is rather flat and even slightly decreasing with total wealth. When people have some real estate, it represents the large majority of their wealth (the percentage of realty increases quickly up to a point where individuals are rich enough to diversify towards other types of assets).

These two phenomena (seen on Figure 8) could be related to barriers to entry. There is indeed some fixed cost involved in purchasing real estate. This entry cost could explain why the share of real estate holders increases with wealth and remains flat for the wealthiest. It should be noted, however, that this fixed cost varies a lot among places (and probably over time also). In the countryside, the price of land is lower and it is easier to get a small patch of land. Land and houses in cities are more expensive, both per se and as a result of a larger size. To make things easier, we consider three different areas: rural, small cities (less than 10,000 inhabitants), and large cities and Paris.

But before entering into spatial and chronological distinctions, we can forego these distinctions and consider the impact of owning real estate in general. Let us first take the whole subset of children who inherited some wealth from their father but died without any (the  $W_n$ ) and see if they had inherited some real estate or not, regardless of the period and of spatial background. For a given level of wealth, when a father had no real estate, his child is more likely to end up with zero wealth.

Having real estate is better for accumulating wealth as it protects children from being completely without wealth. But does the conclusion holds if we consider the amount of accumulated wealth? Does real estate helps maintain the level of wealth of the child? As shown on Figure 9, the answer is positive. The elasticity is higher for those whose father owns some of his wealth in the form of real estate. So they are more likely to reproduce their father's wealth. But, again, the effect matters only in the bottom of the distribution, that is for the bottom three quartiles.

Figure 9 IGE depending on father's real estate



note: the bars compare children of all fathers with wealth of any type and children of fathers with wealth partly in the form of real estate.

Overall, the children whose father owns some real estate at the time of his death end up better

off than those whose father owns none. Firstly, they will more often have an asset than none. Secondly, they have less difficulties to maintain the value of their inherited assets (the IGE is higher for them). Thirdly, the value of their assets is higher, both on average and in median; and this remains true if we exclude the last quartile.

#### 4.2 A blessing or a curse? Inherited real estate here or there

Yet, these general results are not always warranted. We mentioned earlier the difficult decades of the late 19th century for the agricultural sector and, in these same decades, part of the urban population suffered because many small towns stagnated or waned. As large towns grew faster than smaller ones during all the period under survey, the gap widened between those two components of the urban population in the late 19th and early 20th century. And as their decline became cumulative at the turn of the century, real estate prices plummeted in small towns.<sup>7</sup>

We can measure the impact of falling prices of real estate on individual wealth by contrasting lean years and fat years. For the agricultural sector, the Second Empire was indeed a period of fat years. Lean years are more difficult to capture because the fall of land prices during the last quarter of the 19th century was unequally dramatic, lasted more or less and was followed by an uneven recovery which was slower here than there. Thus instead of disaggregating our results into the periods we distinguished heretofore (1848-70, 1871-94, 1895-1913, 1919-39), for the sake of simplicity, we now contrast only three periods: the heyday of the Second Empire, the long agricultural crisis and its aftermath, and the ups and downs of the inter-war period.

In brief, we contrast three periods—booms and busts—and three areas—rural, small towns, and large towns— so as to capture the varying fortune of inherited real estate. As Table 5 shows, not only real estate no longer helps maintain the level of wealth of the child during the late 19th and early 20th century but it has a negative impact on the wealth of those who inherited this type of asset. In 1870-1913, contrasting two children whose fathers lived in the countryside and have approximately the same wealth, the one who received real estate will be significantly poorer than the one who received none of it. And the magnitude of the effect is far from being negligible: take two fathers with around 1,200 francs (the average wealth of a father in the bottom three quartiles in that period). The child whose father has no real estate will end up with 3,500 francs. His counterpart, who received real estate, will have around 2,400 francs, or almost a third less.

Table 5 Intergenerational wealth mobility and real estate ownership

	1848-1869			1870-1913			1919-1940		
	Rural	Small towns	Large towns (and Paris)	Rural	Small towns	Large towns (and Paris)	Rural	Small towns	Large towns (and Paris)
father wealth	0.270*** [0.066]	0.423*** [0.112]	0.537*** [0.178]	0.346*** [0.038]	0.466*** [0.099]	0.497*** [0.074]	0.315*** [0.056]	0.364** [0.156]	0.371*** [0.067]
father had real estate	0.141 [0.224]	0.067 [0.567]	0.424 [0.947]	-0.379** [0.155]	-1.187*** [0.373]	-0.508 [0.349]	-0.243 [0.205]	-0.549 [0.530]	-0.268 [0.353]
constant	5.300*** [0.427]	4.700*** [0.931]	4.491*** [1.634]	5.459*** [0.253]	4.964*** [0.693]	4.417*** [0.633]	5.411*** [0.414]	5.357*** [1.219]	5.335*** [0.686]
R <sup>2</sup>	0.13	0.26	0.36	0.11	0.16	0.3	0.17	0.15	0.41
N	466	61	41	1,086	157	117	372	62	72

<sup>7</sup> Dupâquier et al, 1988, p. 205.

We can push the argument one step further. Those who inherited real estate could keep it or sell it. The result was of course different and our data allows us to track it because French law (in the default community property regime) treats marriage as a partnership. Any asset that is brought at marriage or inherited by a spouse belongs to him or her and any personal asset that is sold becomes a loan to the community till death part the couple. When the first spouse dies, the community ‘dissolves’ and the individual estate is estimated as the individual’s assets that have remained unsold at time of death, plus those that were sold plus half the net community property. We can thus identify who kept and who sold inherited real estate, at least for a subsample (individuals who were married and who died first).

The result is striking (Table 6): those who were more prone to keep family property died much poorer than those who sold all or part of their real estate. And this is true for all level of wealth. Within a given wealth quartile—that is approximately for the same level of wealth—, those who keep all their inheritance are clearly disadvantaged. This strongly suggests that the composition of the inherited wealth matters. It might be because people get stuck with a type of assets that is either of low value or hard to sell, or it might be because they inherit a relationship with wealth that make them keeping on investing on useless assets.

But, again, both elements—the value of inherited wealth and its composition—are linked. The poorer was the father the less likely are his children to sell their inheritance. This may be because a small amount of wealth limits other opportunity to invest. And there is a marked difference between those whose father belong to the last quartile and the rest of the population with the former much more likely to sell part of the inheritance. This might be linked to the fact that these people inherit a more diversified portfolio and keep on diversifying and investing it.

Table 6 **Keeping or selling inherited real estate**

	children who sold part of their inheritance (%)	Child median wealth kept all their inheritance	Child median wealth sold all or part of it
P1-P24	30.7	1118	3486
P25-P49	34.1	1200	2221
P50-P74	33.3	2426	4068
P75-P100	51.3	4792	9914

#### 4.3 Maintaining wealth with inherited financial assets

As is well known, in France as in other West European countries, the diffusion of financial assets progressively reshaped individual portfolios during the second part of the 19th century and the beginning of the 20th century. To which extent and how large was the social basis of this new kind of wealth? Not surprisingly these questions were hotly debated at the time and, at the turn of the century, it was trendy to praise the “dissemination” of financial assets among “millions of small-scale savers” (Neymarck, 1904).

On the one hand, this vision was clearly overoptimistic: if we rely on our sample, during the decade preceding WWI, only one adult out of two had wealth and no more than one out six owned financial assets.<sup>8</sup> Moreover the bulk of financial assets was in the hands of the wealthier part of the population—mostly in the upper quartile of those who owned wealth. In terms of distribution, financial assets are thus close to being the opposite of real estate. The latter are relatively common (among those who have any assets) and they represent a large (and relatively constant) share of the wealth for those who own any real estate. Financial assets are more concentrated, possessed only by a small groups among wealth owners and they represent a small share of their total wealth, except at the very top.

On the other hand, this optimist view was well in tune with the high yields of these new assets during the heydays of the financial modernization which culminated with the Belle époque. In such a context, it is not surprising that individuals who died before WWI and whose father owned financial assets were significantly wealthier than other decedents.<sup>9</sup>

But the situation changed after 1914. During the inter-war period, if the financial portfolios of the wealthiest were to some extent protected because they were very diversified and sophisticatedly mixed equity, private bonds and all sorts of government bonds, it was not the case of the majority who typically owned the type of assets that suffered most from inflation (e.g. French public bonds) and expropriation (e.g. Russian bonds). So what are the effects of these historical evolutions on accumulated wealth? In other words, do the relative changes in the value of financial assets over time translate through inheritance?

Precisely so (Table 7). Before WW1, there is a significant advantage (in terms of total wealth at death) to have received any financial assets, all else controlled for (and with equal wealth). In the interwar period, this advantage persists but is much smaller and not significant (although our sample is smaller). In this new context, it inheriting financial assets had no longer a significant positive impact on the amount of wealth of the decedent.

**Table 7 Father's financial assets and final wealth**

	all periods	1870-1913	1919-1939
Father wealth	0.308*** [0.027]	0.307*** [0.038]	0.283*** [0.043]
Father has any financial asset	0.517*** [0.137]	0.767*** [0.202]	0,307 [0.191]
_cons	5.208*** [0.240]	5.403*** [0.301]	5.501*** [0.369]
R <sup>2</sup>	0,17	0,17	0,19
N	1,306	702	440

<sup>8</sup> Remember however that the gap between our results and Neymark's conclusion may not be as wide as it seems since Neymark considers the portfolio of the livings while our data describe individual wealth at death and, as such, capture a trend with a time lag. This difference between the living and the dead likely shank in the interwar period (the proportion of wealthy decedents of our sample who died with financial assets was then close to one third).

<sup>9</sup> Note that, despite several severe shocks, the diffusion of financial assets followed a steady trend until WWI. For the sake of simplicity, here again, instead of presenting separately the result for years 1870-1895 and for the years 1896-1914 we aggregate the two periods.

## 5 Conclusion

We examine intergenerational wealth mobility between fathers and children—sons or daughters—in France between 1825 and 1939. Considering wealth mobility entails some striking differences with income. Wealth is both more concentrated and less mobile, in part because it is very unevenly distributed. The results we obtain for the population as a whole confirm previous works (e.g. Piketty, 2014). We show that mobility varies depending on the economic conditions. It is higher in periods of recession and lower during periods of growth. This result however is blurred if one considers mobility as an homogenous phenomenon. We show that intergenerational mobility does not work the same way at different levels of the wealth distribution (the non zero asset owners; the three first quartiles among the wealthy; and the top quartile).

Taking into account this heterogeneity of wealth mobility leads to new results. First, mobility is high below the third quartile of wealth. This pattern is a permanent feature of the French society. Changes in global mobility are mainly driven by what happens in the last quartile, where economic growth has the strongest impact. This second result should not obliterate that we observe significant interquartile mobility changes during recession periods. A fourth remarkable stylized fact is that a small but significant and stable fraction of individuals whose fathers had nothing die with a level of wealth that bring them upward and even among the wealthiest. By their very existence they become rich enough to pull the mean wealth of those having a zero wealth father above the mean wealth of any of the three first quartiles.

To understand wealth mobility one additional step is needed. Instead of only focusing on the amount of wealth, its composition matters. This may seem counterintuitive from an economic point of view, as between the moment an individual received the wealth of his father and the moment he dies, he had plenty of time to reshuffle his portfolio. Here we focus on two types of assets, real estate and financial assets. They mostly belong to two distinct: the core group of the rural population for the former; the top quartile of the wealthy (predominantly urban) for the latter. In both cases, the composition of the inherited wealth weight – whether up or down – on their future. Analyzing that composition opens new paths for the understanding of mobility.

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