

Inheritance and Marriage in Paris, an Estimation of Homogamy (1872-1912)

Master thesis

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Abstract

The motivation of this master thesis is to measure the extent of inheritance-based homogamy in Paris during the second half of the 19th century. We use Parisian tax archives, containing inheritance data about the first decedent of married couples. The main challenge is to estimate the surviving spouse's inheritance. Such estimation will be done based on the following assumption: two married individuals spend the same share of their inheritance during their marriage. We find a very high degree of homogamy, especially in the highest fractiles. For example we find that women from the top 1% of the inherited wealth distribution of women are on average 27 times more likely than women from the bottom 99% to mate with a top 1% husband of the inherited wealth distribution of men. Comparing with current risk ratios and assuming that our results on Paris hold for the whole country, it seems that inheritance-based homogamy for the top 5% was divided by more than two between the end of the 19th century and the beginning of the 21st.

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Contents

Contents	2
1 Introduction	3
2 Historical and Legislative Background	6
2.1 The Franco-Prussian War	6
2.2 Matrimonial Usages in the 19th century	7
2.3 Matrimonial Regimes and Inheritance Legislation	9
3 Data	10
3.1 Estate Tax Data and Sample Choice	10
3.2 Estate Division Rules	12
3.3 Some Descriptive Statistics	13
4 Estimation of the Second Spouse's Inheritance	15
4.1 Average Estimation	16
4.2 Quantiles Estimation	17
4.3 Men and Women Inheritance	18
5 Results on Homogamy	21
5.1 Marriage Mobility	21
5.2 Correlations	23
5.3 Contingency Tables	24
5.4 Probabilities and Risk Ratios	28
6 Conclusion	31
References	34
7 Appendix	37

1 Introduction

In *Le Contrat de Mariage*¹ by Balzac, a young man with a huge inheritance marries a young woman who is supposed to have inherited a lot as well. However, the groom is fooled by the bride and her mother who had already spent all their inherited wealth, and needed more money. Five years after the wedding, he is ruined. This 19th century novel illustrates how marriage can be a crucial tool for social and economic strategic behaviours. More than a simple celebration of love, marriage can act as a strategic move for wealth preservation but also as the result of unconscious social mechanisms. If the latter tends to dominate today, it was common during the 19th century to organize obvious marital strategies for economic purposes.

Marriage is intrinsically linked to property. Unions between individuals of similar wealth affect societies wealth repartition. Homogamy is an indicator of social stratifications rigidity: the more individuals marry people from different groups, the greater the probability of high social mobility. Such interaction between assortative mating and inequality is worth of interest and was not left aside by economic research (Bavel, Peeters, & Matthijs, 1998; Dribe & Lundh, 2010). Specifically, the history of homogamy based on inheritance has to be put in perspective with the evolution of wealth inequality. Indeed, the annual inheritance flow was about 20-25% of national income between 1820 and 1910 before decreasing during the 20th century (Piketty, 2011). The question of marriages between inheritors at that time appears as a legitimate research question in the framework of intergenerational transmission of inequality.

This subject is also linked to several dimensions of marriage literature. First, homogamy is related to the analysis of marriage market. Indeed, Lafortune (2013) presents a model in which individuals maximize their utility to determine their pre-marital investments. She then assumes that such pre-marital investments are educational. The specificity of inher-

¹1835

itance is that individuals can not invest to increase its level. It is given by the wealth of parents, the number of siblings and the inheritance rules. We are not in a frame in which individuals are able to maximize their utility to know which amount of inheritance they should invest in. Inheritance is very different from education on that sense, it is a predefined parameter in the marriage market ².

We have to note that the conditions of marriage markets impact marriage mobility. If the sex ratio changes³, marriage mobility (the fact of marrying someone from a higher or a lower category) is very likely to be unbalanced across gender (Abramitzky, Delavande, & Vasconcelos, 2009). Marriage market conditions can also affect pre and post marital investments (Lafortune, 2013).

Homogamy has been studied in very different contexts and with different definitions. A lot of studies focus on education-based homogamy and homogamy in terms of income. For example, Birkelund and Heldal (2003) showed that homogamy based on education has decreased in the 20th century because of men educational improvement. Kalmijn (1994) compares “cultural” homogamy (education is the proxy for culture) and economic homogamy (measured with earnings) in the US at the end of the 20th century. He finds that the primer is more important than the latter. Generally, a high degree of educational homogamy has been found in developed countries.

In the French context, Forsé and Chauvel (1995) underline the fact that there is a change in homogamous behaviours since marital choices are more determined by education than by social origin. Vanderschelden (2006) also questions the evolution of socio-professional status and education-based homogamies. She shows that the higher the diploma, the more homogamy. She also states that someone with no intergenerational mobility is more likely to have no marital mobility. Bouchet-Valat (2014) asserts that educational homogamy is decreasing over time, except among graduates of elite schools. This could be explained by a general decrease in social-class identity, except at the top of the society. This idea of

²Even if it is not received at the age of marriage, future expected inheritance can be estimated by individuals.

³The sex ratio of a given marriage market is one of the main settings of the market.

“self-conservation” of elites is really relevant in the context of the 19th century in which our research takes place. We note that assortative mating time evolutions and comparisons between different kinds of homogamy are clearly a subject of interest for scholars.

However, there are less studies focusing on wealth or inheritance to estimate assortative mating than those using income and education. Charles, Hurst, and Killewald (2011) study homogamy based on parental wealth in the US (they find a 0,4 correlation in parental wealth among married individuals). In France, Fremeaux (2015) compares marital sorting on inheritance and on labour income. He finds that both dimensions are not substitutable, and that homogamy is stronger when it comes to inherited wealth (his correlation is 0,25). The results are more important for wealthiest inheritors compared to poorer ones. Taking logarithmic values as these two articles do, the simple correlation we find here is 0,7. But we will prefer the analysis using risk ratios. French marital sorting based on inheritance has never been studied in the period of the end of the 19th century and the beginning of the 20th because of lack of data. In that sense, the present master thesis gives interesting results for long run comparisons.

The motivation of this master thesis is to allow such comparisons by measuring the extent of inheritance-based homogamy in an historical specific context. Our data is taken from Parisian tax archives about married individuals who died in Paris in 1872, 1882 or 1912. The studied couples thus lived essentially during the second half of the 19th century. These archives data are not exhaustive, we need to estimate one important variable. We have the amount of the inheritance of the first spouse to die, but not that of the surviving spouse. However, with the “community of acquisition” marital property regime, we know how much inherited assets were sold and spent during the marriage for each spouse. The estimation of the second spouse’s inheritance will rely on the following assumption: two married individuals spend the same share of their inheritance for the community during their marriage.

We first propound some historical and legislative basis on the French 19th century, secondly

we explain the data, in a third part we show how the second spouse inheritance was estimated, in the fourth part we present the results on homogamy and eventually we conclude and discuss the analysis.

2 Historical and Legislative Background

Before starting the estimations, it is necessary to recall some points about demographic shocks, matrimonial usages, matrimonial regimes, and inheritance legislation in the 19th century.

2.1 The Franco-Prussian War

We first want to explain quickly why the Franco-prussian war of 1870 is not likely to bias our homogamy estimation. It could indeed represent a demographic shock that changes the sex ratio of the marriage market, and thus marriage mobility. Abramitzky et al. (2009) study how the huge demographic shock induced by World War I affected marriages outcomes. One of their main results is that there were more single women and the probability for men to marry down decreased. The change in the sex ratio can also impact other variables, like women working behaviour (Gay, 2017).

It is legitimate to wonder if the same issue applies here. We can question the existence of such event able to strongly affect the results. The years for which we have tax data are 1872, 1882 and 1912. From July 1870 to January 1871, the war between France and Prussia occurred, killing 139 000 French men. Forty four years later, World War I started, and killed in total more than 1,5 millions of French men. The intensity of the demographic shock between these two wars is significantly different.

We may doubt that the same results than Abramitzky's would be found after the 1870 War. First, this event is not likely to affect the marriage conditions of individuals who died in

1872 because most of them were already married at the time of the war. Then, the average age of 1912 decedent in 1870 was 11 ⁴. The marriage market they faced is not likely to be affected either since boys did not go to the front. However, decedents of 1882 might be. As we do not have the data before the 1870 War, we are not able to check this statement and to compare marriage mobility for 1882 decedents to the one preceding the 1870 war. Yet, we do not find big differences between the likelihood for men and the one for women to marry down on our three years. Moreover, there is no anomalous results for the 1882 data. We can reasonably expect that there is no bias due to the Prussian war of 1870.

Let us precise that the point of our analysis is not so much to focus on the effect of the conditions of the marriage market, but, taking these conditions as given, rather to see to what extent individuals tend to marry people with similar inheritance level.

2.2 Matrimonial Usages in the 19th century

As raised in Introduction, the marriages of the 19th century were somewhat more centered on the economic transaction than on spouses affinity. Portalis⁵ expressed his worry that not enough importance is given to « la conformité des goûts et des inclinations, de la solidité des principes et de la délicatesse des sentiments des futurs conjoints » ⁶ because only matter « les calculs pécuniaires et les satisfactions de la vanité» ⁷ (Daumard, 1990). The wedding ceremony can be really codified, especially in the bourgeoisie. In such social class, marriage is almost a business conducted by the families of the spouses. More generally, the 19th century marriage is always a matter of money and wealth (Daumard, 1990). A union between two rich individuals is a way to preserve a high familial status, a noble name, some lands, . . . Despite the domination of economic arrangements, unions appeared to be quite stable. Indeed, divorces are rare, marriage is a strong institution in the French society of the 19th

⁴The average age at death for 1912 decedent in 53 years old.

⁵Portalis, Jean-Marie, "L'homme et la société", *Mémoire de l'Académie des Sciences morales*, t. VII, p.672

⁶How the future spouses like each other, what they share in terms of tastes and preferences.

⁷Monetary calculations and vanity satisfaction.

century. Divorced decedents represent only 72 individuals in our sample (less than 0,5%), before dropping the non-married decedents. This can be explained by the prohibition of divorce that lasted a long time. Also, social and religious pressures did not encourage it. Divorce became possible in 1790 with the emergence of civil marriage. Marriage was not only a religious sacrament anymore but also a lay civil contract thereby escaping the Church jurisdiction. From that moment, the civil union occurred most of times before the religious wedding. Yet, divorce was abrogated in 1816 after the end of the Napoleonian Empire, and was finally allowed again in 1884 during the Third Republic.

The conscious and explicit family moves to get the best bride or groom could take different forms. First, they could search "outside of the family" people. A way to do so was to organize specific events where children could meet only wealthy suitors. "Entrevues"⁸ were organized, balls, "salons". In the bourgeoisie families, especially in Paris, it was common to organize regular meetings in the familial house with people from the same social sphere, called "salons". In province as in Paris, many events between young girls and young men were organized. (Daumard, 1990).

Moreover, strategies within the family used to be set as well. Having a small number of children was a way to avoid inheritance to be spread between siblings and to hope for a better marriage for the only inheritor. Also, marriages between cousins were really common, it was an efficient way to keep heritage in the family.

Some inheritance of these traditions can be found today despite the disappearance of the direct and formalized control of parents. There are indeed similar behaviours, with "rallyes"⁹ for example (Wagner, 2008). Marriages between cousins are still used as well, like in the Rothschild family (Pinçon & Pinçon-Charlot, 2000). And even if there is less conscious strategy, as mentioned before, some works (Charles, Hurst, and Killewald (2013); Bozon and Héran (1988)) suggest that there is not much hazard in the places spouses meet. Social

⁸Organized meeting between two young people.

⁹Codified parties with high school children from very high social category.

preselection happens in daily life places thereby encouraging homogamy.

Due to the existence of conscious strategies in the French bourgeoisie and aristocracy of the 19th century, we can reasonably expect a high degree of assortative mating for the couples with most inheritance.

2.3 Matrimonial Regimes and Inheritance Legislation

It is important to present the different matrimonial regimes since our study will focus on the spouses married under the “community of acquisition” regime. This regime is the default matrimonial property regime from 1804 to 1965. As it is applied in absence of marriage contract, it is the most common one. The other possibility would be to write a marriage contract. The two opposite extremes are, on one hand a “complete separation of property” (all inherited and acquired assets are separate property) which is more and more popular. On the other hand “universal community of property” can be chosen (there is no separate property, all inherited or acquired assets are community property), but it is still very rare. With these two regimes, we would have not been able to estimate spouses inherited assets and thus to measure inheritance-based homogamy. Fortunately, most of our sample are decedents married under the default regime.

In France, the basic transmission rules are unchanged since 1804. We can distinguish two parts in a dead person’s wealth. First, the “réserve héréditaire”. $\frac{n}{n+1}$ (n being the number of children) is the share that the individual is forced to give to his/her children. Then, the “quotité disponible”: the individual can transmit $\frac{1}{n+1}$ of his/her wealth to who he/she wants. For example, if a father has three kids (n=3), he freely disposes of 25% his wealth, and the other 75% are equally divided among children.

Since 1789, gender equality in terms of inheritance rights is established with the introduction of gender neutrality in estate laws. However, this principle of gender equality was not applied

in daily life. Indeed, the surviving spouse (the wife in most cases) is not an heir until the end of the 19th century, and the administration of all assets (community assets and both spouses separate assets) was decided by the husband. Fremeaux and Leturcq (2013) study the evolution of prenuptial agreements, matrimonial property regimes and dowries in France (1855-2010). They underline the fact that matrimonial property regimes can heavily affect the bargaining power of spouses in the marriage in terms of wealth. For example, being under a community regime affects the distribution of wealth between spouses while married, but also in case of death or divorce. One of their results that regards our timeline is that until the 1880's, the general trend was that marriage contracts and dowries were widespread, and from the 1880's to World War I, they observe a decrease of marriage contracts and an increase in the value of dowries.

It is important to keep in mind that it is in this general context, and more precisely in Paris¹⁰, that the decedents studied here got married.

3 Data

The main difficulty in Economic History is the quality of the data. Here, we use the very precise French estate data, already used by Piketty, Postel-Vinay, and Rosenthal (2011). We have a micro level inheritance data base collected from individual estate tax records in Paris between 1872 and 1912.

3.1 Estate Tax Data and Sample Choice

Since 1791, a universal estate tax has remained in France. It applied to every type of assets (real estate or financial assets), no matter the form under which it was received (bequest or inter-vivo gifts) and to every type of owner, with no minimum amount of wealth. Individuals

¹⁰Individuals from tax data died in Paris, they are likely to have lived there.

had to fill a return, and since the tax rates were quite small until World War I, they had no incentive to cheat. Such tax thus leads to great data that could be found in the Parisian archives, about individuals who died in Paris.

This tax data was already used until 1937 (Piketty et al., 2011). We choose to stop here in 1912 in order to focus on a “safe” timeline in terms of inflation. Indeed, before World War I, the difference between the nominative value of assets reported in the archives and their real value¹¹ is negligible since inflation was very low.

So, for the years 1872, 1882 and 1912, we have for each decedent¹² information about age (at death), sex, marital status, net estate, . . . This is a sample of about 90 000 individuals. We restrict this sample to the subsample for which detailed portfolio informations were collected. We have indeed details on the composition of inherited assets (the amount of real estate, of financial assets, the type of financial bond etc) and community assets (opposed to separate assets in a marriage). The sample is stratified: we have 100% of the wealthiest 2%, 50% of the next 4%, 25% of the next 10% and 25% of the rest of the population, We also exclude all individuals with another marital status than “married” at the time of death. That is to say that all the individuals of our sample are the first spouse to die in the couple. Moreover, we keep only the individuals that were married under the community-of-acquisition default matrimonial regime. So all the individuals with null community assets are dropped. However, we notice that we have quasi no decedent with positive community assets in the highest wealth fractiles¹³. We exclude richest individuals, for which we could expect a higher assortative mating than in the rest of the distribution, following part 2.2 and some previous works (Fremeaux, 2015; Zhu & Pasteau, 2017). The results found in this thesis are thus likely to underestimate the total level of homogamy. Our final sample is composed of 3112 decedents.

¹¹Adjusted with respect to inflation.

¹²That died on one of these three year in Paris.

¹³Piketty et al. (2011) show it in the table B13 of their data appendix.

3.2 Estate Division Rules

Under the matrimonial regime of community of acquisition, the net wealth of a married couple (M_{ij}) can be separated in three parts. First, the community part (C_{ij}), "biens de communauté", *ie* all assets acquired after the marriage minus liabilities. Community assets belong to both spouses equally, irrespectively of whose income was used to acquire them. Then, the two other parts are the separate property of each spouse, "biens propres", *ie* the bequest or inter-vivo gifts received before and while married (S_i for spouse i and S_j for spouse j).

$$M_{ij} = C_{ij} + S_i + S_j$$

Piketty et al. (2011) underline the fact that, theoretically, separate property also include assets that were acquired, and not inherited, by the spouse before the marriage. However, most people were getting married very early at the time and divorced rarely, so they state that the non-inherited part of separate property is bound to be very small.

An important point regards portfolio reallocations. If one of the spouses (or both) receive some assets (from bequests or inter-vivo gifts) and decide to sell them during the marriage to buy community assets, it has to be reported. In the tax report, we thus have the separate assets S_i of the first spouse to die in the couple (individual i), the community assets C_{ij} and the "reimbursement" R_i and R_j which are the inherited assets which were sold and contributed to the community during the marriage. They have to be "reimbursed" by the community to each spouse. The estate value of the spouse i is thus (and symmetrically for j) :

$$E_i = (C_{ij} - R_i - R_j)/2 + S_i + R_i$$

What matters here to estimate the degree of assortative mating is to have the total inheritance of both spouses, *ie*: $H_i = S_i + R_i$ and $H_j = S_j + R_j$. In the collected data, we have information about the decedent (the first spouse to die), S_i and R_i . We have also information about the community, C_{ij} , and we have R_j as well (the reimbursement owed by

the community to the spouse who did not die). We do not have the separate assets of the other spouse j , who is still alive at the time of the death of i . We have no idea of when and where he or she¹⁴ died. It would be very complicated and costly to look for their tax estate archives. R_j is thus the only information we have about the remaining spouse's inheritance.

We have to precise that separate estate can be decomposed in two parts: separate assets and dowries¹⁵. Dowries correspond to inter-vivo gifts made to the children (of both sex) at the time of marriage. Gifts to children can also occur at other times in life. We have information about the gifts which were paid out of the decedent's separate assets in the tax data. Once again, we do not have it for the surviving spouse. As dowries were inheritance at first, we do not need to estimate it separately since we need total inheritance of both spouses.

Our main challenge is thus to estimate the value of the separate estate of the remaining spouse (S_j) to have his or her total inheritance and to estimate the degree of homogamy. We will detail the estimation chosen in the next part.

3.3 Some Descriptive Statistics

Among our 3112 decedents, 41% have no inheritance¹⁶ (inheritance = separate estate + net reimbursement). 34% of the decedents are women. This share is stable across the distribution. The average age of death of our sample is 52 years old (missing data for 20% of the sample). The average inheritance is about 46 000 francs. All the means calculated are weighted since the sample is stratified.

In Table 1¹⁷, we do not notice important differences between men and women regarding the composition of inherited separate assets. For example, for both men and women, financial

¹⁴It is more often the wife who dies last.

¹⁵Called "dot" in French.

¹⁶After setting the negative values to zero (only 53 individuals with negative value).

¹⁷See Appendix.

assets represent a bit less than two third of total gross assets, and real estate assets a bit more than one third. The shares are also similar for equities (between 15 and 20% of total gross assets), private bonds (about 18%), cash (around 7%), furnitures (1-2%), dowries (7% for 1872 and 1882 and increased to 12% for 1912 decedent). We only see a small difference in favor of women for the share of public bonds in gross assets for decedents of 1872 and 1882.

To estimate our missing data on the surviving spouse we will use her/his net reimbursement to the community R_j . If the net reimbursement of a spouse is strictly positive, it means that the reimbursement owed by the community to the decedent is higher than the reimbursement owed by the decedent to the community. This means that inherited assets that were sold during marriage and contributed to the community are higher than "contributions". We talk about contributions when some community income or asset was used during the marriage in order to raise the value of a separate asset (for example to repair the roof of a countryside house, or to repay a business debt or invest in a business, in case these are separate assets). Taking the net value of reimbursement allow us to account only for the initial value of the inherited asset, without the value given by the community.

When we look at the descriptive statistics of net reimbursements (Table 2¹⁸), the average amounts increase as we go up in the distribution, and the percentages in function of the average separated estate decrease (because the amounts of the separated estate increase faster than net reimbursements). Unfortunately, the nature of the assets sold during marriage is not precised in the tax register, we only have their values. We are not able to say if inherited financial assets were more sold that inherited real estate for example.

We notice that, when the first decedent is the husband, the amounts of net reimbursements are somewhat higher for the surviving wife, except for the top 1%, and when the first decedent is the wife, her net reimbursement are also a bit higher than the surviving husband (except for the top 1%). This could be explained by an unbalanced bargaining

¹⁸See Appendix.

power in favor of men within the couple. As each sex had a specific role at the time, money management was more a male function, and we can suppose that the husband was more able to convince his wife to sell her inherited assets and to use the money for the family, rather than the reversed situation. Such assertion is corroborated by the law: husbands are *de facto* responsible of all spouses assets. The exception at the top of the distribution can be explained by the fact that men received a bit more inheritance on average than women when they are in the top 1%, which is actually what we observed in our data. However, the difference is noticeable but not huge, suggesting that such phenomenon had a limited extent. The inequality of bargaining power regarding the sale of inherited assets between the wife and the husband seems actually quite limited when looking at the data¹⁹.

When comparing the average net reimbursement of the decedent with the one of his/her spouse along the distribution, we notice a big similarity that could make us conjecture a high degree of assortative mating. Indeed, observing similar amounts of inherited assets sold during marriage and used for the community is a positive signal for similar amounts of total inheritance.

4 Estimation of the Second Spouse's Inheritance

As explained in the previous part, one amount is missing in order to estimate assortative mating. We have the first decedent inheritance (separate estate + net reimbursements), we also have the second spouse's reimbursements, but we need her/his separate estate.

¹⁹Piketty et al. (2011) also underline how "on average husbands and wives bring about as much inherited assets to the marriage" and that "the ability and willingness of each spouse to convince the other spouse to sell off his or her inherited assets have also been relatively symmetric over this time period" (part 4.3).

4.1 Average Estimation

One simple way to estimate the second spouse separate estate is to assume that men and women have the same proportion of reimbursements for the community in their separate estate, on average. All our results will rely on the assumption according to which the spouses spend for the community²⁰ a same share of their respective inheritance. We thus assume:

$$\frac{netreimb}{sepestate} = \frac{spounetreimb}{spousepestate}$$

With *netreimb* the net reimbursements of the first decedent, *sepestate* his/her separate estate; and symmetrically for the second spouse, *spousepestate* being the variable we want to estimate. We get easily:

$$spousepestate = spounetreimb \times \left(\frac{sepestate}{netreimb} \right)$$

The ratio $\frac{sepestate}{netreimb}$ is calculated using the average values of *sepestate* and *netreimb*. The same ratio is thus applied to all the different values of *spounetreimb*. The results of the estimation are in Table 3. The average value of the second spouse is quite reasonable : 31 602 francs while the average value of the decedent separate estate is 30 433.

However, when we look at the extremes of the distribution, the estimation is likely to be biased since we apply the same ratio to the poorest and to the richest. It is indeed what we see in Table 3 bis²¹. E.g. in the top 1% the average separate estate of the decedents is almost 2 millions of francs whereas the average separate estate of the surviving spouse (estimated) is around 500 000 francs. Such difference does not seem plausible, as well as the numbers found for the bottom 75%. That is why a more precise estimation is needed.

²⁰During the time they are married.

²¹See Appendix.

4.2 Quantiles Estimation

In a second time, we apply the same strategy but at the quantile level. We assume a reciprocity of behaviours intra-quantiles. This can be translated by saying that the surviving spouses spend the same share of their separate estate than the decedent, at the decedent quantile level of inherited estate. It is indeed likely that someone from the top 1% spends his/her inheritance during marriage in very different proportions than someone from the bottom 75% (in which most individuals do not have inheritance at all).

We divide our sample in five quantiles according to the decedent estate: the bottom 75%, the quantile 75-90, the quantile 90-95, the quantile 95-99 and finally the top 1%. We then calculate the ratio $\frac{sepestate}{netreimb}$ for the averages of the quantiles, and we multiply it with *spouestate*.

The results of the estimation are in Table 3. We can obtain easily the total inheritance of the second spouse by adding the estimated separate estate and the net reimbursements. The estimation seems quite reasonable, the gap between the estimated values and the given values of separate estate is really small. This is consistent with the reimbursements values that were very similar within quantiles in Table 2. For instance, for the top 1%, the average net reimbursement of the surviving spouse was a bit lower than the one of the decedent (264 410 francs versus 290 520). Consequently the average estimation of the surviving spouse inheritance in the top 1% is also lower than the decedent's (1 990 257 versus 2 138 681).

We notice in Table 3 bis that the numbers obtained with estimation b) are much more reasonable than those obtained with estimation a). For instance, in the bottom 75% of the decedents' distribution, the average of the surviving spouse's separate estate is 1,12 with the quantile estimation (almost equal to the decedent's separate estate) against 14 792 with the average estimation.

Once again, such similarity between the amounts of inheritance between the decedent and the surviving spouse let us reasonably expect a high degree of assortative mating. This

second way to estimate the second spouse inheritance is more convincing, especially for the extremes of the distribution. That is why our results on homogamy will be based on this “quantile estimation”.

Table 3 : Two estimations of the second spouse estate					
	Number of individuals	Average decedent separated estate (given)	Average decedent total inherited assets	Average surviving spouse separated estate (estimated)	Average surviving spouse total inherited assets
Estimation a)					
Estimation without quantiles	3 112	30 433	46 149	31 602	47 638
Estimation b)					
Bottom 75%	1976	1	7 229	1	7 507
P75-90	465	3 933	18 708	3 791	18 346
P90-95	240	40 847	80 001	39 076	80 707
P95-99	326	231 947	311 987	247 333	347 256
P99	105	1 848 161	2 138 681	1 682 064	1 990 257
All sample	3112	30 433	46 149	30 229	46 265
Note: 3112 married individuals with community assets. All averages are weighted. <i>sepestate</i> = <i>sepassets</i> + dowries. Total inheritance = separated estate + net reimbursement. All averages are in function of the decedent quantile. Inheritance<0 have been set to 0.					

4.3 Men and Women Inheritance

Once that we have the values for the decedent and the surviving spouse inheritance, we are able to generate variables for men and women inheritance. We construct the variables *sepestatewomen* and *sepestatemen* using the estimated *spouestate* and the *sepestate* (of the decedent) we already have. As we know the sex of the first decedent, we can automatically

deduce the sex of the surviving spouse. Indeed, even if the sex of the surviving spouse is not given in the data, homosexual marriage was not allowed so we can easily assume that a male decedent leads to a female surviving spouse and vice-versa.

Our variable *inheritancemen* is equal to the amount of the total inheritance of the male spouse of a married couple. It takes the value *sepestate + netreimb* (already given initially in the data) if the decedent is a male, or the value *spouestate* (the second spouse estate estimated) + *spounetreimb* (already given in the data) if the decedent is a female. We proceed symmetrically for the variable *inheritancewomen*. We clearly see in Figure 1 the similarity of the distribution of inheritance between men and women.

In Table 4²², we notice that there is a small gap between the averages of the inheritance of men and women in favor of women (around 5 000 francs). This gap is higher when using the numbers of the first estimation (“average estimation”). Four possible explanations can be raised.

First, it could be explained by the fact that women live longer than men, so they tend to inherit more. Indeed, they are more likely than their brothers (if they have some) to be alive when their parents or other family members die: they will receive a higher share.

It could also be explained by the fact that parents choose to give a bit more (from the “quotité disponible” explained in part 2) to their daughters to make them attractive on the marriage market. Since most women did not work at that time, the absence of labour earnings may have to be compensated with inheritance to make a “good marriage”.

Another interpretation links health and wealth. In 3.3, we saw that inequality in terms of bargaining power in the couple is not so important because the difference between the spouses’ net reimbursements is quite limited. This supports our estimation assumption. We notice that inheritance is on average higher for men before the estimation, when we focus on decedents. But after the estimation and the construction of our gendered inheritance variables, women tend to inherit more on average. Before estimation, the average is based

²²See Appendix.

on only one third of the women, the ones who died first. They may be the less healthy ones because they died before their husband and usually women live longer. They have a higher average inheritance after estimation ²³ because we take into account the women who live longer, who are in better health. They are more likely to be richer, to have grown up in a healthy and rich environment. We do not have results on the impact of family wealth on health in the France of the 19th century, but we can suppose that some current results (Deaton, 2002) could hold especially in a poorer and more unequal context. When the woman does not die first, her average net reimbursement is on average always twice bigger than those of the men who died second. It is also bigger than those of women who died first. Why do healthier women who live longer would spend more during their marriage than the women who died first? We can easily assume that it is because they are richer. That would explain why the average woman inheritance is bigger after estimation.

Otherwise, a simpler explanation would be that women tend to inherit more in terms of assets values, but that men inherited more lucrative assets, leading to more capitalized inheritance at the end. Figure 2 supports indeed this hypothesis for decedent spouses.

We now have 3112 couples, with the value of the total inheritance of the wife, and the value of the total inheritance of the husband for each couple. We construct quantiles (the same as before) for the women and men inheritance distribution. We can see the statistics about these quantiles in Table 5²⁴. The number of individuals per quantile across men and women are quite similar. Now that the quantiles are done in function of the men and the women distribution separately, the averages per quantiles are a bit different from Table 4 (where the averages per quantiles were done in function of the distribution of the decedent inheritance). We now have everything we needed to estimate assortative mating in function of inheritance quantiles.

²³Separate estate is 27152 francs before and 33371 after.

²⁴See Appendix.

5 Results on Homogamy

Men and women all belong to one group in the inheritance distribution. We will now try to have an idea of the extent of homogamous marriages. A homogamous marriage happens when two people from the same quantile group marry. In the reversed situation, when two people from different groups are married, we can talk about heterogamy. In that case, there is marriage upward mobility for one spouse, and downward mobility for the other. We will estimate homogamy first with basic numbers about marriage mobility or immobility. We will then use correlations and contingency tables (numbers of intra-quantiles marriages) and finally risk ratios.

5.1 Marriage Mobility

First, we check some basic statistics about the marriages we observe in our sample. We want to know which number of marriages are between two individuals from the same group in their sex inheritance distribution. We also want to know how many marriages allow an upward mobility (marrying someone from a higher quantile) or a downward mobility. We may doubt that marrying someone with more inheritance is a systematic factor for upward social mobility, or reversely that marrying someone with less inheritance leads to downward social mobility. But here we want to talk about marriage mobility, not social mobility.

Bavel et al. (1998) define marriage mobility as the difference between the father situation and the father in law's. Here, inheritance is a direct consequence of parents' situation. Having a higher social position than his/her father is not going to impact the inheritance level. Inheritance can be considered as a proxy for the spouses' social origin. Thus, our definition of marriage mobility is consistent with the difference between the wife's parent's situation and the husband's parent's situation, since we choose to take the difference between the wife's inheritance and the husband's inheritance.

Using our data, we find in Table 6 that the share of men marrying down and the share of men

marrying up are stable for the three years of observations and quite similar. There is a small exception for 1882 where the percentage of men who married down is three percentage points higher than the percentage of men who married up. The results are symmetric for women. It means that in 1882 the percentage of women who married up is three percentage points higher than the percentage of women who married down. We do not find obvious results about either men or women achieving higher marriage mobility. Regarding homogamous marriages, we find that 67% of the couples of the sample are from the same inheritance quantile. This very important share remains stable between 1872 and 1882, and increases a bit (only three percentage points) for the 1912 decedents.

Table 6: Marriage mobility (estimation b)				
Year	Share of men who married up	Share of men who married down	Share of men with homogamous marriage	Total
1872	17%	17%	66%	100%
1882	16%	19%	66%	100%
1912	15%	16%	69%	100%
All sample	16%	17%	67%	100%
Number of men				
1872	129	135	515	779
1882	179	216	750	1145
1912	182	189	817	1188
All sample	490	540	2082	3112
Note: 3112 couples. Results for men give also results for women: when 490 men marry up, 490 women marry down				

However, this result might be driven by the number of homogamous marriages between individuals with no inheritance at all representing almost half of women and half of men. Indeed, on our 3112 married couples, 38% are marriages between a man and a woman who have both zero inheritance. In Table 7²⁵, we look at the results we get when keeping only the individuals with a strictly positive inheritance (1364 couples remain). The share of

²⁵See Appendix.

homogamous marriages is indeed lower but still very important: almost half of the marriages between people with inheritance are homogamous. Regarding marriage mobility, there are more differences than before. For 1872 and 1882 the share of men who married down is higher than the share of men who married up (12 and 9 percentage points respectively). This trend is reversed in 1912, but for the whole timeline, women with inheritance achieve a bit more to marry up than men with inheritance.

Moreover, as a robustness check, we do the same table than Table 6 but with the numbers of the average estimation (Table 8²⁶). We find similar results, about two thirds of marriages are homogamous, and there is still a very small advantage in favor of women regarding upward marriage mobility.

5.2 Correlations

An other basic manipulation to have an idea of the strength of homogamy is to look at correlations and partial correlations. We can see in Table 9 the partial correlations between the amount of the husband's inheritance and the one of the wife's. The sample is smaller than before because of age missing values. When we calculate the logarithm values, we set the negative inheritances to zero. In the logarithmic case, the partial correlation coefficient is more than twice higher than before. We note that the coefficient remains equal when we keep only the positive inheritors. Coefficients between inheritances are the same whether we look at the partial correlation between the wife inheritance and the husband inheritance or the reverse. The results of column (1) are close to those found by Fremeaux (2015), but a bit higher. However, he uses logarithmic values so that when we compare his results with the results of column (3), our coefficient is almost three times higher. In other words, the partial correlation between spouses inheritance in France would be almost three times higher at the end of the 19th century than once century later. We must precise that we are not able to introduce income and education like he does. Introducing such variables would decrease

²⁶See Appendix.

for sure our partial correlation coefficient, and allow a more precise estimation of inheritance homogamy.

The simple correlation coefficients (with no other variables) are 0,36 and 0,69 with logarithm values. They come from the whole sample (3112 individuals) with no elimination of the observations with missing age value. Since we do not have important variable to add (like education or income), correlation and partial correlation coefficients are not very different.

Table 9 : Partial correlations with husband inheritance			
	[1]	[2] (with log values of inheritance)	[3] (log values and only individuals with positive inheritance)
Wife inheritance	0,2916***	0,6963***	0,6885***
Year	Yes**	Yes	Yes
Age	Yes***	Yes***	Yes***
Observations	2 447	2 447	1 052
Significance levels: *** p<0.01, ** p<0.05, * p<0.1			
Note: we find the same coefficient for the partial correlation of wife inheritance with husband inheritance. For log values, we keep null inheritance for individuals with no inheritance			

5.3 Contingency Tables

The advantage of contingency tables is that we can read on the diagonals the percentages of homogamous marriages per category. We start first with four groups: heir women, heir men, non-heir women, non-heir men. The two contingency tables are given in Table 10. We find that 86% of men heir marry a woman heir, and that 76% of non-heir men marry

a non-heir woman. The numbers are consequently much lower for heterogamous marriages, 14% of men with inheritance marry a woman without inheritance, and 24% of non-heir men marry a woman with inheritance. When we take the percentages about women, the numbers are really similar.

Comparing with a similar table from Fremeaux (2015) with recent data, our percentages of homogamy are at least ten percentage points higher, and at most twenty. Indeed he finds that 56,7% of men with zero inheritance marry a woman with no inheritance as well, and that 68,7% of men with positive inheritance marry a woman with positive inheritance as well.

However, it could be that non-heir women that marry a heir man marry in fact a man with a very low positive inheritance. Our categories heir and non-heir are very broad, we need more precise numbers about intra and inter quantiles marriages.

Table 10: Contingency table heir/non heir (in %)		
	Women heir	Women non heir
Men heir	86	14
Men non heir	24	76
	Men heir	Men non heir
Women heir	84	16
Women non heir	22	78
Number of men with inheritance>0	1678 (54% of men)	
Number of women with inheritance>0	1623 (52% of women)	
Note: 3112 couples. Lecture: 86% of men with inheritance marry a woman with inheritance. Risk ratios =4 and 4,5 (women with inheritance are on average 4,5 times more likely than non-heir women to mate with an heir husband).		

The contingency tables with quantiles (Table 11) can be found in Appendix. Whether we are from the point of view of women and men does not change the numbers a lot, the two contingency tables are really similar. We notice that the numbers on the diagonals are almost always the highest of the line. This means that in most cases, the share of women (men) from one given quantile that is married to a man (woman) from the same quantile is higher than the share of women (men) who are married to a man (woman) from another quantile. In other words, looking at the repartition of men married with women from a given quantile, the highest share is almost always the one of the homogamous marriage (same quantile of inheritance for both spouses). There seems to be an exception for women from the quantile 90-95: about 30% of them are married homogously (to a man from the quantile 90-95), but also 30% are married to a man from the quantile 75-90. The reverse is true for men from

the quantile 90-95.

We also notice that the further we look from the diagonal, the smaller the share. Indeed, marriage mobility between extreme groups is really rare. 0,11% of the women from the bottom 75% manage to marry a man from the top 1% (and symmetrically for men from the bottom 75%). Still, 9% of the men from the top 1% are married to a woman from the bottom 75% (and reversely).

The biggest heterogamous shares are around the diagonal case (homogamous case). For example, 47% of the women from the quantile 75-90 achieve a homogamous marriage, but 40% of them are married to a man from the bottom 75%. If marital mobility was a real phenomenon, it was mostly short-distance mobility.

In Table 12, we focus on the intra-quantiles marriages, and we decompose them by years. Except for a slight increase in the share of intra-quantile marriages for the two highest quantiles, there is no clear trend about the evolution of homogamous marriages between 1872 decedents and 1912's. The highest homogamy rate is for marriages between two individuals from the bottom 75%. 90% of the individuals from this category are married to someone from this quantile as well. However, it is also the category with the biggest number of individuals. We need an analysis of homogamy where these effects of structure are not affecting our results.

Table 12 : Shares of intra-quantiles marriages					
	Share of bottom 75% women married to a bottom 75% men	Share of P75-90 women married to a P75-90 men	Share of P90-95 women married to a P90-95 men	Share of P95-99 women married to a P95-99 men	Share of top 1% women married to a top 1% man
1872	91	47	33	34	40
1882	86	47	28	42	46
1912	91	46	21	44	46
All sample	90	47	27	41	45
	Share of bottom 75% men married to a bottom 75% woman	Share of P75-90 men married to a P75-90 woman	Share of P90-95 men married to a P90-95 woman	Share of P95-99 men married to a P95-99 woman	Share of top 1% women married to a top 1% man
1872	90	52	29	38	31
1882	86	47	28	40	48
1912	92	41	23	44	46
All sample	90	46	27	41	45
Note: number of observations for 1872=779, for 1882=1145, and for 1912=1188. Table based on the quantile estimation.					

5.4 Probabilities and Risk Ratios

To avoid unwanted effects due to the unequal repartition of individuals across the distribution, we will estimate assortative mating through risk ratios. A risk ratio is a useful measure of different marital sorting behaviours between groups. It is a ratio of probabilities. The

nominator is the probability for one individual from one given quantile group A to marry someone from the same group A, and the denominator is the probability for someone that does not belong to group A to marry someone from group A. We can write it as:

$$RiskRatio = \frac{Prob(Y = 1|X = 1)}{Prob(Y = 1|X = 0)}$$

With Y a dummy equal to one if the individual is married to someone from group A (the individual's spouse belongs to group A), and with X a dummy equal to one if the individual belongs to group A. If marital matching is random, the risk ratio should be equal to one. In that case, inheritance plays no role during mating decisions. In other words, if we find a risk ratio higher than one, there is homogamy.

In Table 13 and 14²⁷, we have all the risk ratios and the probabilities for a woman (a man) from a given quantile to marry a man (a woman) from the same quantile. There is a strong symmetry in the results whether we take the probabilities from the point of view of the wife or the husband. As expected, we have a very high degree of homogamy, especially in the highest quantiles. Indeed, the risk ratios increase as we go up in the distribution, which is consistent with previous works on current data (Fremeaux, 2015; Zhu & Pasteau, 2017). The more different the inheritance of two individuals are, the less likely they are to marry. For the whole sample, we find that women from the top 1% of the inherited wealth distribution of women are on average 27 times more likely than women from the bottom 99% to mate with a top 1% husband of the inherited wealth distribution of men. It is 27 times higher than if marriages possibilities were equal for everyone. For the bottom of the distribution, the results are smaller but still important: a woman from the bottom 75% is on average 4 times more likely to marry a man from the bottom 75% than a woman that belongs to the top 25%. All risk ratios are quite stable over time, except the one of the top 1% which is almost divided by two between 1872 and 1912. However, we cannot conclude since we observe an increase of three in the risk ratio of the top 5% (which is equal to an increase of 40%) during the same period of time. The evolution of homogamy differs whether we look

²⁷See Appendix.

at the top 1% or at the top 5% of the distribution.

Fremaux (2015) finds a risk ratio of 4 for the top 5%. In order to compare, we constructed a top 5% group and we find a risk ratio more than twice higher ²⁸. Thus, if our results are accurate, inheritance-based homogamy in terms of risk ratio for the top 5% was divided by more than two between the end of the 19th century and the beginning of the 21st. There might be some unobservables (income, education, preferences,...) driving this pattern. However, these numbers are still descriptive and confirm the fact that real strategies were put in place to conduct marriages between families of similar wealth, especially in the richest spheres.

Table 13 : Risk ratios of intra-quantiles marriages						
Risk ratios for women						
	Bottom 75%	P75-90	P90-95	P95-99	Top 5%	Top 1%
1872	4,2	3,9	3,3	7,2	7,5	38
1882	3,1	4	4,1	7,0	9,3	39,7
1912	5,4	4,1	3,1	6,2	10,7	16,8
All sample	4,0	4,0	3,6	6,7	9,7	26,3
Risk ratios for men						
	Bottom 75%	P75-90	P90-95	P95-99	Top 5%	Top 1%
1872	4,5	3,5	3,4	7,1	7,7	47,1
1882	3	3,9	4,1	7,5	10,3	38,4
1912	4,2	4,5	3,1	6,3	11,2	17
All sample	3,7	4	3,6	6,9	10,3	27,2
Lecture: For 1872 decedents, a woman belonging to the bottom 75% had 4,2 times more chances than a woman outside the bottom 75% to marry a man from the bottom 75% of the men inheritance distribution.						

One important point has to be highlighted. Since the beginning, we have dealt only with the monetary values of inherited assets. But while married, the value of inherited assets can increase . We can distinguish inherited assets and inherited wealth. Piketty et al.

²⁸Equal to 9,7 and 10,3.

(2011) did calculate an individualized capitalization factor using the composition of individuals' portfolio. They calculated the rates of return for three asset families: real estate, safe assets (public bonds, saving accounts) and risky assets (equities). They used these rates of return to construct an individual-level rate based on the structure of the decedent's inherited assets. The variable inherited wealth is thereby available for decedents. We notice that the share of the capitalized wealth in the total inherited wealth is similar for men and women decedents but the average capitalized amounts are much bigger for men, suggesting that men tended to inherit more lucrative assets (Figure 2).

However, since our estimation is based on inherited assets values, we do not have the surviving spouse's portfolio decomposition. Calculating an individualized capitalization factor for the second spouse would require too many assumptions. Therefore, we keep our results with the inherited assets and not the inherited wealth.

6 Conclusion

We showed that homogamy was a very strong phenomenon for individuals who died in Paris in 1872, 1882 and 1912. Using very precise tax estate data, we were able to use the inheritance level of the first spouse to die. We managed to estimate the second spouse inheritance thanks to the observation of both spouses' net reimbursements in the frame of community-of-acquisition property regime. The underlying assumption of the estimation is that the two spouses of a given couple sold the same share of their inherited assets in order to increase the wealth of the community. In other words, the ratio of the decedent's net reimbursements with respect to his/her separate estate is equal to the same ratio but for the second spouse average values. We showed that this assumption was quite plausible because the reimbursements values between the decedent and the surviving spouse are not too unbalanced. We could have expected higher amounts for women since they were quite powerless with respect to men in many ways (work, legal rights on assets administration, . . .). But it looks like spouses were spending more or less the same amounts, which makes our

assumption relevant.

Using this estimation, we found that people tend to marry within their inheritance level, and the pattern becomes stronger for the highest quantiles. For example, a man from the top 5% of the male inheritance distribution is 10 times more likely to marry a woman from the top 5% of the female inheritance distribution than a man who belongs to the bottom 95%. The magnitude of the results is very important, and we can suspect these findings to be downward biased because the richest (supposedly with highest homogamy) are not all taken into account since they are not all under the community of acquisition regime²⁹.

These findings allow a historical perspective for the evolution of French homogamy. Indeed, comparing with recent works on inheritance-based assortative mating, we confirm the idea of a decrease in the intensity of inheritance-based homogamy since the 19th century. Such dynamic was expected because of the decrease of families' conscious marital strategies and of the increase of social mobility. Assortative mating can be a way to measure the degree of openness of a social group. Groups seem to have opened somehow, in parallel of a decrease in wealth inequality.

However, we should not forget that the results are based on inheritance amounts with 50% of data estimated, so they have to be treated carefully. Moreover, one important weakness of our analysis lies within the lack of controls.

Homogamy was at that time a useful tool to protect a family's wealth, and was largely a results of parents' actions. Today, the mechanisms behind homogamy numbers are less obvious, and owe a lot to unconscious social forces. A similar social background can lead to similar tastes, neighborhoods, places of work or leisure. The first meeting between two future spouses that appears as hazard may be predetermined by a socio-spatial segregation (Bozon & Héran, 1988). Another underlying mechanisms studied by Arrondel and Frémeaux (2016) is that assortative mating can be driven by saving preferences and attitudes to risk, correlated with parental wealth.

One way for further research would be to solve the inflation issue that prevented the use of

²⁹As mentioned in 3.1.

the data after 1912. The prices of inherited assets need to be reset to their real value, as the reimbursements. Doing that, we could estimate more precisely the evolution of homogeneity during the 20th century, and give more statistical significance to our results. It would be interesting to see if the inheritance-based homogeneity curve follows the inheritance U-shaped curve (Piketty, 2011).

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7 Appendix

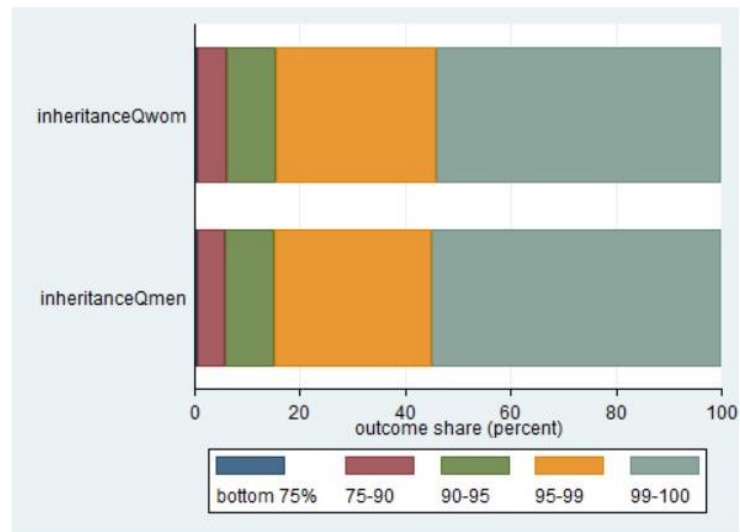


Figure 1: Concentration of inheritance for men and women

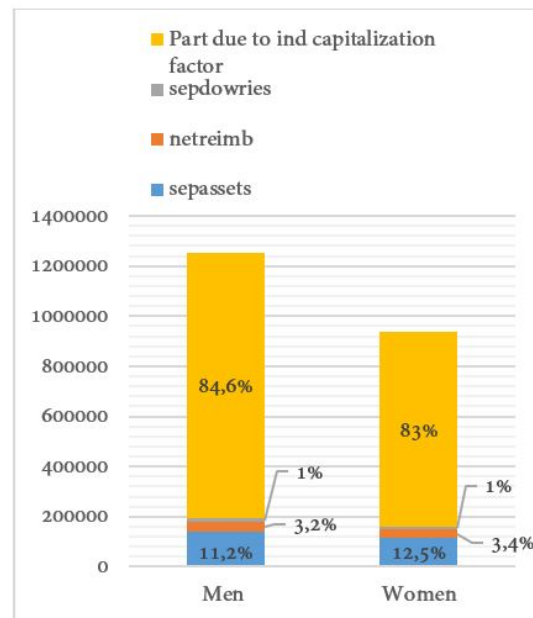


Figure 2 : Composition of inherited wealth across gender

Table 1: Inheritance in Paris, Detailed separated assets composition across gender

Composition of separate assets (married decedents with net estate>0 & community assets>0)

(MEN ONLY)															
	liabilities	real estate	real estate paris	real estate prov	finassets	equity	priv bonds	pub bonds	cashtot	otherinc	furnitures	dowries	foreign	loriskfin	hiriskfin
1872	1%	47%	45%	2%	52%	12%	18%	16%	3%	1%	1%	2%	12%	22%	30%
1882	4%	39%	39%	0%	59%	20%	14%	16%	6%	2%	2%	4%	9%	24%	35%
1912	6%	46%	29%	17%	53%	19%	15%	8%	8%	2%	1%	12%	11%	19%	35%
(WOMEN ONLY)															
	liabilities	real estate	real estate paris	realestate prov	finassets	equity	Priv bonds	Pub bonds	cashtot	otherinc	furnitures	dowries	foreign	loriskfin	hiriskfin
1872	1%	35%	34%	2%	63%	20%	17%	11%	10%	3%	1%	2%	1%	27%	37%
1882	9%	52%	51%	0%	47%	12%	17%	14%	2%	0%	1%	7%	2%	19%	29%
1912	3%	44%	29%	15%	54%	14%	19%	15%	1%	0%	2%	11%	12%	22%	33%

Note: For the purpose of this table, dowries were taken away from "other financial assets" (and therefore from gross assets). Percentages in function of total gross assets. Variable foreign=equityfor+privbondsfor+pubbondsfor

Table 2 : Reimbursements of decedents and surviving among quantiles

Quantiles in function of decedent sepestate	Number of individuals	Share of women	Decedents reimbursement					Surviving spouse reimbursement					
			Share with netreimb>0	Share with netreimb<0	Share with netreimb=0	Average net reimb	Average separate estate	Average net reimb (in % of average separated estate)	Share with spounetreimb>0	Share with spounetreimb<0	Share with spounetreimb = 0	Average spouse net reimb	Average spouse net of decedent average separate estate)
All sample	3112	34%	47%	6%	47%	15 443	30 433	51%	47%	4%	49%	15 103	50%
Bottom 75%	1976	34%	36%	2%	62%	6 935	1	674056%	33%	3%	64%	6 767	657731%
P75-90	465	34%	63%	7%	30%	14 544	3 933	370%	59%	5%	36%	14 018	356%
P90-95	240	37%	70%	12%	19%	39 154	40 847	96%	73%	5%	22%	37 457	92%
P95-99	326	33%	67%	18%	15%	79 559	231 947	34%	80%	5%	14%	84 837	37%
P99	105	32%	64%	28%	9%	290 520	1 848 161	16%	85%	8%	8%	264 410	14%
Decedent women only													
All sample	1055		51%	5%	44%	13 315	27 152	49%	45%	4%	51%	10 420	38%
Bottom 75%	668		37%	2%	61%	7 100	1	714621%	32%	3%	65%	4 900	493216%
P75-90	156		71%	4%	25%	12 623	3 725	339%	57%	6%	37%	8 478	228%
P90-95	83		73%	10%	17%	31 005	36 926	84%	64%	5%	31%	21 794	59%
P95-99	111		79%	13%	8%	70 600	213 817	33%	77%	5%	17%	46 478	22%
P99	37		70%	27%	3%	168 431	1 596 293	11%	81%	14%	5%	248 322	16%
Decedent men only													
All sample	2057		45%	6%	49%	16 583	32 191	52%	48%	4%	48%	17 612	55%
Bottom 75%	1307		35%	2%	63%	6 846	1	731191%	34%	3%	63%	7 774	830345%
P75-90	310		60%	8%	33%	15 700	3 999	393%	60%	5%	35%	17 357	434%
P90-95	157		66%	13%	21%	43 814	42 782	102%	77%	5%	18%	44 766	105%
P95-99	214		63%	20%	18%	83 022	238 837	35%	82%	6%	13%	104 050	44%
P99	69		59%	29%	12%	352 140	1 965 172	18%	87%	4%	9%	272 188	14%

Note: 3112 married individuals with community assets. All averages are weighted. Sepestate = sepassets + dowries. Negative values of sepestate set to 0. Quantiles are in function of decedent separate estate, and they are constructed with respect to women decedent distribution and men decedent distribution in the gender specific categories.

Table 3 bis: Comparison between the two estimations at the extreme quantiles						
Variable	Number of individuals	Mean	Standard deviation	Minimum	Maximum	
	Bottom 75%					
Decedent separated estate	1976	1,03	9	0	115	
Surviving spouse's separate estate [estimation a]	1976	14 792	117 605	0	7 875 508	
Surviving spouse's separate estate [estimation b]	1976	1,12	9	0	597	
	Top 1%					
Decedent separated estate	105	1 848 161	3 264 297	637 500	32 300 000	
Surviving spouse's separate estate [estimation a]	105	532 794	772 480	0	4 295 984	
Surviving spouse's separate estate [estimation b]	105	1 719 899	2 493 621	0	13 900 000	
Note: Estimation a) is on average and estimation b) is based on quantiles. Quantile are calculated in function of the decedent separate estate distribution.						

Table 4 : Two estimations of the second spouse estate (wife and husband decomposition)

	Number of individuals	Average decedent total inherited estate	Average surviving spouse total inherited estate	Average total inherited estate (men only)	Average total inherited estate (women only)
Estimation a)					
Estimation without quantiles	3 112	46 149	47 638	43 530	50 257
Estimation b)					
Bottom 75%	1976	7 229	7 507	6 514	8 222
P75-90	465	18 708	18 346	16 919	20 135
P90-95	240	80 001	80 707	71 260	89 449
P95-99	326	311 987	347 256	277 677	381 566
P99	105	2 138 681	1 990 257	2 183 586	1 945 352
All sample	3112	46 149	46 265	43 982	48 432
<p>Note: 3112 married individuals with community assets. All averages are weighted. Total inheritance = separated estate + net reimbursement. All averages are in function of the decedent quantile. Two estimations are compared: the quantile estimation and the average one. Inheritance<0 have been set to 0.</p>					

Table 5 : Construction of men and women quantiles						
	Bottom 75%	P75-90	P90-95	P95-99	Top 1%	All sample
Men (estimation b)						
Number of individuals	1808	563	302	337	102	3112
Average total inheritance	292	15 438	83 775	327 123	2 413 868	43 982
Women (estimation b)						
Number of individuals	1838	566	288	322	98	3112
Average total inheritance	358	18 284	88 970	371 776	2 626 613	48 432
<p>Note: We recall that estimation b) is the quantile estimation. Quantiles are constructed in function of men & women total inheritance distribution.</p>						

Table 7: Marriage mobility (b) (excluding non-heir)				
Year	Share of men who married up	Share of men who married down	Share of men with homogamous marriage	Total
1872	26%	43%	31%	100%
1882	20%	29%	51%	100%
1912	30%	24%	46%	100%
All sample	25%	27%	49%	100%
Number of men				
1872	49	83	59	191
1882	101	146	255	502
1912	145	115	222	482
All sample	335	365	664	1364
Note: 1364 couples with both individuals have inheritance>0				

Table 8: Marriage mobility (estimation a)				
Year	Share of men who married up	Share of men who married down	Share of men with homogamous marriage	Total
1872	17%	21%	61%	100%
1882	18%	20%	62%	100%
1912	17%	17%	66%	100%
All sample	17%	19%	63%	100%
Number of men				
1872	135	165	479	779
1882	204	226	715	1145
1912	201	207	780	1188
All sample	540	598	1974	3112
Note: 3112 individuals. Results for men give also results for women: when 988 men marry up, 988 women marry down				

Table 11: Contingency tables (in % of individuals, for all observations)

		Quantiles of estimated men inheritance							
	Bottom 75%	P75-90	P90-95	P95-99	Top 5%	Top 1%	Total		
Quantiles of estimated women inheritance	Bottom 75%	90	8	1	1	1	0	100	
	P75-90	40	47	10	3	4	1	100	
	P90-95	24	28	27	20	22	2	100	
	P95-99	12	11	28	41	x	8	100	
	Top 5%	11	9	24	x	56	x		
	Top 1%	6	2	7	40	x	45	100	
		Quantile of estimated women inheritance							
	Bottom 75%	P75-90	P90-95	P95-99	Top 5%	Top 1%	Total		
Quantiles of estimated men inheritance	Bottom 75%	90	8	2	1	1	0	100	
	P75-90	41	46	9	3	3	0	100	
	P90-95	20	30	27	23	24	1	100	
	P95-99	12	12	25	41	x	10	100	
	Top 5%	11	11	22	x	56	x		
	Top 1%	9	8	9	30	x	45	100	

Note: 3112 couples. Table from quantile estimation (b). Lecture: 6% of women from the top 1% are married to a man from the bottom 75% and 9% of the men from the top 1% are married to a woman from the bottom 75%. We do not measure the marriages between top 1% and top 5% because top 1% is included in the top 5% and similarly for P95-99.

Table 14: Probabilities of intra-quantile marriages

	Proba for a bottom 75% woman to marry a bottom 75% man	Proba for a P75-90 woman to marry a P75-90 man	Proba for a P90-95 woman to marry a P90-95 man	Proba for a P95-99 woman to marry a P95-99 man	Proba for a top 5% woman to marry a top 5% man	Proba for a top 1% woman to marry a top 1% man
1872	0,85	0,47	0,34	0,41	0,48	0,44
1882	0,81	0,48	0,30	0,48	0,61	0,46
1912	0,86	0,45	0,20	0,46	0,70	0,49
All sample	0,84	0,47	0,28	0,46	0,63	0,48
	Proba for a bottom 75% man to marry a bottom 75% woman	Proba for a P75-90 man to marry a P75-90 woman	Proba for a P90-95 man to marry a P90-95 woman	Proba for a P95-99 man to marry a P95-99 woman	Proba for a top 5% man to marry a top 5% woman	Proba for a top 1% man to marry a top 1% woman
1872	0,84	0,54	0,30	0,42	0,46	0,31
1882	0,82	0,50	0,29	0,43	0,56	0,48
1912	0,90	0,39	0,21	0,45	0,69	0,48
All sample	0,85	0,47	0,27	0,44	0,60	0,46
Lecture: a woman from the bottom 75% has 85% of chances to marry a man from the bottom 75% as well						