The individualisation of wealth
Evidence from France

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This version : October 2015 [‡]
Preliminary draft

Abstract

Household wealth is composed of assets that are either held by single individuals or jointly by spouses. Using French detailled data on wealth, we decompose wealth along the dimension of individual/joint ownership status of assets. First, we show that wealth is getting more individualized in France over the 1998-2010 period: the share of individualized wealth has increased from 42.2% to 48.4% of the total wealth of households. This increase is explained by the increase in divorce rates, the diffusion of unmarried cohabitation and the increase in newlywed couples opting for a marital contract of separation of assets. Second, we show that the individualization of wealth is almost entirely driven by an increase in the individualized wealth of men, increasing the gender wealth gap in France.

Keywords: Wealth, individualization, prenuptial agreements, marriage, unmarried cohabitation, gender wealth gap

JEL Classification: J12, D31, E21

1 Introduction

Household wealth is composed of assets that are either held by single individuals or jointly by spouses. The more individualized wealth is, the greatest control individuals have over their own wealth. In this paper, we investigate if wealth got more individualized over time and if wealth inequalities are related to the individualization of wealth. A growing body of the literature reports that wealth has increased in the past decades: Piketty and Zucman [2014] show that wealth-to-income ratios are back to their 19th century levels in rich countries, including France. This increase goes along with an increase in wealth inequality over the past decades in the US [Wolff, 1998, Saez and Zucman, 2014] as well as in France [Chaput et al., 2011]. Going one step deeper requires an analysis of who owns the assets. Joint or individualized ownership of assets is related to the demographic composition of the population, as the community of assets is created by marriage. As a consequence, we expect the large demographic changes over the last decades such as the decline in marriage rates, the increase in divorce rates and unmarried cohabitation of partners to affect the distribution of wealth between individualized and joint wealth, and inequalities in wealth.

The type of ownership and who holds the wealth matters for the understanding of inequalities in wealth between individuals, especially gender inequalities in wealth: the more individualized wealth is, the bigger the inequalities between individuals can be. As a consequence, it matters for the understanding of the impact of taxation of wealth and the evaluation of its progressivity. The inheritance rules do not treat similarly the surviving partner and the children depending on the ownership status of assets when a partner dies: joint assets are more protective for the surviving partner. At the macro level, saving and investment patterns differ between men and women [Sunden and Surette, 1998], especially because women tend to be more risk averse than men [Borghans et al., 2009], so the gross saving rate of a country could be impacted by the ownership status of the assets at the household level. At the household level, individualized wealth could also impact intra-household behaviors, as it affects the bargaining power of spouses [Chiappori et al., 2002].

This paper determines the shares of joint and individualized wealth at the household and macro level, explore how the evolution of those share is related to demographic changes and how it drives the gender wealth gap in the population, using French data on wealth, in 1998 and in 2010. These data enable the reconstruction of individual wealth within couples, as it gives the legal owner of each assets [see also Bonnet et al., 2014]. But it also includes precise information on marital contracts which allows the attribution of each asset to joint or individualized wealth. We show that wealth tends to become more individualized at the macro level and we evaluate its determinants by using simple decomposition methods based on the characteristics of households. In particular, we investigate if the individualization is a side-result of demographic changes such as divorce, the consequence of changes in the relative value of assets in particular real-estate assets or if it is related to a change in the behavior of couples through the choice of marital contract keeping their wealth apart.

Our main conclusion is that wealth got more individualized over the 1998-2010 period: individualized wealth represents 42.2% of the total wealth of household in 1998 and 48.4% of the total wealth of households in 2010. This increase is mainly explained by the increase in divorce and by the decision to separate wealth at marriage with marital contracts. The individualization of wealth

reinforces gender wealth inequalities as it is mainly due to an increase in the wealth on which men exert a direct control.

Section 2 presents a literature review, section 3 defines the main index of individualized wealth and how it can be decomposed. Section 4 presents the data and section 5 gives the results. Section 6 provides an interpretation of the results and section 7 concludes.

2 Literature review

This paper is related to two streams in the literature. First, it is related to the literature related to the study of inequalities in wealth between households and gender wealth inequalities. There are two ways to measure wealth: fiscal/administrative data and survey data. Households tend to under-report their wealth so survey data only provide insights on the evolution of inequalities in wealth whereas fiscal data are of much better quality for the measurement of inequalities in wealth. However, fiscal data lack important information for the study of intra-household inequalities, especially marital contracts. For this reason, we use survey data. As a consequence, our results tend to under-estimate the individualisation of wealth and thus, its evolution.

Using fiscal data, Piketty and Zucman [2014] show that the wealth to income ratio has increased in many countries over the second half of the 20th especially in France over the period we study: the ratio (private wealth)/(national income) increased from 342% in 1998 to 575% in 2010 [for data see Piketty and Zucman, 2013]. The increase in wealth to income ratio is associated to an increase in wealth inequalities between households in the US [based on survey data, see Wolff, 1998, Saez and Zucman, 2014, on fiscal data] as well as in France [based on survey data Lamarche and Salembier, 2012, Chaput et al., 2011].

Inequalities in wealth between households is related to the marital history of the members of the household. Schmidt and Sevak [2006] using data from the PSID and Yamokovski and Keister [2006] using data from the NLSY show that single parents, especially single mothers, experience a wealth penalty compared to adults without children. Using data from the NLSY 1979, Vespa and Painter [2011] compare couples with different pre-nuptial cohabitation histories. They conclude that relationship history may shape long-term wealth accumulation, individuals who married their only cohabiting patners experience a beneficial marital outcome. Wilmoth and Koso [2002] and Zissimopoulos et al. [2015] take a larger perspective and the relationship between a lifetime of marital status changes and wealth levels near retirement age, using data from the 1992 Health and Retirement Survey. They show that longer marriages are associated to a greater level of household wealth, and marital history is a strong predictor of wealth heterogeneity at retirement ages.

The increase in wealth inequalities between households might underestimate inequalities between individuals, especially gender wealth inequalities if the household wealth is unevenly distributed within households. The study of wealth inequalities within households requires precise data on individual ownership of assets within households. Sierminska et al. [2010] on German data and Bonnet et al. [2014] on French data study the gender wealth gap. They reconstruct individual wealth on the basis of the declared owner of the assets. They show that men are richer than women in both countries, but return of individuals characteristics is greater for women than for men. However, this

method does not take into account joint ownership of assets: even if there is only one declared owner, some assets might be jointly owned within the household because of the marriage contract. Grabka et al. [2015] study within couples inequalities in Germany and they show that they are related to different family and labor history.

In this paper, we show that the study of gender wealth inequalities requires to pay attention first to the division of the household wealth between individualized/joint wealth. So this paper is also related to the burgeoning literature on the relationship between legal environment and asset accumulation. The legal environment related to divorce laws and marital contracts influence assets accumulation through different channels.

On the one hand, it mechanically defines the way assets are shared within households. So, individuals might choose the type of marital contracts that corresponds the best to their expectations. Indeed, marital contracts are incomplete contracts in the sense that they not necessarily match all marital situations. As a consequence, the possibility to adapt at least partly, marital agreements through prenuptial contracts would increase spouses' well-being [Grossbard-Shechtman and Lemennicier, 1999, Rainer, 2007]. Large changes in divorce rates and labor market participation of women might have changed spouses' expectations and make marital contracts more attractive, as well as unmarried cohabitation. Frémeaux and Leturcq [2013] show that the share of married couples choosing to opt for a marital contract of separation of assets has sharply increased in France during the 1990-2010 period and Voena [2014] indicates that the majority of newlywed couples in Italy chose a marital contract of separation of assets.

On the other hand, the legal environment related to divorce laws and marital contracts might induce a behavioral response of partners. First, individual wealth could impact the bargaining power of spouses as it can be seen as a distribution factor [Chiappori et al., 2002] because it favors a sharing more of less equalitarian within households. Second, it might impact household specific investments as well as wealth accumulation. Theoretical models indicate that the interaction of divorce laws and marital contracts influence the division of labor within household [Clark, 1999, Cigno, 2012, Fisher, 2012]. Empirical papers also show that there is a link between investment within household and the legal environment. In particular, a decrease in the cost of divorce affects positively the labor force participation of women, especially when it is combined to an default marital contract of separation of assets [Stevenson, 2007, Gray, 1998, Kapan, 2008, Brassiolo, 2010]. Therefore, analysing the distribution of assets between individual/joint ownership is important for the understanding of households behavior.

3 Definitions and methodology

3.1 Definition of an index of individualized wealth

Let w_i denote the wealth of household i; an household is either a couple-headed household or a single-headed household. w_i can be privately held by a woman, denoted w_{if}^p, privately held by a man, denoted w_{im}^p or collectively held by a couple, denoted w_i^{c1}. Therefore, $w_i = w_{im}^p + w_{if}^p + w_i^c$.

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[1]We define members of couples as men and women, but the empirical analysis includes same-sex couples as well.

Total households' wealth is denoted $W = \sum_i w_i$ and households' individualized wealth is denoted $W^p = \sum_i (w^p_{if} + w^p_{im})$. The share of individualized wealth at the macro level is defined by the index Θ:

$$\Theta = \frac{W^p}{W} \tag{1}$$

As such, Θ reflects both the share of single-headed households among households and the way wealth is distributed between individualized and joint wealth within couples. Let μ_i denote the share of wealth held privately among the household's wealth.

$$\mu_i = \frac{w^p_{if} + w^p_{im}}{w_i} \tag{2}$$

By definition, μ_i is always equal to 1 for single-headed household. Θ is related to the measure of individualized wealth at the household level μ_i in a simple way:

$$\Theta = \bar{\mu} + \frac{cov(\mu, w)}{\bar{w}} \tag{3}$$

In other words, Θ mixes the average individualized wealth within households $\bar{\mu}$ and the link between the shared of individualized wealth and the level of wealth in the population. The stronger the correlation between μ and w, for instance if wealth tends to be more individualized for richer households, the more ambiguous Θ is. We show below how we investigate the links between μ and w along the distribution of w, by dividing the population into smaller, more homogenous groups.

As all variables can be measured at different points in time, we are able to investigate the changes in Θ over time. In the following, we are interested in the change in the individualized wealth over the period 1998 - 2010: $\Delta\Theta = \Theta_{2010} - \Theta_{1998}$. We will call *individualization of wealth* a positive $\Delta\Theta$, which means a movement toward more individualized wealth.

3.2   Decomposition of the index

In order to understand better the changes in Θ, we will evaluate the contribution of different demographic group to Θ. For example, an increase in Θ could be explained by an increase in the share of wealth owned by divorcees in the population. A decomposition of the index Θ into K indices is straighforward when a partition of the set of households into K subsets is available:

$$\Theta = \sum_{k=1}^{K} \frac{N_k}{N} \frac{\bar{w}_k}{\bar{w}} \Theta_k \tag{4}$$

We call the ratio W^P_k/W the contribution of group k to the individualization of wealth. The contribution of group k is composed of two ratios: the ratio W_k/W gives the share of wealth held by group k in the total wealth of households in society. It indicates the weight of the group in the total wealth of households and can be decomposed into a size effect N_k/N and a relative wealth effect $\bar{w}_k/\bar{w}$. The second ratio in the right hand side of eq. 4 is $\Theta_k = W^P_k/W_k$, it gives the ratio of individualized wealth held by group k, W^P_k over the wealth held by group k, W_k. It sheds light on the shared of individualized wealth within group k. It can also be read as:

$$\Theta_k = \bar{\mu}_k + \frac{cov(\mu_k, w_k)}{\bar{w}_k} \tag{5}$$

If the subgroups of population tend to be more homogenous in terms of individualized wealth then $cov(\mu_k, w_k) \approx 0$ and Θ_k describes $\bar{\mu}_k$. The larger the number of groups K, the smaller $cov(\mu_k, w_k)^2$.

In the following of the study, we use the decomposition described in eq. 4 to analyse the contribution of subgroups of the population based on the composition of the household (singles or couples), on the legal matrimonial status (never-married singles, divorcees, widows, cohabiting couples, married couples with a community of assets contract and married couples with a separation of assets contract), and the decile in the distribution of wealth.

The index Θ can be decomposed further along two dimensions. If a partition of the population into K subsets is available (for instance based on the marital status) and if a partition of the wealth into A subsets (for instance the type of assets, or between male's and female's wealth), then Θ can be written:

$$\text{(a)} \quad \Theta \quad = \quad \sum_{k=1}^{K} \frac{W_k}{W} \sum_{a=1}^{A} \Theta_{ka} \frac{W_{ka}}{W_k} \tag{6}$$

$$\text{or (b)} \quad \Theta \quad = \quad \sum_{a=1}^{A} \frac{W_a}{W} \sum_{k=1}^{K} \Theta_{ka} \frac{W_{ka}}{W_a} \tag{7}$$

Although the two types of decomposition along two dimensions are equivalent, they give two different pictures of the individualized wealth. The first one, called (a), decomposes first along the dimension of the population of households and then along the dimension of the composition of the wealth. It allows a better understanding of the composition of wealth within groups of households. In other words, the share of individualized wealth of the subset k can be decomposed into the contribution of A types of wealth (e.g. A type of assets). The contribution of a type of wealth a to the share of individualized wealth of group k is decomposed into its weight in the wealth of households of group k, denoted $\frac{W_{ka}}{W_k}$ and the share of the wealth owned in that type of wealth which is individualized, i.e. Θ_{ka}. Here again, the ratio W_k/W can be decomposed into a size component N_k/N and a relative wealth component $\bar{w}_k/\bar{w}$.

The second type of decomposition, called (b), decomposes first along the dimension of the wealth and then along the dimension of the groups of households. W_a/W gives the share of type-a wealth over the total wealth of households, and W_{ka}/W_a gives the share of type-a wealth owned by type-k households. As before, Θ_{ka} gives the share of individualized type-a wealth owned by type-k household.

We use below the first type of decomposition (a) in order to understand the composition of the wealth of households depending of the marital status of the household or the percentile to which it belongs. We are more interested in the second type of decomposition (b) to analyse the individualization of wealth for men and women as the household's wealth can be divided into a male's component and a female's component.

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[2]In the extreme case of a partition into N groups, where N represents the size of the population, we have $\Theta_k = \mu_k$.

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4 Data

4.1 French wealth surveys

We use cross-sectional data from the 1998 and 2010 waves of the French national surveys on wealth, *Enquête Patrimoine*, which are conducted every 6 years since 1992. The aim of this survey is to study the personal wealth on a representative sample of French households. The wealth of 10,207 households in 1998 and 15,006 households in 2010 is described. It includes information on financial, real-estate and professional assets; description of each asset and evaluation of its value and household liabilities. The survey also provides a detailed biography of the household and its members (household formation, education, labor force history, etc.). Households from better socio-economic status (executives, independant workers, retired) are oversampled, as well as households living in richer neighborhoods.

Precise information on the matrimonial status of households is also available. Beside the usual distinction between single- and couple-headed households, we have precise information on the legal status of couples (cohabiting or married couples). Moreover, in France, when a couple gets married, spouses can decide to opt for a prenuptial contract. We also know the nature of the prenuptial contract spouses made if any. Such a detailed information on prenuptial contracts is unique in France. This information is necessary in our study because the redistribution of the household wealth in case of separation depends on the legal agreement binding the partners. In the 2010 survey, the existence of a civil union and its matrimonial regime is also mentioned. Civil unions are included to married couples[3].

Since 1998, the survey includes information regarding the owner of the assets held by households. Whatever the nature of wealth (real-estate, financial or professional), we know the identity of the owner. Moreover, as most real-estate and professional assets are held by more than one person, we have a detailed description of the distribution of the asset between the household head, his/her spouse (if there is any), other members of the household or persons from an other household when the assets belong to several persons. Respondents are also asked to self-report the value of each asset.

Our data suffer from the usual sampling and non-sampling errors of wealth surveys. A recent report [European Central Bank, 2013] shows that the mean net wealth per person is 1/3 lower in survey data than in national accounts in France. Moreover, we got rid off the households in the top 0.1% of the distribution of wealth. Indeed, our results could be sensitive to measurement errors and the top 0.1% of the distribution could be related to coding problems. Fiscal data are much more useful for the study of the asset composition of the wealth at the top of the distribution [Saez and Zucman, 2014]. However, we need a comprehensive information on marital status to understand who owns the wealth, which is not available in fiscal data. Nevertheless, we are interested in the share of individualized wealth and not in the level or individualized wealth. So the underestimation of

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[3]The French Civil Union (pacs) has been created in France in 1999. It allows same-sex and different-sex couples to give a legal recognition to their union which is different from marriage. Although marriage and civil union are two different types of unions, they tend to be equal in terms of wealth property (in particular, the taxation of wealth is the same for both types of couples). An important difference is that the default property contract is a contract of community of acquisitions for marriage, but since 2007, it is a contract of separation property in the case of the civil union. Partners in a cohabiting union are considered as unrelated individuals by the law.

the level of households' wealth is a problem if the unobserved wealth tend to be more (resp. less) individualized than the observed wealth as we would underestimate (resp. overestimate) the share of individualized wealth in the population.

As we see in the results, richer people tend to hold more individualized wealth, and they are more likely to misreport their wealth, so we are likely to underestimate the individualized wealth. Moreover, several papers (Goodman and Ittner [1992], Kennickell and Starr-McCluer [1997] and DiPasquale and Somerville [1995]) found that the self-reported value of real-estate is generally overestimated in surveys (compared to real prices). Real-estate and particularly the main residence is generally a joint asset (even for couples with separate regimes)[4]. As a consequence, this overestimation of real-estate could downward bias our estimates of wealth individualisation.

4.2 Defining individualized wealth

In this article, we are interested in gross wealth, so we don't take into account liabilities. In most cases, assets are owned by the head of the household for single-headed households or by the member of the couple at the head of the household for couple-headed households. However, part of the total wealth of the household can be owned by other members of the household, such as children, parents, or relatives[5]. The share of wealth owned within the household by other members is quite small: 2.9% of the total wealth of households in 1998, and 1.4% in 2010 is hold by other members of the household. In 1998, the average wealth of households in 135,000 euros (235,000 in 2010) when the wealth of all members is considered and it falls to 130,900 euros (231,400 euros in 2010) when only the wealth of the head of the household and of her/his partner is taken into account[6]. For 70% of households in 1998 and 75% of households in 2010, the other members of the household do not own any wealth at all. In the following of the text, as we are interested in the interaction between demographic changes in the population and the distribution of wealth, we exclude the wealth of individuals who are not at the head of their household and we define as "individualized wealth" the wealth owned by a single individual at the head of her household (possibly sharing the head of the household with her partner), whether it is a single-headed or couple-headed household. Therefore, we use the expression "total wealth of household" as a shortcut for "total wealth owned by persons at the head of their household". This restriction might lead to under-estimate the share of individualized wealth in the whole population as other members of the households are more likely to be single.

We have detailed information for each asset declared by the household: we know the nature of the asset, its owner (or the share owned by each member of the household in case of real-estate), and the year it was acquired. We also have precise information on households, such as its composition and the marital history of its members.

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[4]In 2010, the main residence is a joint asset for 80% of the couples (owner only). This share equals 60% for couples with a separate property contract and 90% for couples with a community contract.

[5]Some assets can be shared with persons outside the household. In that case, we adjust the value of the asset to the value owned within the household in order to avoid double-counting at the macro level.

[6]The median welath of households is lower than the median wealth in Lamarche and Salembier [2012], in which they find a median wealth of 150,000 euros in 2010, while our is almost 140,000. Notice that in the 2010 survey, we have information on the value of cultural assets (such as art) but we excluded those assets from our analysis as such information is not available in the 1998 survey. This exclusion explains the difference.

In the case of single-headed households, all assets belonging to the head of the household are taken as individualized wealth, whatever their nature and date of acquisition.

In the case of couple-headed households, we need to disentangle individualized wealth from joint wealth. For that purpose, we use information on the nature of assets, the declared owner for each asset, and the legal marital status of the couple. Our methodology is to apply an *ad hoc* coefficient of individualized wealth between 0 and 1 for each asset, depending on the legal marital status of the couple and the year the asset was acquired. The main idea is to have the largest possible definition of "joint wealth" for married couples under a contract of community of assets: we exclude from joint wealth financial assets acquired before marriage, private pensions which are individualized by the law, part of the value of the real-estate assets when the shares are not equal (e.g. for a 20-80% distribution, we considered that 40% is joint while 60% is private). In the case of cohabiting couples and couples married under a contract of separation of assets, we attribute the assets to individualized wealth except if it can be argued that this asset could be common: we consider as joint assets all liquities declared as joint assets, real-estate assets when it is owned with a 50-50% distribution. For financial assets, the legal and professional assets, the legal owner is declared. Therefore, we are able to attribute those assets to the corresponding owner in the case the cohabiting couples or married couples under a separation of assets contract. However, for married couples under the default contract, we consider those assets as joint wealth if they are acquired after the date of marriage. Indeed, although there is an identified owner, the marital contract they agreed on says that this asset should be considered as a joint asset. A complete description of our classification of wealth into private and joint wealth in given in table 11 in the appendix.

All in all, we tend to take a quite conservative definition of "individualized wealth" by trying to classify as "joint wealth" the largest possible amount of wealth, so we tend to underestimate the individualization of wealth. We tried an other classification into private/joint wealth that tends to over-estimate the share of individualized wealth, in order to test if the main results are robust to our classification. Obviously, the share of individualized wealth Θ is affected by this choice but interestingly, our main results on the changes of Θ over time are quite robust to slight changes in the definition of individualized wealth. (See web appendix.)

4.3 Descriptive statistics

Table 1 gives some descriptive statistics on the average and median wealth of households, as well as average wealth and the share of wealth for some subgroups of the population, depending on their marital status and ranking in the distribution of wealth. All amounts are expressed in 2010 euros. We exclude from the analysis the households in the top 0.1% of the distribution of wealth, as explained before. It also provides the average value of each type of assets for all households (if the household does not possess any asset of that type, the value is taken as 0).

The most striking change over the 1998-2010 period is the large increase in the value of households' wealth: the mean and median wealth were multiplied by about 1.7 in 12 years, as the mean wealth increased from 130,900 euros to 231,400 euros in 2010 and the median from 79,900 euros to 135,800 euros. This increase is mostly explained by an increase in the value of real-estate assets: on average,

an household holds 82,000 euros in real-estate assets in 1998 and 157,000 euros in real-estate assets in 2010. The value of liquidities, financial and professional asets has also increased over the period. As a consequence, the composition of the wealth of households has slightly changed over time: the value of real-estate assets has increased as they represented 63% in 1998 and 68% in 2010, while the share hold in financial assets has decreased from 16% to 14%, and the share of liquidities and professionnal assets has remained stable. In the following of the text, we consider financial and professional assets together. Indeed, non quoted stocks are considered as professional assets in the survey, while they are financial assets in fiscal data.

Yet, the distribution of wealth among households depending on their marital status has changed. With an average wealth evaluated at 328,800 euros in 1998 and 623,600 euros in 2010, married couples under a contract of separation of assets are the richest type of households. They are followed by married couples under a contract of community of assets, with an average wealth of 170,300 in 1998 and 308,700 euros in 2010. Widows and cohabiting couples hold the same average wealth (about 90,000 euros in 1998 and 175,000 euros in 2010), while divorcees and never-married individuals are the poorer type of households. The ranking does not change over time, as all types of households became wealthier in 2010. However, the relative wealth of each group of households might have changed slightly, as some groups of households more than doubled the value of their wealth (divorcees, cohabiting couples), while other groups did not. More than half of the total wealth of households is owned by couples married under a community contract. However, their share is declining over time, while the shares of cohabiting couples, married couples under a contract of separation of assets, and divorcees are increasiong over time. The evolution of the share of the total wealth of households owned by each type of households is related to two mechanisms: the size of the group and its average wealth. We will consider the two mechanisms in the following of the analysis. Wealth is unequally distributed: the bottom 50% of households owns 7% of wealth in 1998, and 6% in 2010. The top 5% of households owns more than 30% of total wealth.

[**Table 1 around here**]

5   Results

5.1   The individualisation of wealth and the demographic structure of the population

Table 2 presents the results on the decomposition of the total wealth of households into three categories: wealth held by singles, wealth held jointly within couples and wealth held privately by one member of the couple. The share of individualized corresponds to the Θ defined in eq. 1, which is the sum of wealth in single headed households and the individual wealth within couples.

Our estimates confirm the individualisation of wealth. More specifically, about 42.2% of the total wealth of households was privately held in 1998, while it is about 48.4% in 2010; this increase of 6.2 pp. represents an increase of 14.7% over a 12-year period. There is a twofold explanation for this change. First, the share of total wealth held by single-headed households has increased: they held 22.3% of total wealth in 1998 and 26.3% in 2010, so singles explain 4.0 pp. out of 6.2 pp. of the

individualization of wealth. Second, the share of wealth held separately by couples increased from 19.9% to 22.1% of the total wealth of households, so couples explains 2.2 pp. of the individualization of wealth. In other words, the household wealth on which a joint decision is taken only represents a decreasing share of the total household wealth.

[**Table 2 around here**]

Within single-headed households, we can distinguish never-married singles, divorcees and widows. The contribution of each type of single-headed households is given in table 3. It shows that the increase in the contribution of single-headed households to the individualisation of wealth is almost entirely driven by the increase in the contribution of divorcees: their contribution explain 3.5pp (over the 6.2pp) of the individualization of wealth. The contribution of never-married and widows remains stable over the period, with a slight increase of 0.3pp.

We decompose the contribution of each type of single-headed households into the part explained by the increase in its share in the population and the part explained by its relative wealth compare to the average household wealth, according to eq. 4 in which by definition $\Theta_k = 1$ for single-headed households. It is striking that the contribution of divorcees has increased both because of the increase in their demographic weight (they represent 8.9% of households in 1998 and 12.3% in 2010) and because of their relative wealth, which increased from 0.55 in 1998 to 0.68 in 2010. However, although the contribution of never-married couples is stable over time, the proportion of never-married households in the population has increased from 16.3% to 18.8% while their relative wealth slightly decreased from 0.46 to 0.41.

[**Table 3 around here**]

We decompose couples into three main categories: cohabiting couples, married couples under a regime of community of assets[7], married couples under a regime of separate assets property[8].

Table 3 describes the contribution of each type of couples. The contribution of cohabiting couples to the share of individualized wealth has increased and explains 1.1pp of the individualization of wealth, as well as the contribution of couples married under a separation contract, which explains 2pp of the individualization of wealth. The increase in the contribution of cohabiting couples can be explained by two mechanisms: their share among all households, as well as their relative average wealth have increased. However, the share of joint wealth in their wealth tends to be larger in 2010 than in 1998 as Θ_k decreased from 74% to 64%. This decrease is related to a decrease in the share of individualized wealth within couples. Indeed, the average μ_k decreased from 85% to 77%. The increase in their relative wealth, as well as the decrease in the share of individualized wealth is likely

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[7]More precisely, this group gathers three types of couples: (a) couples married under the default marital contracts stating joint property of assets after the date of marriage to the exception of inherited assets which are considered as private assets; (b) couples married under a contract stating common property of all assets without exclusion; (c) couples who contracted a civil union - and not a marriage - under a contract of joint assets property. We are not able to distinguish couples of type (a) from couples of type (b) but we estimate the share of couples of type (b) to be very low, less than 2% (see Frémeaux and Leturcq [2013] for more information). Couples of type (c) can be considered as a different category, see the web appendix for the results.

[8]This category gathers married couples under a contract of separate property and couples who contracted a civil union under a contract of separate property. Couples with a civil union can be considered as a different category, see the web appendix for the results. For more details about the French matrimonial regimes, see appendix

can be explained by the assets composition of cohabiting couples' wealth. Indeed, cohabiting couples are more likely to hold real-estate assets in 2010 than in 1998 Leturcq [2011].

By definition, most of assets held by married couples under a community contract are jointly held assets. Their contribution to the individualized wealth has decreased over time from 9.3% to 8.4%. This is explained by a decrease in the size of their group, from 47.8% of all households in 1998 to 39.1% in 2010 but they got slightly richer over the period. However, the average μ_k in this group is stable around 0.10 during the period. Following eq. 5, the increase in the difference between Θ_k and μ_k indicates that within married couples with a community of assets contracts, richer households tend to hold more individualized wealth in 2010 than in 1998, while poorer households tend to hold less individualized wealth in 2010 than in 1998.

Married couples under a separation contract explain a large share of the increase in the individualized wealth in the population: their contribution increased from 6.1 pp to 8.1 pp. This is related to the increase in the size of the group: they represents 3.8% of households in 1998 and 4.7% of households in 2010, but also to the increase in their relative wealth from 2.51 in 1998 to 2.7 in 2010. Therefore, in spite of their small demographic weight, their contribution is more important than that of cohabiting couples.

We now test if the increase in the share of individualized wealth among couples is indirectly related to divorce. Indeed, wealth acquired before marriage is considered as individualized wealth, so it should not be considered as joint wealth even for couples married with a contract of community of assets. Moreover, newly wed couples could opt for a contract of separation of assets when they marry for the second time, in order to protect their assets. We know if at least one of the member (unfortunatly, we do not know which one) of the household had been previously married, so we distinguish first unions from second unions among each type of couples.

Results are presented in table 4. The most striking result is that the individualization of wealth among couples is almost equally due to couples in a first unions and to couples in a second union: they explain 1.2 pp. of the 2.2 pp. increase in the individualized wealth due to couples. The contribution of cohabiting couples in a first union is 1.7 pp, so they explain the larger part of the individualization of wealth due to couples: they are more numerous and they are relatively richer in 2010, partly because of a better access to homeownership [Leturcq, 2011]. In the meanwhile, the contribution of cohabiting couples in a 2nd union has decreased by 0.6 pp because the size of their group tends to decrease. Couples married under a contract of separation of assets and in a first union tend to be more numerous and explain almost 1 pp. of the individualization of wealth. The increase in the share and in the relative wealth of couples in a second union married under a contract of separation of assets explains 1.1 pp of the individualization of wealth within couples, as their contribution increased from 1.8 pp to 2.9 pp. The contribution of married couples under a community contract in a first union decreased by 1.6 pp. due to their decreasing number, while married couples under a community contract in a second union increased their contribution as they tend to be more numerous. As a consequence, the increase in the share of individualized wealth among couples is only partially related to the divorce and remarriage.

[**Table 4 around here**]

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5.2 Individualisation along the distribution in wealth

In this section we test if the share of individualized wealth is constant along the distribution of household wealth. For that purpose, we construct 6 groups of households based on their rank in the distribution of households wealth: the first group is composed of the bottom half of the population, the second group is composed of the households between the 50 and 80 percentiles, the third one is composed of the households between the 80 and 90 percentiles, the fourth group of households between the 90th and the 95th, the fifth of households between the 95th and the 99th percentiles and the last group is composed of households between the 99th and the 99.9^{th} percentiles.

We decompose the contribution of each group of households following eq. 4. The results are presented in table 5. For each year and decile, we present the contribution of the group to the individualized wealth and we decompose this contribution according to the size of the group N_k/N, the relative wealth $\bar{w}_k/\bar{w}$ and the share of individualized wealth within the group Θ_k. $\bar{\mu}_k$ indicates the average share of individualized wealth within households.

The contribution of groups of households increases with wealth. The bottom 50% of the population hold very few assets: they hold 7.2% of total wealth of households in 1998 and their share decreased to 6.2% in 2010. As a consequence, they do not contribute much to the individualized wealth in the population and explain a bit more of 4% of individualized wealth (among the 42.2% in 1998 and 48.4% in 2010). In the meanwhile, the 95%-99% richest own on average 4.7 times the average wealth in the population and the average wealth of the last centiles is 12 to 14 times larger than the average wealth in the population. For each group of the population, the Θ_k and the $\bar{\mu}_k$ are very similar, indicating that households within each group have similar share of individualized wealth. The shape of individualized wealth in U-shape along the distribution of wealth: the poorest as well as the richest tend to hold more individualized wealth, and this explains the large contribution of the richest households to the share of individualized wealth. An interesting fact is that the distribution of household wealth has not changed much between the two waves: the ratio of average wealth within the group to the average wealth in the population is similar for each group for the two waves. However, the increase in the share of individualized wealth in the population, Θ, is related to an increase of the contribution of all groups. This increase is due to an increase of the share of individualized wealth within groups at all ranks of the distribution. In particular, the 95%-99% richest households hold 41% of their wealth in an individual fashion in 1998 and this share reaches 52% in 2010. The contribution of this group increased from 7.6% to 9.7%. The contribution of the 0.9% richest households increased from 6.7% to 9.0% because of the increase in their relative wealth and the increase in the share of individualized wealth among this group. Taken together, households in the top 4.9% of the distribution of wealth explains 4.4 pp of the 6.2 pp increase in the individualized wealth presented in table 2.

[**Table 5 around here**]

Now let us examine how the contribution of each group along the distribution is related to the composition of each distribution group by marital status. We decompose each of the 12 "decile" groups (decomposing the first two groups into decile groups) into 6 groups according to the marital status of the household. The full decomposition into 72 groups is presented in the web appendix. It

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shows that for each decile group, the relative wealth of each demographic group in comparison to other demographic groups in the same decile group is very close to 1, in both year. As a consequence, the ratio $\bar{w}_{dk}/\bar{w}_d$ does not explain changes in the contribution of the decile group d to the individualized wealth. They are explained by changes in (a) the ratios $\bar{N}_{dk}/\bar{N}_d$, i.e. the demographic composition of groups of households based on their rank in the distribution and (b) the share of individualized wealth Θ_{dk} in the total wealth of the demographic group k in decile d. Changes in $\bar{N}_{dk}/\bar{N}_d$ are presented in panel (a) and (b) of fig. 1. Each panel describes a demographic group: it gives the share of the household of this demographic group k among households belonging to that decile group. The most striking feature is the decrease of married couples under a community contract at each point of the distribution of households wealth. They are the most numerous group at the top half of the distribution but their share has decreased from representing 60-70% to representing 45-60% of each groups in the top half of the distribution. This large retreat from marriage under a community contract explains the drop in the share of joint wealth. A second striking result is the increase in the share of divorcees at each point of the distribution of wealth, which is related to the large diffusion of divorce in the 2000's among all strata of the population. Although divorcees tend to be more represented at the botton of the distribution, they represents 10% of households in 2010 at the median and about 7-8% of households at the top of the distribution. Cohabiting couples tend to be more numerous over time at each point of the distribution, but especially at the top half of the distribution of wealth. Lastly, the share of married couples under a separation contract is very low in the bottom 70%. But within more affluent groups, they tend to be largely over-represented: 15% in 1998 and 20% in 2010 of households in the 95-99% group are married couples under a separation contract and this share peaks to 25% in 1998 and 30% in 2010 in the top percentile. Their share at each point of the top 20% of the distribution slightly shifted upward over time.

Panel (c) of fig. 1 shows the share of individualized wealth for each type of couple at each point of the distribution. Two interesting facts are worth noting. First, among cohabiting couples, the share of individualized wealth tends to decrease over time for households in the middle of the distribution, between the 40th and the 80th percentiles, which are the part of the distribution in which the largest share of wealth is explained by homeownership. Second, the share of individualized wealth along the distribution of wealth is stable over time for both married couples under a community contract and married couples under a separation contract. As a consequence, most of the the individualization of wealth is explained by changes in the demographic structure of the population along the distribution of wealth.

[**Fig. 1 around here**]

5.3 Individualisation and assets composition of wealth

We saw in sections 5.1 and 5.2 that the individualization of wealth can be explained by large changes in the demographic composition of the population and those demographic changes affect the demographic composition of different group of households according to their rank in the distribution.

In order to understand better the individualization of wealth, we decompose the index of individualized wealth Θ along two dimensions, following eq. 6: we make a partition into $K = 12$ groups

of households according to their rank in the distribution of wealth and we make a partition of the wealth into $A = 3$ type of assets (real-estate, liquidities and, financial and professional assets).

Results are presented in fig. 2 and the precise figures are given in the web appendix. Panel (a) of fig. 2 gives the structure of the wealth into the three categories of assets mentionned above for each group of household according to their rank in distribution of households wealth, i.e. W_{da}/W_d. Panel (b) presents the share of individualized wealth among wealth owned in assets a by the group of households at the level d of the distribution of wealth, i.e. W_{da}^P/W_{da}.

The structure of wealth at any point of the distribution is quite similar across the two years, although it presents interesting differences. At the bottom of the distribution up to the 4th decile, households almost only own liquidities and almost no real-estate at all. A slight share of their assets are financial and professional assets. In the middle of the distribution 40-90%, households mostly own real-estate and liquidities, and very few financial and professional assets. At the top of the distribution households own a smaller share of real-estate and a larger share of financial and professional assets. In the last percentile, the share of financial and professional assets reaches 60% for both year. Yet, it is worth noting that the share of real-estate tends to increase between 1998 and 2010, while the share of financial and professional assets tends to decrease. These changes can be explained by the large increase in the value of real-estate assets in comparison to financial and professional assets, which explains the change in the relative value of real-estate in comparison to other assets. However, the value of both financial and professional assets increased over time, mainly due to the large increase of life insurance and to the real-estate professional assets. Notice that real-estate assets (other than real-estate owned as professional assets) tend, by construction, to be less "individualized" than other type of assets. So the large increase in the value of real-estate during the period is likely to *attenuate* the individualization of wealth.

Panel (b) of fig. 2 presents how each type of asset is shared between joint ownership and individualized ownership along the distribution of wealth. First, real-estate assets as well as liquidities tend to be jointly owned, and the shares of individualized wealth among the wealth owned in that type of asset tends to decrease over the distribution, except at the very top of the distribution. This decrease is explained by the over-representation of singles and cohabiting couples at the bottom of the population and married couples under separate contract at the top (see fing. 1, panel (a) and (b)). However, real-estate and liquidities tend to be more individualized in 2010 than in 1998, which is explained by the increase in the share of divorcees. Financial and professional assets tend to be highly individualized, at all level of the distribution of assets. As liquidities and real-estate, the share of individualized wealth tend to decrease with the rank of households in the distribution of wealth. However, in 1998 and among the households at the 95-99% percentiles of the distribution of households, around 55% of the wealth owned in financial and professional assets is individualized. The share of individualized wealth for this type of assets has largely increased over the period, with an upward shift along the whole distribution: in 2010, about 70% of financial and professionnal assets are held privatly.

6 Gender differences in the individualization in wealth

6.1 Construction of males' and females' wealth

In the previous section, we show that wealth tend to be more individualized in 2010 than in 1998. In this section, we investigate if the individualization of wealth favor males or females, or both of them. We show that the individualization of wealth tends to be in favor of men, who increased their control over their own wealth and it is associated to a large increase in inequalities of wealth within households.

First we need to compute females' and males' respective wealth. For that purpose, we distinguish within couples the male's assets from the female' assets among privately held assets and we share equally jointly held assets between partners. As a consequence, we are able to construct the female's (resp. male's) private wealth w_{if}^P (resp. w_{im}^P), as well as the female's (resp. male's) total wealth w_{if} (resp. w_{im}). We derive an index of invidualized wealth at the individual level, $\mu_{is} = w_{is}^P/w_{is}$, which represents the share of one's wealth on which individuals have a direct control.

6.2 Difference in mean wealth

Table 6 provides the mean wealth of both males and females in 1998 and 2010. The gross difference in average wealth between males and females has more than triple over the period. In order to take into account the fact that the gross average wealth among individuals has been multiply by 1.8 over the period, we normalize the average wealth by dividing it by the average wealth among all individuals. The difference in relative average wealth between males and females has almost doubled over the period: it represents 0.12 of the average individual wealth in 1998 and 0.20 in 2010.

The difference in average wealth can be decomposed into the average difference in wealth within couples and a term to adjust for the difference between singles males and males living in a couple and for the difference between singles females and females living in a couple[9]. Results in table 6 show that the difference in wealth within couples has almost double in the period: the average wealth of men is 0.12 of the average individual wealth higher than the average wealth of women in 1998, and the difference increases to 0.20 in 2010. In the meanwhile, the difference between single males and single females has also increased: in 1998, the difference between single males and single females is rather small and represents 0.05 of the average individual wealth. It increases and represents 0.18 of the average wealth in 2010. However, differences between single and partnered males has decreased, while the difference between single women and married women remained stable. Those changes indicate that both men and women increased their wealth during the period, but the increase has been larger for men than for women and all men benefited from this increase, whatever their marital status.

<div align="center">

[Table 6 around here]

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[9]Let $\delta_i = w_{im} - w_{if}$ be the differences in wealth within households. The difference in average wealth $\Delta = \frac{\bar{w}_m}{\bar{w}} - \frac{\bar{w}_f}{\bar{w}} = \frac{\bar{\delta}}{\bar{w}} + \left(\frac{\bar{w}_{ms}}{\bar{w}} - \frac{\bar{w}_{mc}}{\bar{w}} \right) \frac{N_{ms}}{N_m} - \left(\frac{\bar{w}_{fs}}{\bar{w}} - \frac{\bar{w}_{fc}}{\bar{w}} \right) \frac{N_{fs}}{N_f}$. In other words, $\bar{\delta}$ tends to under-estimate (resp. over-) if single men are more (resp. less) affluent than partnered men. On the contrary, $\bar{\delta}$ tends to over-estimate (resp. under-) if single women are more (resp. less) affluent than partnered women.

6.3 Decomposition of the individualization of wealth between males and females

We now turn to the analysis of the individualization of wealth at the individual level. We conduct two analysis: first we decompose the increase in the individualization of wealth into a change in males' share of individualized wealth and a change in females' share of individualized wealth. Second, we analyse the share of individualized wealth in an individual wealth, which represents the direct control of an individual on his/her own wealth.

We use decomposition as presented in eq. 7 to decompose the wealth of the household into $A = 2$ groups: females' and males' wealths, and then into $K = 6$ groups of households individuals belong to. In other words, the individualization can be decomposed into the contribution of males' individualized wealth $\Theta_m = W_m^P/W$ and the contribution of females' individualized wealth $\Theta_f = W_f^P/W$. The Θ_s (with $s = m$ or $s = f$) can be decomposed into K elements, where K is a partition of households. In the following, we consider a partition into 6 groups based on the marital status of individuals and a partition into 6 groups based on the rank in the distribution of wealth of the household in which the individual lives. Notice that this partition is based on the household's wealth and not the individual wealth, so it is exactly the same partition as in section 5.2. A male belonging to an household at the 90th percentile of the distribution of households wealth would not necessarily be ranked at the 90th percentiles of the distribution of wealth among men. Then W_{sk}/W_s gives the share of individuals of type s wealth owned by individuals of sex s belonging to group k. Eventually, $\Theta_{sk} = W_{sk}^P/W_{sk}$ gives the share of wealth owned by individuals of sex s belonging to group k over which individuals have a direct control.

Results using a partition of $K = 6$ groups depending on the marital status is presented in tab. 7. In 1998, men hold 49.5% of the total wealth of the population, so their share tend to be slightly smaller than women's share in total wealth. However, in 2010, men own 51.4% of total wealth, and women own 48.6%. The increase in the share of males' wealth in total wealth is related to another fact: in 1998, men's contribution to the share of individualized wealth in the economy is about 20.6%, while women's contribution is about 21.6%. In 2010, women's contribution to the individualized wealth slightly increased to 22.8%. In the meanwhile, males' contribution raised to 25.6%. In other words, a large part (5.0pp.) of the individualization of wealth is due to the increase in the private wealth of men. This increase is related to the increase in the relative wealth of men comparing to the wealth of women, but also men have increased their direct control over their own wealth. Indeed, the ratio W_s^P/W_s has increased from 41.6% to 49.8% during the period; in the meanwhile, the same ratio increased from 42.8% to 46.9% for women.

Let us now examine which demographic changes explain the increase in the contribution of men to the individualization of wealth. Except for never-married single men, the contribution of men living in all types of household has increased. First, married men under a contract of separation of assets, divorced men and, widowers tend to get more numerosous and richer over time, explaining the increase in their contribution to the individulization of wealth (about +1 pp for widowers, +2.1pp. for divorced men, +1.4 pp for married men under a contract of separation). Married men under a contract of community of assets contribute slightly more to the individualized wealth in 2010 than in 1998 (+0.3pp.). This is related to an increase in the share of their own wealth on which they exert a

direct control: 17% in 1998 and 21% in 2010. Notice that $\bar{\mu}_k$ is quite stable over time for this group, while Θ_{ks} has increased, which means that the correlation between μ and w has increased: among married couples under a contract of community of assets, richer men tend to increase have a greater control on their wealth while this control might have decrease at lower level of the distribution of wealth. In the meantime, the contribution of women to the individualized wealth is quite stable, with the notable increase in the contribution of divorced women (+1.3pp), due to an increase in the number of divorced women, as well as their average wealth, indicating that the incidividualization of wealth is related to the diffusion of divorce among rich households. The contribution of never-married women, cohabiting women ans married women under a contract of separation of assets has increased by 0.5 pp for each type, less rapidly than the contribution of divorced women. The increase in their contribution is mostly due to the size of their group, so it is related to a change in the demographic structure of the population. In the meanwhile, the contribution of widows has decreased by 0.7 pp, because they got relateively poorer, while the size of their group remained stable over the period. Contrary to men, the contribution of married women under a contract of community of assets has decreased, mostly because the size of the group has decreased. It is interesting to note that in 2010, women married under a contract of community only have a direct control over 5% of their own wealth, while similar men have a direct control 10% of their own wealth.

[**Table 7 around here**]

Results using a partition of $K = 6$ groups depending on the rank of the household in the distribution of households wealth is presented in tab. 8. The contribution of males to the individualization of wealth is mostly explained by the increase in the contribution of men in households in the top 10% of the distribution of wealth. The share of private wealth has increased at each point of the distribution of households wealth, but this is especially true for men living the richest households: at the 95-99 percentiles and at the 99-99.9 percentiles, the contribution of men increased from respectivally 4.1% and 3.7% to respectivally 6.0% and 5.9%. This increase is mostly explained by a large increase in the shared of wealth on which men have a direct control among those groups. It increased from 42% to 57% for the 95-99 percentiles and from 60% to 68% among the last percentile. Notice that μ_{ks}, which gives the share on which males have a direct control at the micro level, also increased. It means that men have increase their control on their own wealth during the period. For women, although the contribution to the individualized wealth tend to increase for each group of women over time, none of these changes is as large as the changes occuring for males.

[**Table 8 around here**]

Table 9 decomposes the wealth of males and females by assets. The ratio W_{ks}/W gives the share of total wealth hold by a male in asset k. So the sum over k gives the share of males' wealth among total wealth. W_{ks}^P/W gives the share among total wealth of wealth which is privately held by a male in asset k. W_{ks}/W_s describe the structure of males' wealth (if $s = m$) or females' wealth (if $s = f$). And W_{ks}^P/W_{ks} gives the share of individualized wealth among males' asset k (if $s = m$) or females' assets k (if $s = f$). The structure of males' wealth has not changed much over the period, while the share of wealth women held in real-estate has increase from 64% to 72.7% and the share of wealth they held

as financial and professional assets decreased from 27.0% to 21.6%. For both males and females, the share of individualized wealth for real-estate has slightly increased. Even if the increase is small, it explains a large share of the individualization of wealth as real-estate represents the largest type of assets individuals own. Liquidities tend to be get more individualized over time for both men and women, and it explains a slight increase in the individualization of wealth. Nevertheless, a striking change is the increase in the share of individualized wealth among financial and professional assets, especially for men: men have a direct control over 57% of financial and professionnal assets in 1998, and on 73% in 2010. For women, this control increased from 52% to 59%. This increase in the control men have over their own financial wealth explains a large share of the individualization of wealth (about 2.8pp over 6.2pp). The remaining share is due to an increase in the share of real-estate in total wealth.

[**Table 9 around here**]

7   Interpretation

Our main result is that wealth is getting more individualized in the population, and this is mostly due to the increase in men's individualized wealth. Understanding to what extend households are actors of the individualization of wealth is a key question for public policies.

The individualization of wealth comes from three main dynamics: it is a side result from changes in the structure of the population and from changes in the relative value of real-estate assets and it is the direct result of changes in the marital behavior of households. The main changes in structure of the population are due to the increase in divorce rates, implying an increase in the number of divorcees but also an increase in the life expectancy of men, which implies an increase in the number of widowers. Both changes induce a mechanical increase in the individualization of wealth as the wealth of singles is by definition fully individualized. The larger part of the increase in individualized wealth is due to those two demographic changes.

The change in the relative value of assets alters the individualization of wealth, as real-estate value tend to be less individualized than other types of assets, so it is likely to attenuate the individualization of wealth. In order to test that assumption, we value financial, liquidities and professional assets in 1998 using the consumer price index as we did before but we value real-estate assets using the real-estate price index. So we distort the relative value of assets in 1998 in such a way that it mimics the relative value of assets in 2010. So, we give a higher weight to real-estate assets in 1998 than their actual weight. Individualized wealth represents 40.0% of the total wealth of households in 1998, while it was 42.2% when the distortion is not accounted for. As expected, the decline is mainly explained by couples, whose individualized wealth in 1998 declines from 19.9 to 18.3 (see web appendix for more results). So the increase in the relative value of real-estate attenuates the individualization of wealth.

The individualization of wealth due to changes in the demographic structure of the population and attenuated by changes in the relative value of real-estate in comparison to other assets is mechanical. However, the individualization of wealth is related to changes in the behavior of couples who deciding to keep their wealth apart although they live together, through unmarried cohabitation and decision

to opt for a separation of asset marital contract. Frémeaux and Leturcq [2013] analyze the increase in cohabitation and in the decision to opt for a marital contracts: using Oaxaca-Blinder decomposition, they show that those changes is mostly attributed to changes in the behavior of couples and not to changes in the characteristics of newlywed couples. The two articles highlight the change in the link between wealth and marital status. Marriage is not necessary for accumulation of wealth anymore, as cohabitation does not prevent couples to invest in homeownership. Moreover, the meaning of marriage might have changed over time as more and more couples choose to keep their wealth apart.

The increase in the divorce among wealthy couples is related to the diffusion of divorce among all economic groups of the population. However, it could also be related to tax avoidance: the capital tax takes all assets at the household level without correcting for the household size, creating an incentive to divorce for rich couples.

Our second important result is that the individualization of wealth has mostly favored men and reinforced the gender wealth gap: men got relatively richer over the period (their average wealth has been multiplied by 1.88 for men, while women's average wealth has been multiplied by 1.74) and increased their control over their own wealth. This is also explained by the same mechanical channels, the increase in the divorce rate among the richest household and the increase of widowhood among men, and the same behavioral channels, through the increase in unmarried cohabitation and the choice to opt for a marital contract of separation of assets. Moreover, men are more likely to hold individualized professional assets, which value also increased as a large share of professional assets are real-estate assets.

8   Concluding remarks

In this paper, we show that wealth has gotten more individualized over the period 1998-2010. We evaluate the share of individualized wealth represents 42.2% of the total wealth of household in 1998 and 48.4% in 2010. Trends in divorce and share of newlywed couples under a contract of separation of assets indicate that this share was already increasing in the last decades [for trends in marital contract see Frémeaux and Leturcq, 2015] should continue to increase in the future.

Are we likely to observe similar trends in other countries? The main drivers of the individualization are the increase in divorce rates, the diffusion of unmarried cohabitation and separation of assets marital contracts. So wealth is likely to become more individualized in countries where the same demographic changes occured, and in which the default contract creates a community of assets.

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Table 1: Descriptive statistics on households' wealth

	1998		2010	
	Average wealth	**Median wealth**	**Average wealth**	**Median wealth**
All households	130,886	79,919	228,568	133,080
	Average wealth	**Share in total wealth**	**Average wealth**	**Share in total wealth**
Real-estate	82,081	63%	156,920	69%
Liquidities	11,125	8%	11,769	5%
Financial	20,946	16%	32,782	14%
Professional	16,733	13%	27,096	12%
Never-married	59,648	7%	94,141	8%
Divorcees	72,401	5%	155,652	8%
Widows	94,850	10%	171,331	10%
Cohabiting	83,750	6%	171,231	9%
Married (comm.)	170,355	62%	306,298	52%
Married (sep.)	328,844	9%	616,433	13%
Perc. 0-50%	18,971	7%	26,956	6%
Perc. 50-80%	129,472	30%	223,293	29%
Perc. 80-90%	242,661	19%	411,362	18%
Perc. 90-95%	371,091	14%	625,951	14%
Perc. 95-99%	612,255	19%	1,066,058	19%
Perc. 99-99.9%	1,528,964	12%	3,312,181	14%

Data: Enquête Patrimoine (1998, 2010). Amounts expressed in 2010 euros.

Table 2: Total wealth of households: private and joint wealth

	1998	2010
Singles	22.3 %	26.3 %
Couples	77.7 %	73.7 %
Including:		
Indiv. wealth:	19.9%	22.1%
Joint wealth:	57.8%	51.6%
Individualization:	42.2%	48.4%

Data: Enquête Patrimoine (1998, 2010).

Table 3: Contribution of households by marital status , using an alternative definition of individualized wealth

	1998				2010			
Top line:	W_k/W		W_k^P/W		W_k/W		W_k^P/W	
Bottom line:	N_k/N	$\bar{w}_k/\bar{w}$	Θ_k	μ_k	N_k/N	$\bar{w}_k\bar{w}$	Θ_k	μ_k
All singles	22.3%		22.3%		26.3%		26.3%	
Never married	7.4%		7.4%		7.7%		7.7%	
	16.3%	0.46	100%	100%	18.8%	0.41	100%	100%
Divorcees	4.9%		4.9%		8.4%		8.4%	
	8.9%	0.55	100%	100%	12.3%	0.68	100%	100%
Widows	9.9%		9.9%		10.2%		10.2%	
	13.7%	0.72	100%	100%	13.6%	0.75	100%	100%
All couples	77.7%		19.9%		73.7%		22.1%	
Cohabiting	6.1%		4.5%		8.7%		5.6%	
	9.5%	0.64	74%	85%	11.6%	0.75	64%	77%
Married (community)	62.3%		9.3%		52.4%		8.4%	
	47.8%	1.30	15%	10%	39.1%	1.34	16%	11%
Married (separate)	9.4%		6.1%		12.6%		8.1%	
	3.7%	2.51	65%	62%	4.7%	2.69	64%	61%
All households	100.0%		42.2%		100.0%		48.4%	

Data: *INSEE, Enquête Patrimoine (1998, 2010).*

On the top line of each cell: W_k/W gives the share of wealth belonging to the demographic group k, W_k^P/W gives the share of wealth which is privately held by an individual belonging to the demographic group k.

On the bottom line of each cell: N_k/N gives the number of households belonging to group k over the total number of households in the population. $\bar{w}_k/\bar{w}$ gives the average wealth of households belonging to group k relative to the average wealth of households. Θ_k gives the individualized wealth belonging to individuals in household of type k over the total wealth of households of type k and $\bar{\mu}_k$ gives the average share of individualized wealth among the household's wealth.

Table 4: Contribution of couples to the individualization of wealth, by first or second unions

	1998				2010			
Top line:	W_k/W		W_k^P/W		W_k/W		W_k^P/W	
Bottom line:	N_k/N	$\bar{w}_k/\bar{w}$	Θ_k	$\bar{\mu}_k$	N_k/N	$\bar{w}_k/\bar{w}$	Θ_k	$\bar{\mu}_k$
Cohabiting in 1ˢᵗ union	2.8%		1.9%		6.1%		3.6%	
	6.3%	0.45	68%	86%	9.0%	0.67	59%	76%
Cohabiting in 2ⁿᵈ union	3.3%		2.6%		2.6%		2.0%	
	3.3%	1.00	79%	83%	2.5%	1.03	76%	80%
Married (comm) in 1ˢᵗ union	57.5%		8.5%		46.5%		6.9%	
	43.0%	1.34	15%	10%	34.0%	1.37	15%	10%
Married (comm) in 2ⁿᵈ union	4.8%		0.8%		6.0%		1.5%	
	4.8%	0.99	17%	13%	5.1%	1.16	25%	18%
Married (sep) in 1ˢᵗ union	7.0%		4.3%		8.3%		5.2%	
	2.7%	2.63	62%	59%	3.2%	2.59	63%	60%
Married (sep) in 2ⁿᵈ union	2.4%		1.8%		4.3%		2.9%	
	1.1%	2.22	76%	70%	1.5%	2.93	68%	62%
All first unions:	67.3%		14.7%		60.9%		15.7%	
All second unions:	10.4%		5.2%		12.9%		6.4%	
All couples:	77.7%		19.9%		73.7%		22.1%	

Data: *INSEE, Enquête Patrimoine (1998, 2010).*

On the top line of each cell: W_k/W gives the share of wealth belonging to the demographic group k, W_k^P/W gives the share of wealth which is privately held by an individual belonging to the demographic group k.

On the bottom line of each cell: N_k/N gives the number of households belonging to group k over the total number of households in the population. $\bar{w}_k/\bar{w}$ gives the average wealth of households belonging to group k relative to the average wealth of households. Θ_k gives the individualized wealth belonging to individuals in household of type k over the total wlaeht of households of type k and $\bar{\mu}_k$ gives the average share of individualized wealth among the household's wealth.

Table 5: Contribution of households by groups of percentiles

|	1998				2010			
Top line:	W_k/W		W_k^P/W		W_k/W		W_k^P/W	
Bottom line:	N_k/N	$\bar{w}_k/\bar{w}$	Θ_k	$\bar{\mu}_k$	N_k/N	$\bar{w}_k/\bar{w}$	Θ_k	$\bar{\mu}_k$
Percentiles 0-50%	7.2%		4.5%		5.9%		4.2%	
	50.0%	0.14	62%	69%	50.0%	0.12	70%	77%
Percentiles 50-80%	29.7%		11.1%		29.3%		12.6%	
	30.0%	0.99	37%	38%	30.0%	0.98	43%	44%
Percentiles 80-90%	18.5%		6.6%		18.0%		7.2%	
	10.0%	1.85	36%	36%	10.0%	1.80	40%	40%
Percentiles 90-95%	14.2%		5.7%		13.7%		5.7%	
	5.0%	2.84	40%	40%	5.0%	2.74	42%	42%
Percentiles 95-99%	18.7%		7.6%		18.7%		9.7%	
	4.0%	4.68	41%	40%	4.0%	4.67	52%	52%
Percentiles 99-99.9%	11.7%		6.7%		14.5%		9.1%	
	0.9%	11.68	57%	57%	0.9%	14.48	63%	60%
All households	100.0%		42.2%		100.0%		48.4%	

Data: *INSEE, Enquête Patrimoine (1998, 2010).*

On the top line of each cell: W_k/W gives the share of wealth belonging to the demographic group k, W_k^P/W gives the share of wealth which is privately held by an individual belonging to the demographic group k.

On the bottom line of each cell: N_k/N gives the number of households belonging to group k over the total number of households in the population. $\bar{w}_k/\bar{w}$ gives the average wealth of households belonging to group k relative to the average wealth of households. Θ_k gives the individualized wealth belonging to individuals in household of type k over the total wlaeht of households of type k and $\bar{\mu}_k$ gives the average share of individualized wealth among the household's wealth.

Figure 1: Contribution of demographic groups to the individualization of wealth along the distribution of wealth

(a) Share of singles among the subset of households at different points of the distribution of wealth
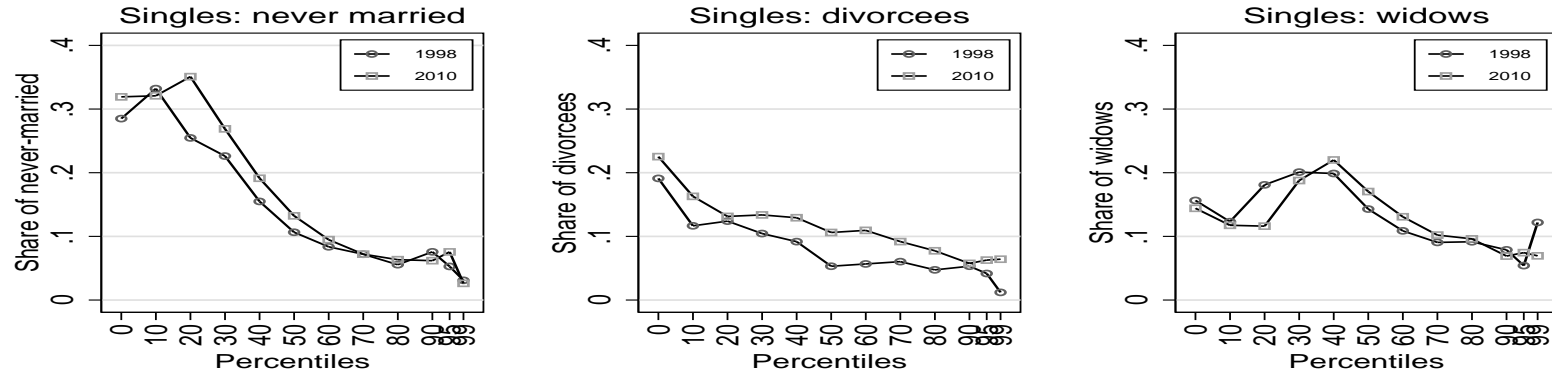
(b) Share of couples among the subset of households at different points of the distribution of wealth
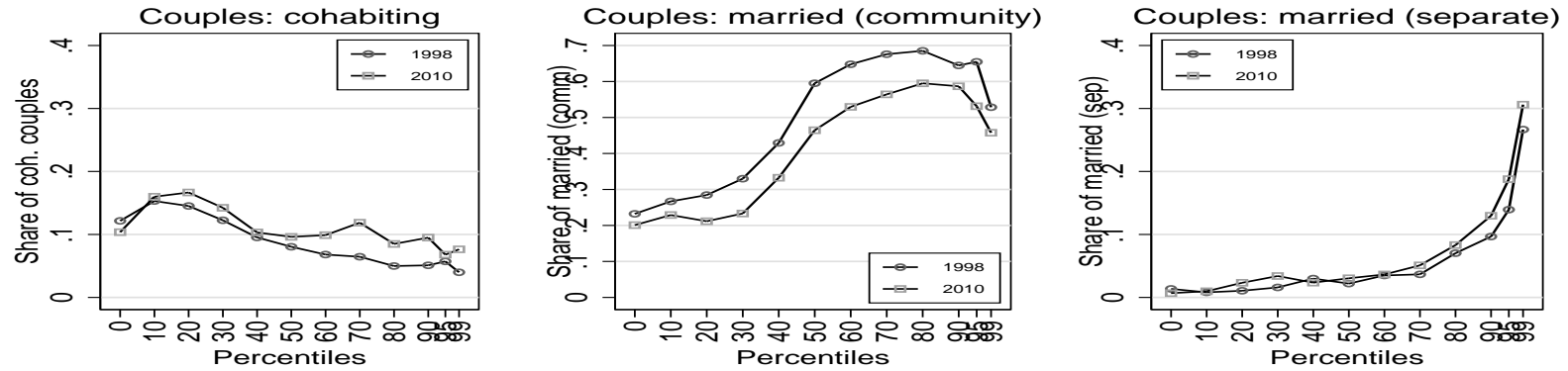
(c) Share of individualized wealth among couples at different points of the distribution of wealth
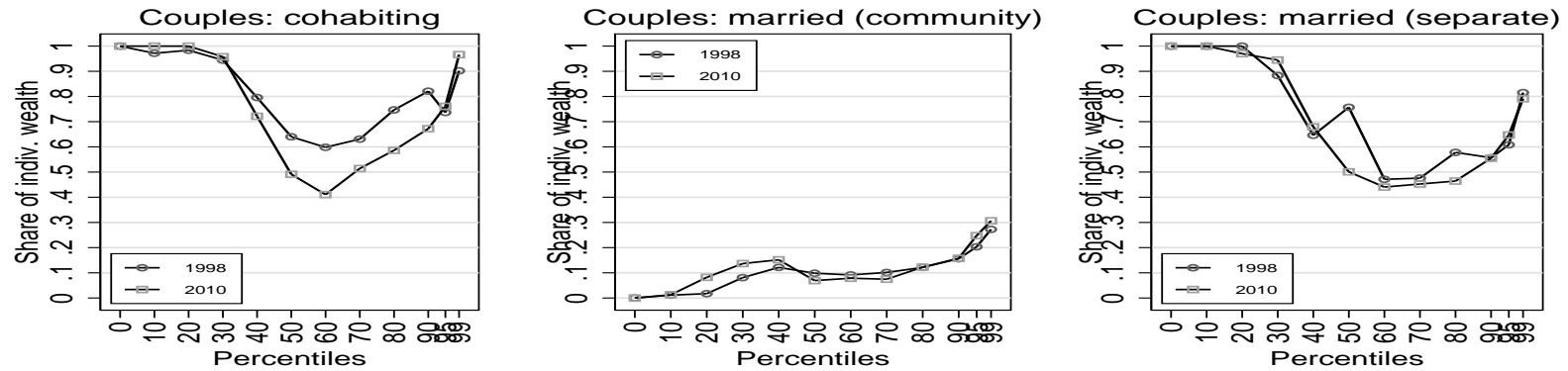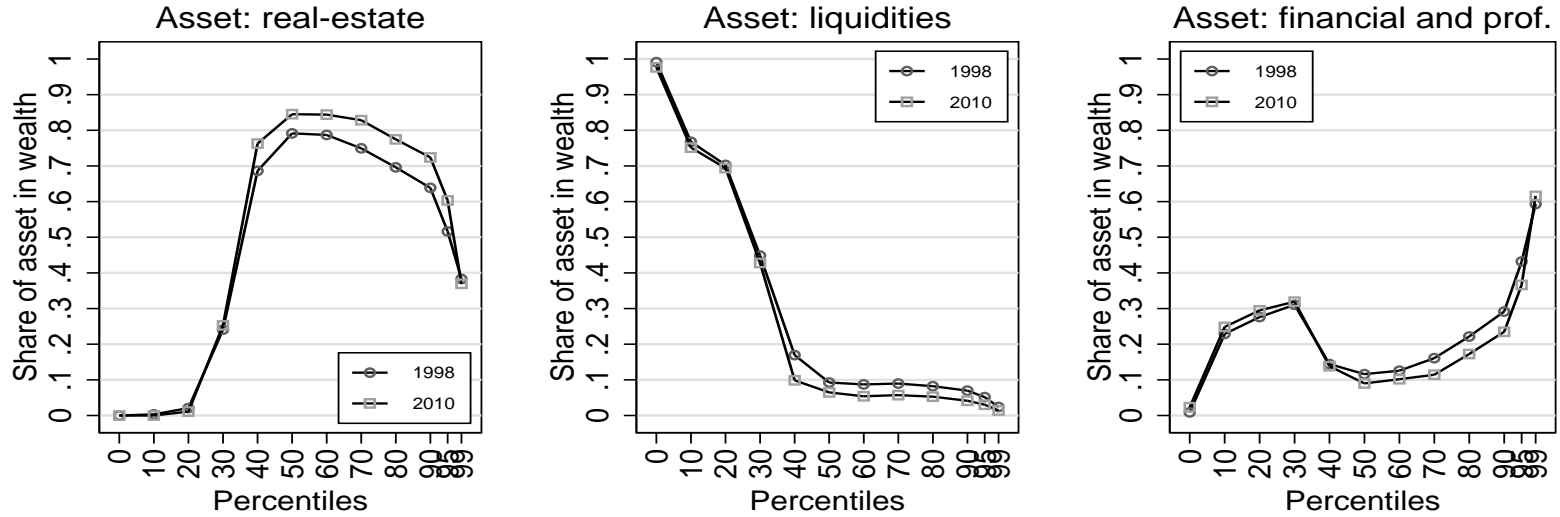
Figure 2: Description of individualized wealth depending on the type of assets

(a) Share of different assets in the wealth of households at different points of the distribution of wealth

(b) Share of induvidualized wealth among wealth owned in this assets, at different points of the distribution
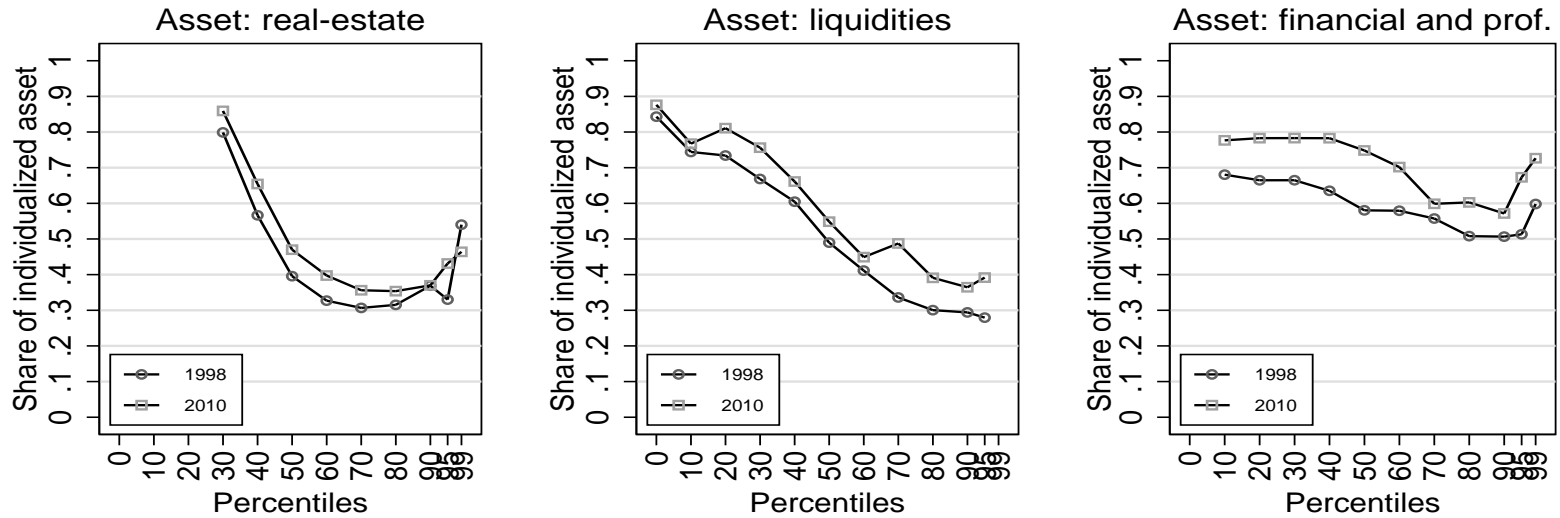of wealth

Table 6: Differences in average wealth between males and females

	1998			**2010**		
	Males	Females	Diff. M-F	Males	Females	Diff. M-F
Wealth (in euros)	81,246			147,121		
Wealth (in euros)	86,435	76,730	9,705	162,864	133,464	29,400
Wealth (relative to $\bar{w}$)	1.06	0.94	0.12	1.11	0.91	0.20
Wealth of single ind. (relative to $\bar{w}$)	0.95	0.90	0.05	1.03	0.85	0.18
Wealth of couples ind. (relative to $\bar{w}$)	1.09	0.96	0.13	1.13	0.94	0.20

Data: Enquête Patrimoine (1998, 2010).

Table 7: Decomposition of the contribution of men and women to the individualization of wealth, by demographic group

	1998						2010					
	W_{ks}/W	W_{ks}^P/W	N_{ks}/N_s	$\bar{w}_{ks}/\bar{w}_s$	Θ_{ks}	$\bar{\mu}_{ks}$	W_{ks}/W	W_{ks}^P/W	N_{ks}/N_s	$\bar{w}_{ks}/\bar{w}_s$	Θ_{ks}	$\bar{\mu}_{ks}$
Never-married	4.2%	4.2%	11.1%	0.77	100 %	100%	4.0%	4.0%	13.0%	0.60	100%	100%
Divorcees	2.3%	2.3%	4.3%	1.07	100 %	100%	4.4%	4.4%	6.7%	1.28	100%	100%
Widows	1.7%	1.7%	3.1%	1.11	100 %	100%	2.7%	2.7%	3.6%	1.46	100%	100%
Cohabiting	3.9%	3.1%	12.7%	0.61	79 %	82%	5.0%	3.5%	16.0%	0.61	69%	74%
Married (comm.)	32.0%	5.6%	63.8%	1.01	17 %	9%	27.9%	5.9%	54.2%	1.00	21%	10%
Married (sep.)	5.4%	3.8%	5.0%	2.19	70 %	60%	7.5%	5.2%	6.5%	2.24	70%	60%
All men:	49.5%	20.6%			41.6%		51.4%	25.6%			49.8%	
Never-married	3.2%	3.2%	9.3%	0.68	100%	100%	3.8%	3.8%	11.3%	0.68	100%	100%
Divorcees	2.6%	2.6%	6.6%	0.80	100%	100%	3.9%	3.9%	8.9%	0.91	100%	100%
Widows	8.2%	8.2%	13.2%	1.23	100%	100%	7.5%	7.5%	13.2%	1.17	100%	100%
Cohabiting	2.2%	1.5%	11.1%	0.40	65%	81%	3.7%	2.1%	13.9%	0.54	58%	72%
Married (comm.)	30.2%	3.7%	55.5%	1.08	12%	6%	24.6%	2.6%	47.0%	1.08	10%	5%
Married (sep.)	4.0%	2.4%	4.3%	1.82	59%	56%	5.2%	2.9%	5.6%	1.89	56%	53%
All women:	50.5%	21.6%			42.8%		48.6%	22.8%			46.9%	
All individuals:	100.0%	42.2%					100.0%	48.4%				

Data: *INSEE, Enquête Patrimoine (1998, 2010).*

W_{ks}/W gives the share of the total wealth of households belonging to an individual of sex s from the demographic group k, W_{ks}^P/W gives the share of the total wealth households which is privately held by an individual of sex s belonging to the demographic group k. N_{ks}/N_s gives the number of individuals of sex s belonging to the group of households k over the total number of households among all individuals of sex s. $\bar{w}_{ks}/\bar{w}_s$ gives the average wealth of individuals in households belonging to group k relative to the average wealth of individuals of sex s. Θ_{ks} gives the individualized wealth belonging to individuals of sex s in household of type k over the total wealth of individuals of sex s in households of type k and $\bar{\mu}_{ks}$ gives the average share of individualized wealth among the individuals of sex s belonging to households of type k.

Table 8: Decomposition of the contribution of men and women to the individualization of wealth, by percentiles group

	1998						2010					
	W_{ks}/W	W_{ks}^P/W	N_{ks}/N_s	$\bar{w}_{ks}/\bar{w}_s$	Θ_{ks}	$\bar{\mu}_{ks}$	W_{ks}/W	W_{ks}^P/W	N_{ks}/N_s	$\bar{w}_{ks}/\bar{w}_s$	Θ_{ks}	$\bar{\mu}_{ks}$
Perc. 0-50%	3.3%	1.9%	43.2%	0.15	59 %	51%	2.6%	1.7%	43.2%	0.12	66%	61%
Perc. 50-80%	14.2%	4.9%	33.2%	0.86	35 %	24%	13.7%	5.4%	32.5%	0.82	39%	28%
Perc. 80-90%	9.0%	3.1%	11.7%	1.56	34 %	25%	8.7%	3.3%	11.7%	1.44	38%	28%
Perc. 90-95%	7.1%	2.9%	5.9%	2.44	41 %	32%	7.5%	3.5%	6.3%	2.31	46%	36%
Perc. 95-99%	9.6%	4.1%	4.9%	4.00	42 %	35%	10.4%	5.9%	5.0%	4.02	57%	46%
Perc. 99-99.9%	6.2%	3.7%	1.2%	10.71	60 %	52%	8.6%	5.9%	1.3%	13.09	69%	57%
All men:	49.5%	20.6%			41.6%		51.4%	25.6%			49.8%	
Perc. 0-50%	4.0%	2.6%	46.7%	0.17	66%	59%	3.3%	2.5%	46.5%	0.15	74%	68%
Perc. 50-80%	15.5%	6.2%	31.8%	0.96	40%	28%	15.6%	7.3%	31.8%	1.01	47%	33%
Perc. 80-90%	9.5%	3.5%	10.8%	1.75	37%	28%	9.3%	3.9%	11.0%	1.74	42%	29%
Perc. 90-95%	7.1%	2.8%	5.3%	2.65	40%	31%	6.2%	2.3%	5.4%	2.36	36%	27%
Perc. 95-99%	9.1%	3.5%	4.4%	4.12	39%	32%	8.3%	3.8%	4.2%	4.02	46%	35%
Perc. 99-99.9%	5.4%	2.9%	1.1%	9.74	54%	47%	5.8%	3.1%	1.1%	10.94	54%	43%
All women:	50.5%	21.6%			42.8%		48.6%	22.8%			46.9%	
All individuals:	100.0%	42.2%					100.0%	48.4%				

Data: *INSEE, Enquête Patrimoine (1998, 2010).*

W_{ks}/W gives the share of the total wealth of households belonging to an individual of sex s from the demographic group k, W_{ks}^P/W gives the share of the total wealth households which is privately held by an individual of sex s belonging to the demographic group k. N_{ks}/N_s gives the number of individuals of sex s belonging to the group of households k over the total number of households among all individuals of sex s. $\bar{w}_{ks}/\bar{w}_s$ gives the average wealth of individuals in households belonging to group k relative to the average wealth of individuals of sex s. Θ_{ks} gives the individualized wealth belonging to individuals of sex s in household of type k over the total wealth of individuals of sex s in households of type k and $\bar{\mu}_{ks}$ gives the average share of individualized wealth among the individuals of sex s belonging to households of type k.

Table 9: Decomposition of the contribution of men and women to the individualization of wealth, by assets

	1998				2010			
	W_{ks}/W	W_{ks}^P/W	W_{ks}^P/W_s	Θ_{ks}	W_{ks}/W	W_{ks}^P/W	W_{ks}^P/W_s	Θ_{ks}
Real-estate	30.4%	10.5%	61.4%	35%	33.3%	13.1%	64.8%	39%
Liquidities	3.9%	1.5%	8.0%	37%	2.4%	1.1%	4.6%	46%
Financial and Prof.	15.2%	8.6%	30.6%	57%	15.7%	11.4%	30.6%	73%
All men's assets:	49.5%	20.6%	100.0%	41.6%	51.4%	25.6%	100.0%	49.8%
Real-estate	32.3%	12.4%	64.0%	38%	35.3%	15.1%	72.7%	43%
Liquidities	4.6%	2.1%	9.0%	46%	2.8%	1.5%	5.7%	54%
Financial and Prof.	13.6%	7.1%	27.0%	52%	10.5%	6.2%	21.6%	59%
All women's assets:	50.5%	21.6%	100.0%	42.8%	48.6%	22.8%	100.0%	46.9%
All assets:	100.0%	42.2%			100.0%	48.4%		

Data: *INSEE, Enquête Patrimoine (1998, 2010).*

W_{ks}/W gives the share of the total wealth of households belonging to an individual of sex s from the demographic group k, W_{ks}^P/W gives the share of the total wealth households which is privately held by an individual of sex s belonging to the demographic group k. W_{ks}^P/W_s gives the share of the total wealth of individuals of sex s which is privately held by an individual of sex s belonging to the demographic group k. Θ_{ks} gives the individualized wealth belonging to individuals of sex s in household of type k over the total wealth of individuals of sex s in households of type k and $\bar{\mu}_{ks}$ gives the average share of individualized wealth among the individuals of sex s belonging to households of type k.

A The matrimonial property regimes in France

The household wealth of a couple can be decomposed into three parts: the community assets ("*biens de communauté*"), the husband's separate assets ("*bien propres du mari*") and the wife's separate assets ("*biens propres de la femme*")[10]. Depending on the matrimonial property regime the size of these parts varies.

A.1 Marriages and pre-nuptial contract

Community of acquisitions From 1966, this regime becomes the default matrimonial property regime. The community assets only include acquired assets during marriage whatever their nature (financial or non-financial). All the inherited assets as well as the assets acquired before marriage are separate assets. Each spouse is the sole owner of his/her separate assets but the returns to these assets fall into the community property as long as all incomes received by each spouse. In case of divorce, the community assets are divided on a 50-50% basis (independently on the financial contribution of each spouse). In case of death, the surviving spouse only gets a limited fraction of the decedent's separate assets while the children get the largest share.

Full (or universal) community The full (or universal) community regime is, in contrast with the separate property regime, a regime in which there are no separate assets. All the assets whatever their nature (financial or non-financial, inherited or acquired before or during the marriage) are community assets. The choice of this regime has never been higher to 2% of the married couples (except in Alsace where this share reaches 15%).

Separate property regime The separate property regime is close to the dowry regime since there are two types of assets: the wife's assets and the husband's assets (in absence of *société d'acquts*). For all the assets acquired during the marriage, the financial contribution of each spouse is clearly determined.

This regime is especially useful for the self-employed people because it allows them to protect their non-professional wealth. If all the non-professional wealth is considered as the spouse's property then it cannot be seized as collateral in case of a bankruptcy of their business.

A.2 Civil union

The couples who opt for a civil union also have several options. From the creation of the civil union in France in 1999 to 2006, the default contract in case of civil union was close to that of married couples (i.e community of acquisitions). Since 2007, the default regime is the separate property regime.

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[10]The reallocations of the spouses' separate assets are tracked because the separate assets remain separate independently on the way it was used. For example, if a bequest is used to buy an asset during marriage it does not become a community asset. The community will owe the spouse who received this bequest the value of this bequest. This tracking also applies to assets or cash that the spouses brought at marriage

However, the couples can easily modify the default regime towards a community of acquisitions (or more complex regimes) with a mention in their legal convention.

A.3 Changing pre-nuptial contract

- Pre-nuptial contracts are supposed to be defined before marriage

- However, they can be modified in marriage. Explain how. But it is quite uncommon. Give figures on how many.

- All elements of the contract can be modified. For example, a common thing is to make a contract of separation of assets but leaving main housing in the community.

Table 10: Summary of applied rules of division of assets for each marital contract

	Cohabiting couple	Marriage (or civil union) contract:		
		Community of acquisition	Separation property regime	Full community
Assets acquired before marriage	Separate	Separate	Separate	Joint
Assets acquired after marriage	Separate	Joint	Separate	Joint
Inherited assets	Separate	Separate	Separate	Joint

Table 11: Summary of rules of division of assets for each marital contract

	Cohabiting couple and Separation property regime	Community of acquisition and Full community
Real-estate (Main home, other real-estate properties, etc.)	• Polarized case 100%-0% or 0%-100%: 0% attributed to joint wealth • Equality case 50%-50%: 100% attributed to joint wealth • Intermediate case x%-(1-x)%: $2\times \min(x, 1-x)$ attributed to joint wealth • Remark: bequests always considered as individualized wealth	• Polarized case 100%-0% or 0%-100%: 0% attributed to joint wealth • Equality case 50%-50%: 100% attributed to joint wealth • Intermediate case x%-(1-x)%: $2\times \min(x, 1-x)$ attributed to joint wealth • Remark: bequests always considered as individualized wealth
Liquidities (Saving accounts, etc.)	• If declared as common: 100% attributed to joint wealth • If one partner declared as owner: 0% attributed to joint wealth	• If declared as common: 100% attributed to joint wealth • If one partner declared as owner: 100% attributed to joint wealth (difficulty to prove the legal owner in case of divorce)
Financial assets (Bonds and stocks, life insurance, etc.)	• If declared as common: 100% attributed to joint wealth • If one partner declared as owner: 0% attributed to joint wealth	• If declared as common: 100% attributed to joint wealth • If one partner declared as owner: 100% attributed to joint wealth (difficulty to prove the legal owner in case of divorce) • Exception of retirement savings through employers (*Retraites surcomplémentaire*)
Professional assets (Tools, buildings, land, non-quoted stocks)	• 0% is attributed as joint wealth • If the asset is said to be joint, half of the value is attributed to each partner	• If the asset is said to be joint: 100% attributed to joint wealth • If the asset is owned by one partner: 0% attributed to joint wealth