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Wealth Effects on Consumption Across the Wealth Distribution: Empirical Evidence*

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Abstract

This paper studies the heterogeneity of the marginal propensity to consume out of wealth using French household surveys. We find decreasing marginal propensity to consume out of wealth across the wealth distribution for all net wealth components. The marginal propensity to consume out of financial assets tend to be higher compared with the effect of housing assets, excepted in the top of the wealth distribution. Consumption is less sensitive to the value of the main residence than to other housing assets. We also investigate the heterogeneity arising from indebtedness and from the role of housing assets as collateral.

JEL Classification: D12, E21, C21

Key words: Consumption, Marginal propensity to consume out of wealth, Policy distributive effects, Households survey.

Résumé

Cet article étudie l'hétérogénéité des effets de richesse sur la consommation à partir de données d'enquêtes françaises. Nous estimons la propension marginale à consommer la richesse et trouvons qu'elle décroit le long de la distribution de la richesse, et ceci, pour toutes ses composantes. La propension marginale à consommer la richesse financière est plus élevée que celle à consommer la richesse immobilière, sauf dans le haut de la distribution. La consommation est moins sensible à la valeur de la résidence principale qu'à celle des autres actifs immobiliers. Nous étudions également l'hétérogénéité des comportements de consommation liés à l'endettement des ménages et au potentiel rôle de collatéral des actifs immobiliers.

Codes JEL: D12, E21, C21

Mots-clés: Consommation, Propension marginale à consommer la richesse, effets distributifs des politiques, enquêtes ménages

Non-technical summary

The effect of wealth on households' behavior is a crucial issue for the monetary policy transmission to the real economy. Nevertheless, the link between wealth and consumption is widely discussed in the literature. According to the life cycle theory, wealth accumulation is used to smooth consumption over the life-cycle. As a result, any unexpected changes in wealth resulting from unanticipated developments in stock or housing prices may lead households to adapt their consumption. An extensive literature estimates the wealth effect on consumption using aggregate data. However the overall consumption may result from the aggregation of consumption behaviors that differ across sub-populations, which cannot be taken into account in macro-based estimates. In particular, the heterogeneity in the composition of the population (renters versus homeowners, stockholders, etc.) together with the wealth concentration in the top of the wealth distribution is likely to induce differences in consumption behaviors across households.

This paper aims at providing new insights on the heterogeneity of the wealth effects on consumption. It estimates the marginal propensity to consume out of wealth (MPC) across the whole wealth distribution and accounts for differences in the wealth composition at the household level using the French Wealth Survey[1] (INSEE) combined with the Household Budget Survey (INSEE-EUROSTAT).

We address the following questions: Is the marginal propensity to consume out of wealth decreasing with wealth? By how much does it vary across the wealth distribution? Is the MPC pattern similar for housing and financial assets? Which wealth effects (housing or financial wealth) dominates, depending on the household position in the wealth distribution? How does the household's indebtedness (level and type of collateral) affect the MPC?

Existing macro-based MPC estimates for France (see Slacalek (2009) for instance) found small but significant wealth effects on consumption in France, with estimated marginal propensity to consume out of wealth (MPC) ranging from 0.8 of a cent to 1 cent on annual consumption for every 1 euro increase (compared with MPC estimated around 5 cents for the U.S or the U.K). Our micro-based results confirm this limited wealth effect on consumption.

[1] The French Wealth Survey is part of the Eurosystem Household Finance and Consumption Survey.

More interestingly, when allowing for heterogeneous wealth effects across the wealth distribution, we obtain decreasing marginal propensity to consume out of wealth along the wealth distribution. The marginal propensity to consume out of financial wealth decreases from 11.5 cents in the bottom of the wealth distribution to a non-significant effect in the top of the distribution. The marginal propensity to consume out of housing wealth decreases from 1.1 cent in the bottom of the wealth distribution to 0.7 cent in the top of the distribution. For most households, the marginal propensity to consume out of financial assets tend to be higher compared with the marginal propensity to consume out of housing assets, except in the top of the wealth distribution, where the effect is the other way around.

This paper also contributes to the debate on whether there is a direct wealth effect on consumption or whether the correlation between wealth and consumption partly reflects a confidence channel. Our MPC estimates are obtained by controlling for household subjective income expectations and our results support the views of the existence of a confidence effect in addition to the direct wealth effect on consumption.

We also investigate the collateral effect of housing assets in France and we find larger MPC for households that have contracted mortgages, everything else being equal. Such differences in the marginal propensity to consume out of wealth are then consistent with a possible collateral effect which would lead the consumption of “mortgage households” to be more sensitive to housing wealth. Given the institutional features of the mortgage market in France, such a result could also reflect a selection effect in the bank lending supply.

1. Introduction

The question of whether there is a consumption-wealth channel at play is a crucial policy issue, especially for monetary policy transmission to consumer behavior (see for instance, Ludvigson et al., 2002). A large body of empirical macroeconomic literature (see Muellbauer, 2010; Carroll et al., 2011; and Aron et al., 2012 among others) hence seeks to evaluate the macroeconomic impact of wealth on consumption. However, these macro-based estimates are not able to account for heterogeneities in household behavior. Total consumption may actually be made up of the aggregation of different consumption behaviors across populations. From a theoretical point of view, Carroll and Kimball (1996) show that uncertainty over wealth and income may lead the marginal propensity to consume out of wealth to decline as wealth or income increase. They show that when households have a precautionary saving motive, in the presence of income uncertainty, the consumption function is concave in wealth.[2] The intuition behind the decreasing marginal propensity to consume out of wealth is that wealthy households save for precautionary motives proportionally less than unwealthy ones. Under uncertainty, King (1994) shows that credit constraints also induce a higher marginal propensity to consume out of wealth. Liquidity-constrained households cannot adopt their optimal consumption and their consumption is more sensitive to wealth (Blinder, 1976). Such heterogeneity in the marginal propensity to consume out of wealth affects the transmission of asset prices to consumption and is therefore of prime interest for policy design.

This paper estimates the marginal propensity to consume out of wealth (MPC) across the entire wealth distribution, accounting for differences in wealth composition at household level. There are few papers providing empirical evidence of heterogeneity in the marginal propensity to consume out of wealth depending on the wealth level. Mian et al. (2013) address

[2] Carroll and Kimball (1996) show that uncertainty induces a concave consumption function for a very broad class of utility functions.

this question relying on geographical price variations across the U.S. They show that ZIP codes with poorer and more levered households have a significantly higher marginal propensity to consume out of housing wealth. However, the data they use prevent them from investigating the effect of two major features of the household wealth distribution. First, the wealth distribution is highly skewed to the right (e.g. Campbell, 2006), such that the overall consumption-wealth relationship may be driven by just part of the population at the top of the wealth distribution. Second, wealth composition, especially the relative shares of financial and housing assets in household wealth, varies along the wealth distribution (see Arrondel et al., 2014 for euro area countries), generating differences in exposure to wealth shocks along the wealth distribution. Some other papers use household surveys to account for possible differentiated marginal propensity to consume out of wealth (Parker 1999, Bover, 2005; Bostic et al., 2009; Grant and Peltonen, 2008; Paiella, 2007; Sierminska and Takhtamanova, 2007, Arrondel et al. 2014). Parker (1999), Bover (2005) and Arrondel et al. (2014) find evidence of decreasing marginal propensity to consume out of wealth based on U.S., Spanish and French data respectively[3], while Grant and Peltonen (2008) do not find such significant differences across wealth levels for Italy. However, they do not go into detail with respect to this heterogeneity across the entire wealth distribution and depending on the wealth composition[4]. For this purpose, household level data covering both wealth and consumption distributions are required (Poterba, 2000; Paiella, 2009). Our paper draws on the 2010 French Wealth Survey, which is specifically designed to measure the wealth distribution in France.[5] This survey provides detailed information on asset composition, debt, income,

[3] Arrondel et al. (2014) rely on a qualitative survey and do not provide quantitative estimates of the marginal propensity to consume out of wealth.

[4] Another strand of the empirical literature sets out to identify wealth effects on consumption based on price dynamics and controlling for heterogeneity in household behaviors, (Attanasio et al. 2009, Browning et al., 2013; Campbell and Cocco 2007; Disney et al. 2010). These papers study MPC heterogeneity across age and homeownership status, but the empirical strategy used (impact of price dynamics) prevents them from examining MPC heterogeneity due to net wealth composition and wealth inequality.

[5] The French wealth survey is conducted by the National Statistical Institute (INSEE) and is part of the Household Finance and Consumption Survey (HFCN, 2013).

sociodemographics and expectations. It also includes some consumption questions for a sub-sample of households enabling us to use a consumption survey, the Household Budget Survey (INSEE), to measure consumption at the household level in keeping with the statistical matching methodology proposed by Browning et al. (2003). We are thus able to properly account for both the wealth and the consumption distributions. We then exploit the cross-sectional differences in consumption behaviors and wealth (level and composition) across households to estimate the marginal propensity to consume out of wealth (see Parker, 1999; Bover, 2005; and Paiella, 2007 for similar approaches). Our empirical model is based on a simple consumption function: the consumption-to-income ratio is regressed on the wealth-to-income ratio and on several control variables accounting for the household life-cycle position, preferences, risk exposure, and income expectations. We allow for heterogeneous wealth effects across the wealth distribution and across net wealth components. We contribute to the empirical literature on the heterogeneity of the wealth effect on consumption in the following ways:

First, we find decreasing marginal propensity to consume out of financial and housing wealth across the wealth distribution. The marginal propensity to consume out of financial wealth decreases from 11.5 cents at the bottom of the wealth distribution to a non-significant effect at the top of the distribution. The marginal propensity to consume out of housing wealth decreases from 1.1 cents at the bottom of the wealth distribution to 0.7 cents at the top of the distribution. If we ignore this heterogeneity across the wealth distribution, our micro-based estimates are in line with the macro-based ones[6]: the estimated micro-based marginal propensity to consume out of wealth is about 0.006 for the entire population, meaning that one additional euro of net wealth is associated with 0.6 cents of additional annual consumption, and the macro-based estimates range from 0.8 cents to 1 cent on annual consumption for

[6] The only MPC estimates available for France to date have been macro-based ones. Hence this paper is the first to provide quantitative micro-based estimates of the marginal propensity to consume out of wealth for France.

every one-euro increase (Chauvin and Damette, 2010, Slacalek, 2009). Our results confirm then the small, but significant wealth effects on consumption in France (compared with MPC estimated at around 5 cents for the U.S. and the UK, see Slacalek (2009) for instance). Most importantly, we highlight the heterogeneity in the marginal propensity to consume out of wealth. This heterogeneity is driven by differences in both wealth composition and wealth level. We then compute average consumption elasticity to wealth for each wealth group in order to investigate the implications for aggregate consumption. Although the estimated MPC is decreasing with wealth, this is not the case for consumption elasticity to wealth because the concentration of wealth at the top of the distribution counterbalances the effect of the decreasing marginal propensity to consume out of wealth. In other words, average wealth increases more than average consumption across the wealth groups (reflecting the skewness of the wealth distribution), so that even with decreasing MPC, one percent of additional wealth has a greater effect on consumption at the top of the wealth distribution.

Second, we examine the role of leverage and liquidity constraints. We compare the MPC for sub-populations with heavy versus light debt pressure. Our results suggest that the consumption of households with heavy debt pressure is more sensitive to financial wealth, except at the bottom of the net wealth distribution where highly indebted households would rather reimburse their debt than consume an additional euro of financial wealth.

Third, we investigate another possible source of MPC heterogeneity in the form of the collateral channel effect of housing wealth: higher housing wealth, everything else being equal, may relax the financing constraints faced by households that have contracted loans guaranteed by the value of their housing assets (mortgages). We find larger values of MPC out of housing wealth for households that have loans with real estate collateral. We discuss the institutional features of the mortgage market in France and argue that such a result is more

likely to reflect a selection effect in bank lending policy than additional borrowing capacity for consumption purposes.

Fourth, this paper also contributes to the literature on whether there is a direct wealth effect on consumption or whether the correlation between wealth and consumption partly reflects a confidence channel (Poterba, 2000; Fenz and Fessler, 2008). We follow Disney et al. (2010) and consider a proxy for subjective expectations of the household's future (5 years hence) total income as an additional control variable.[7] We find that the probability of expecting an increase in total household income has a positive significant effect on the consumption-to-income ratio. However, in our case, introducing this variable does not affect the estimated marginal propensity to consume out of wealth. Our results support the views of the existence of a direct wealth effect on consumption, in addition to a confidence channel.

This paper is organized as follows. Section 2 describes our data and imputation strategy. In Section 3, we present our empirical approach and baseline regression. Our main results on the heterogeneity of the marginal propensity to consume out of wealth are discussed in Section 4. Section 5 investigates the role of debt pressure and the existence of a collateral channel. Section 6 concludes.

2. Wealth and consumption at the household level

2.1. Data sources

Our empirical analysis is based on the French Wealth Survey (*Enquête Patrimoine* - INSEE). We also use the 2010 Household Budget Survey (HBS, INSEE) to impute consumption at the household level in the French Wealth Survey, taking the statistical matching approach proposed by Browning et al. (2003).

[7] In the French Wealth Survey, subjective expectations are collected for a sub-sample of households different to our econometric sample. We then use an in-sample imputation to construct our proxy.

The French Wealth Survey (FWS) is designed to measure the household wealth distribution. This survey provides detailed information at the household level on housing wealth (household's main residence and other residences), financial wealth, business assets, debt (mortgages and other debt), consumption and sociodemographic variables (household composition, employment status, etc.). We use the 2009/2010 wave, which was conducted between October 2009 and February 2010. It covers a cross-section of 15,006 households. The sampling design ensures population representativeness and accounts for the wealth concentration (oversampling of the top of the distribution), see HFCN (2013) for the survey's detailed methodology.

The measure of consumption is a crucial issue. The best household level information about consumption distribution is provided by the Household Budget Surveys (HBS). These surveys collect item expenditures by asking households to fill in a highly detailed diary. Unfortunately, the HBS cannot be merged with the FWS for two reasons. First, both datasets are anonymized. Second, they do not cover the same sample of households. We nevertheless use the French 2010 Household Budget Survey[8] to impute consumption in the French Wealth Survey. In a preliminary version of this paper, we have used the 2006 wave, as the 2010 wave was not available at that time. The results obtained on the different HBS waves are pretty similar and show strong stability of the estimation of non-durable consumption. We finally retain the 2010 wave in this paper since this wave coincides with the vintage of the FWS. This may be a crucial issue for combining information coming from different surveys (see for instance D'Orazio et al. (2006) on this specific question); also the 2010 wave is more likely to comprehend structural changes in the consumption behaviors consequently to the 2008 crisis.

[8] The Household Budget Surveys are conducted by the French National Statistical Institute for France.

2.2. Consumption measure

We take the methodology proposed by Browning et al. (2003) and estimate an auxiliary model on the HBS to predict non-durable consumption in the FWS. For this purpose, a set of questions on consumption is included in the French Wealth Survey. These questions deal with well-defined and delimited parts of the household's expenditures (food consumption at home, food consumption outside the home and utilities). These consumption items are also covered by the HBS. First, taking the HBS, non-durable consumption is regressed on the selected expenditure items (food consumption at home, food consumption outside the home and utilities) and on a set of qualitative indicators reflecting regular expenditure on eight other items (clothing, public transport, cultural goods, etc.).[9] Then, the coefficients from this auxiliary regression estimated on the HBS are used to impute non-durable consumption in the Wealth Survey. The imputation strategy is detailed in Appendix A. Various tests are conducted to evaluate the imputation procedure (see Appendix A). In particular, the distributions of the imputed consumption variable in the FWS and the original variable measured in the HBS are very close (see Fig 1). Moreover, our consumption measure in the Wealth Survey covers 89% of the National Accounts aggregate. [10]

[INSERT Fig 1]

2.3. Consumption and wealth distributions

Table 1 reports the summary statistics for consumption, wealth and income distribution based on our data.[11] They are in line with well-known facts about the distributions of consumption, wealth and income.

[INSERT TABLE 1]

[9] We choose to consider only the available consumption composition information in our imputation equation. We do not introduce income or other demographic variables so as to avoid any "mechanical" correlation between consumption, income and wealth when estimating the marginal propensity to consume out of wealth.

[10] Considering harmonized definitions in both sources.

[11] Given the sampling design of the survey, we use final weights to compute our descriptive statistics in order to ensure the representativeness of the figures.

First, consumption is less unequally distributed than income (e.g. Blundell et al., 2008). In France, according to the French Wealth survey, the Gini coefficient for total gross income is about 0.38 (and about 0.36 when excluding income from housing and financial assets). The Gini coefficient for non-durable consumption is slightly lower (0.33). The fact that non-durable consumption is less unequally distributed than income is also supported by the ratio of the top ten percent to the median value: the top ten percent's non-durable consumption is less than double the median, while this ratio is around 2.2 for income. Second, wealth is far more unequally distributed than income (e.g. Davies and Shorrocks, 1999). For France, the Gini coefficient of net wealth is about 0.65 and the top ten percent's net wealth is more than 4.4 times the median net wealth. Indeed, household wealth (gross and net values) increases dramatically across the wealth distribution, especially above the median value (Table 2, columns 1 and 2).

[INSERT TABLE 2]

Such a pattern partly reflects the homeownership rate in France (55%) and the key role played by housing assets in the wealth distribution. Indeed, asset composition varies a great deal across the wealth distribution (Fig. 2). Below the 30th gross wealth percentile, households hold just financial assets (mainly deposits) and other wealth (durable goods and businesses for some of them). From here, the share of housing wealth increases sharply. It reaches about 70% of total assets in the p50-p90 gross wealth percentiles. At the top of the distribution, the weight of housing assets decreases, and its composition changes: the share of the main residence decreases while the share of other housing assets increases. In the top 1%, households hold diversified portfolios where financial assets and other assets have more

weight than housing wealth.[12] The composition of their assets is also highly specific. In particular, business assets play a crucial role in explaining their total wealth.

[INSERT Fig. 2]

Debt differences can also be observed across the wealth distribution (Table 2, last column). In the first gross wealth quintile, debt represents about 15% of the value of total assets and average net wealth is negative. This ratio reaches 16% in the p50-p70 interval and decreases above this threshold. This pattern reflects the fact that most households contract debt to buy their main residence.

The concentrations of wealth, the heterogeneity of its composition and the crucial role of debt for some households, are then likely to induce differences in the marginal propensity to consume out of wealth across the wealth distribution.

2.4. Estimation sample and definitions

Sample selection

The consumption questions are put to a (representative) sub-sample of 4,519 households (of the 15,006 households in the full sample). To estimate the marginal propensity to consume out of wealth, we exclude households with highly specific wealth, income or consumption figures: households with very high gross wealth values (above 5 million euros), very low annual household income (below 2,000 euros) and extreme consumption-to-income ratio values are then excluded. We also restrict the analysis to households where the reference person is aged between 25 and 76 in order to focus on households engaged in working life and to avoid any old-age survival bias. Our final estimation sample consists of 3,454 households after cleaning. The composition of the econometric sample is very similar to the full sample with slightly lower mean wealth values (see Table C1 in Appendix C).

[12] Given the oversampling of wealthy people in the French Wealth Survey, we are able to provide representative figures for the top 1%.

Net wealth components

To account for heterogeneity in the wealth composition, we split total wealth into the following components:

- Housing wealth includes two components: the household's main residence and other real estate property (holiday homes and rental homes, excluding real estate property held for business purposes). The literature points out that housing wealth has an ambiguous impact on consumption (see, for instance, Cooper, 2013). On the one hand, housing satisfies consumption needs and its cost increases with housing prices for all households (renters and homeowners), which may have to reduce their non-housing expenditure (negative wealth effect).[13] On the other hand, it also makes for capital gains/losses for homeowners who may adjust their consumption plans to these (unrealized or realized) housing gains/losses. The role played by the household's main residence is then likely to be specific as it covers both consumption needs and investment motives, while the other real estate properties are more likely to reflect investment decisions.
- Financial wealth includes all financial assets held by the household (deposits, mutual funds, shares, voluntary private pensions, whole life insurance and other financial assets), but excludes business assets;
- Other wealth includes assets held for business purposes (land, farms, office space rented out to businesses, etc.) and all other remaining assets (vehicles, valuables, etc.).

For each category of assets, we consider the net values, i.e. the gross value of the assets less the remaining principal on loans taken out to buy these assets based on the survey information on the main purpose of each contracted loan (see the detailed definition of the variables in Appendix B).

[13] In addition, renters may be prompted to raise their savings to finance a future home acquisition.

Subjective income expectations

The FWS provides useful information on the subjective expectations of the reference person with respect to the expected change in total household income. We construct a dummy variable reflecting household optimism about future total household income (i.e. the individual expects positive average income growth five years hence). This variable disentangles the direct wealth effect from a confidence effect,[14] as previously considered by Disney et al. (2010). In the FWS, subjective expectations are collected solely for a sub-sample of households that differs from our estimation sample. We then use in-sample imputation to construct our proxy. We first estimate the linear probability of a household expecting a positive change in household income over the next five years based on the detailed household composition, on demographic variables related to the reference person, and on certain information about the reference person's *parents*. These variables account for the household's permanent income and heterogeneity in expectations formation. The estimation results (see Table B2 in the Appendix B) show that they are highly correlated with our indicator of income expectations. We then use this estimated model to impute a similar qualitative indicator of optimism in our main estimation sample. The percentage of predicted optimistic households in our estimation sample is very close to that observed in the initial sub-sample. The imputation strategy and the results are detailed in Appendix B.

3. Empirical analysis: baseline model

We take the empirical approach used by Paiella (2007) to estimate the marginal propensity to consume out of wealth at the household level using cross-sectional information.

[14] Attanasio et al. (2009) and Carroll et al. (2011) argue that the correlation between consumption and wealth may be spurious due to omitted common determinants of asset values and consumption such as household expectations of future productivity growth.

We consider a simple consumption function based on the life cycle model where individuals use wealth accumulation to smooth consumption over their life cycle. In this framework, current consumption is proportional to total wealth (i.e. the sum of real non-human wealth and real human wealth, the latter being defined as the present value of expected future income, see Deaton, 1992) and the link between consumption, income and net wealth could be described as:

$$\frac{C_{h,t}}{Y_{h,t}} = \beta_0 + \beta_1 \frac{W_{h,t}}{Y_{h,t}} \qquad (1)$$

where C_{ht} and Y_{ht} stand respectively for consumption and income (excluding income from housing and financial assets) for a given household h at time t. In this model, β_1 denotes the propensity to consume out of wealth (or wealth effect). Given that we only have a cross-sectional survey, this relationship is estimated relying on household level heterogeneity. In other words, we estimate a long-run relationship linking differences in wealth across households and the heterogeneity in their consumption behaviors. The idea is that when controlling for individual heterogeneity reflecting differences in age, permanent income and preferences, residual differences in wealth across households could be interpreted as unanticipated and non-voluntary gains[15]. We control for individual characteristics such as the reference person's age, work status and qualifications, household composition (number of adults and number of children), a qualitative credit constraint indicator,[16] and qualitative indicators for past periods of unemployment or health problems to factor in life-cycle position, preferences, risk exposure, and credit constraints. We also control for the reference person's subjective expectations of the change in total household income by considering the

[15] In the literature, some papers are able to assess the effect of unexpected shocks relying on survey information about hypothetical income or wealth changes (Jappelli and Pistaferri, 2014), on retrospective questions on a tax rebate (Sahm et al., 2010) or using natural experiments (Jappelli and Padula, 2015).

[16] The qualitative indicator of credit constraints is a dummy variable equals to one when the household answers that it was turned down by a lender or creditor, not given as much credit as applied for, or did not apply for credit because of perceived constraints.

dummy variable reflecting household optimism about future total household income (i.e. expectation of positive average income growth five years hence).

Estimation results are reported in Table 3a (without controlling for income expectations) and Table 3b (controlling for income expectations). Our micro-based estimates show a small wealth effect on consumption in France: the estimated marginal propensity to consume out of net wealth is approximately 0.006, meaning that one additional euro of net wealth would be associated with 0.6 cents of additional annual consumption. This result is in line with previous results obtained for aggregate data ranging from 0.8 cents to 1 cent of additional annual consumption for every 1 euro increase (Slacalek, 2009; Chauvin and Damette 2010).

[INSERT TABLE 3a]

[INSERT TABLE 3b]

Significant marginal propensity to consume out of both financial and housing assets is obtained when considering the net wealth components (Table 3a and 3b, column 3). The estimated marginal propensity to consume out of financial wealth seems slightly lower (0.2 cents) than for other assets (0.7 cents).

The probability of expecting an increase in total household income has a positive significant effect: households that are optimistic about their future income tend to consume a higher share of their current income, everything else being equal. In other words, these results support the views of the existence of a direct wealth effect on consumption in addition to the confidence channel. In our case, the introduction of this variable does not affect the estimated coefficients of the wealth variable.

Sociodemographic variables also have a significant effect on the consumption-to-income ratio. The age effects are significant and suggest a decreasing consumption-to-income ratio pattern over the life cycle. This age profile might reflect the fact that middle-aged households save more than younger households for precautionary reasons or to finance

consumption in their old age. The negative age effect for older people might reflect a bequest motive. There are also significant differences based on household composition. In particular, the number of adults is negatively correlated with the consumption-to-income ratio, which could be due to some economies of scale. The share of household income used to finance consumption is greater among unemployed, less-educated people, households with credit constraints, and households with periods of unemployment in the past.

These baseline regressions provide average MPC estimated for the entire wealth distribution. However, given the concentration of wealth and the changes in asset composition across the wealth distribution illustrated in Section 2, these average estimates are likely to be affected by heterogeneity in consumption and savings behavior across the wealth distribution due, for instance, to differences in preferences, precautionary saving and accumulation for intergenerational transfer motives.

4. Main results: marginal propensity to consume out of wealth across the wealth distribution

We now consider a more flexible specification where we allow the MPC to vary across the net wealth distribution. We define net wealth categories in which household wealth composition is fairly homogeneous (see Graph 1) and introduce dummy variables accounting for the households belonging to the considered net wealth position, which are interacted with the asset values. We consider four net wealth groups defined on the basis of the net wealth percentiles: below median net wealth, p50-p69, p70-p89, and p90-p99. The results are presented in Table 4. We have also considered other ways of splitting the net wealth groups (five net wealth groups instead of the four previously defined) to check for the robustness of the results. This does not affect our main conclusions (see Table C2 in Appendix C).

[INSERT TABLE 4]

These estimates confirm the significant marginal propensity to consume out of wealth and the differentiated wealth effects by asset type. Most interestingly, we obtain decreasing marginal propensity to consume out of wealth along the wealth distribution. Considering the total net value of assets (net wealth), we obtain an MPC decreasing from 3.7 cents (for households below the median net wealth) to about 0.6 cent at the top of the distribution (Table 4, specification A). In other words, the average estimated marginal propensity to consume out of wealth estimated from the baseline model in Table 3 is likely to be biased by the nonlinear effects arising along the wealth distribution.

This pattern is confirmed when disaggregating net wealth into its components (Table 4, Specifications B and C). The marginal propensity to consume out of financial wealth decreases from 12.2 cents at the bottom of the wealth distribution to a non-significant effect at the top of the distribution. These differences across the wealth distribution, and especially the large value of MPC at the bottom of the distribution, could be due to specific precautionary motives or credit constraints faced by households with low level of net wealth.[17] Financial wealth and housing wealth have differentiated effects which vary across wealth groups (Table 4, Specification B). The financial wealth effect dominates the housing wealth effect at the bottom of the wealth distribution conversely to the top of the distribution. Heterogeneity is much less pronounced for housing wealth than for financial wealth: the marginal propensity to consume out of housing wealth decreases from 1.4 cents at the bottom of the wealth distribution to 0.8 cents at the top of the distribution. Given that housing assets are not liquid assets, this housing wealth effect could reflect the sensitivity of consumption to the "feeling" of being wealthier rather than to actual capital gains. It could also be partly due to a collateral effect. This issue is investigated in Section 5. When housing wealth is disaggregated into "main residence" and "other real estate" (Table 4, Specification C), the MPC's decreasing

[17] The role of indebtedness and debt pressure is investigated in Section 5.

pattern is obtained for both housing components. For a given net wealth group, the MPC out of other real estate is significantly higher than the MPC out of the value of the main residence (except in the p90-p99 wealth group where there are no significant differences between the two types of housing assets). This result is consistent with the fact that the "other real estate" wealth component can be more easily liquidated or adjusted by households (as it is secondary residences and housing assets held for investment purposes) compared with the household's main residence.

Once again, the MPC out of wealth estimates obtained in the baseline model in Table 3 are unable to capture this heterogeneity along the wealth distribution and across wealth components. We compute average consumption elasticity to wealth for each wealth group in order to investigate the implications for aggregate consumption. Average consumption elasticity is obtained by multiplying the estimated MPC by the ratio of average net wealth to average consumption within the considered wealth group (last column of Table 4). The wealth concentration at the top of the distribution (i.e. the fact that the ratio of wealth over consumption, W/C, is sharply increasing along the wealth distribution) counterbalances the decreasing marginal propensity to consume out of wealth. Thus, we obtain *increasing* average elasticity of consumption to net wealth (from 0.04 to 0.13 at the top of the net wealth distribution). This increasing pattern seems to be driven mainly by housing assets: average consumption elasticity to housing wealth increases from 0.01 at the bottom of the net wealth distribution to 0.11 at the top.

One potential concern when estimating the effect of wealth on consumption is the spurious correlation that may arise from greater expectations of income and future activity, which may be a common determinant of asset prices and consumption. While we already control for household's income expectations, one could nevertheless worry about a specific correlation arising from housing prices. In keeping with Cooper (2013), we conduct an

additional regression including geographical variables to account for the fact that some households may feel wealthier than others because they live in a more prosperous area. The survey provides information on household location by broad geographical areas (nine regions for France) and the size of the municipalities where the household's main residence is located. Inclusion of these explanatory variables does not dramatically change the estimated marginal propensity to consume out of wealth[18].

The potential endogeneity of asset-holding decisions is another concern for the robustness of the results. Some factors not observed or not fully captured by the control variables (such as taste, time and risk preferences) might be expected to affect both consumption and asset allocations. In our case, we are also restricted by the survey, which does not enable us to observe household asset-holding decisions over time (as it is a cross-section). We therefore perform additional regressions to check whether our results continue to hold when the analysis is restricted to households holding similar types of assets, i.e. homeowners and stockholders (see Table 5). These estimates confirm the decreasing MPC pattern, especially with respect to housing wealth for homeowners (from 6.2 cents below median net wealth to 1.2 cents in the p90-p99 group) and financial wealth for stockholders (from 17 cents below median net wealth to 0.4 cents at the top of the distribution).

As expected, for homeowners (respectively for stockholders), we obtain a larger marginal propensity to consume out of the value of housing (resp. financial) wealth than for the population as a whole. For stockholders, we also obtain an MPC out of housing wealth close to that obtained for the sub-sample of homeowners, reflecting the fact that most of them (96%) are indeed also homeowners.

[INSERT TABLE 5]

[18] Results are available upon request.

All in all, our empirical analysis sheds light on the MPC heterogeneity across households. The literature points out several factors that could explain such heterogeneity. First, our results are in line with the framework generating a concave consumption function with wealth, due to higher precautionary savings for less wealthy households. Second, debt is deemed to play a role in MPC heterogeneity through two channels. The higher value of MPC out of financial wealth observed at the bottom of the wealth distribution could reflect liquidity constraints: constrained households cannot adopt their optimal consumption and their consumption is therefore expected to be more sensitive to liquid wealth. The role of housing as collateral for mortgages could lead to heterogeneous MPC out of housing wealth: higher housing values, everything else being equal, may relax financing constraints for households that have contracted loans guaranteed by the value of their housing assets (mortgages). These issues are investigated in the next section.

5. The role of indebtedness

5.1. Debt pressure

In order to investigate whether debt pressure affects consumption behavior, we run the estimation on the subpopulations (Table 6) defined according to the following indicators:

- The debt-to-assets ratio: we consider a household to be "under pressure" when this ratio is above 2 (which corresponds to the 9th decile of this ratio in the population);
- The debt-service-to-income ratio: we define as "highly indebted" households with a ratio above 25% (which corresponds to the 9th decile of this ratio in the population).

[INSERT TABLE 6]

The results with respect to financial wealth differ at the bottom and the top of the wealth distribution. At the bottom of the wealth distribution, highly indebted households

(defined by the debt-to-assets ratio or the debt-service-to-income ratio) exhibit non-significant marginal propensity to consume out of financial wealth, while other households display high marginal propensity to consume out of financial wealth. This result may reflect the fact that highly indebted households with low wealth would rather reimburse their debt than consume an additional euro of financial wealth. For higher net wealth deciles (p50-p69 and p70-p89), MPC out of financial wealth is higher for the samples of highly indebted households. This is in line with the idea that the consumption of liquidity-constrained households is more sensitive to liquid wealth.

With respect to housing wealth, higher MPC is obtained for highly indebted households at the bottom of the net wealth distribution and vice versa for the top wealth group. At the top of the wealth distribution, the results may reflect the fact that wealthy households are able to borrow more without constraining their consumption behavior. For the less wealthy, the results across the sub-samples are in line with the assumption that the consumption of constrained households is more sensitive to wealth. They are also in line with a collateral channel affecting the consumption of households relying on debt financing and using housing wealth as collateral.

5.2. Mortgages: a collateral channel in France?

In order to investigate whether the wealth effect on consumption differs across households depending on the type of loans they have contracted, we disentangle households with loans guaranteed by real estate properties (defined as mortgages) from households without mortgages. We estimate the marginal propensity to consume out of wealth for both sub-populations (Table 7, column 1 and column 2), and obtain larger values of MPC out of housing wealth in the sub-sample of households that have loans with real estate collateral (Table 7, column 1).

[INSERT TABLE 7]

This finding may be consistent with a collateral channel that reinforces the direct housing wealth effect: everything else being equal, the consumption of households with mortgages is more sensitive to the value of the housing wealth. Although our regressions include many variables to control for observable heterogeneity in net wealth composition, the concern remains that the MPC estimated for "non-mortgage households" (Table 7, column 2) may result from two types of households with highly heterogeneous behavior: homeowners without mortgages (i.e. outright owners or homeowners with other types of loans) and households without any collateralizable real estate property. We therefore conduct an additional regression on a smaller sub-sample of households without mortgages that are nevertheless indebted and hold at least one real estate property (Table 7, column 3). The estimated MPC out of housing wealth for these non-mortgage households is higher than for the entire population of "non-mortgage households" (Table 7, column 2), but remains lower compared with the estimated MPC of "mortgage households" (Table 7, column 1), in particular at the bottom of the wealth distribution. Such differences in the marginal propensity to consume out of wealth are then consistent with a possible collateral effect, which would cause the consumption of "mortgage households" to be more sensitive to housing wealth, everything else being equal.

However, the collateral effect is likely to be limited in France, because the mortgage market is less developed than in some other European countries and is highly specific. First, to use mortgages to finance assets other than collateralized was only permitted by law during a limited period of time (2007-2014), which includes our survey period. This means that using mortgages to finance consumption needs has never been common practice in France (see also European Central Bank, 2009). Moreover, when it was permitted, the value of the collateral could not be re-evaluated over time (fixed to the initial collateralized value). Second, there are

two main types of bank loan that can be taken out to purchase a property: either a housing loan insured by an insurance scheme[19] or a mortgage collateralized by housing assets. According to the 2010 French Wealth Survey[20], most of the loans contracted to finance the household's main residence are not mortgages (Table 8). Among the French population, 20.1% of households are indebted to finance the household's main residence and only 41.1% of them have, at least, one mortgage loan. In other words, 58.9% of households that are indebted to buy their main residence do not use their real asset as collateral.[21] The second main purpose for household debt in France is to buy a car or other vehicle (20.1% of households). Less than 1% of households report that they use real estate property as collateral for this purpose. And only about 2% of the loans whose main purpose is to finance consumption are mortgages.

[INSERT TABLE 8]

In view of this institutional background, we suspect that the heterogeneity in the MPC out of housing wealth may reflect a selection effect in the bank lending supply, i.e. banks only offer mortgages to highly specific households. Indeed, significant differences can be observed between the average characteristics of indebted households[22] depending on the type of loan they have (see Table C3 in the Appendix). The "mortgage households" have higher income, housing wealth and total debt. They are also more often self-employed and younger than the other indebted households. The "mortgage households" may also differ in terms of

[19] Under the insurance scheme, if repayments are missed, the guarantor pays the lender and simultaneously tries to find amicable solutions to the defaulting problem. In theory, if no solution can be found, the guarantor registers a mortgage by court order at the borrower's expense and the property may be sold to repay the loan. However, in practice, it seems that the entire procedure is very scarcely conducted so that from the borrower's point of view, there is a clear difference in terms of risk between a mortgage and an insurance scheme. Lenders also prefer the insurance scheme as it covers the household's default risk without requiring any specific measures or provisions for the lender in the event of default.

[20] We classify a loan as a mortgage when the household declares that one of the following guarantees is attached to the loan: "Hypothèque", "Inscription en privilège de prêteur de deniers", "bien immobilier". All other loans are classified as "non mortgages". 12.6% of households in our econometric sample (i.e. 437 households) have contracted at least one loan which is a mortgage.

[21] These figures are consistent with a banking survey conducted annually by the Banque de France. In 2010, most of the distributed loans for property purchases were insured by an insurance scheme while only about 30% were guaranteed by a real estate property (mortgages).

[22] This comparison is made for households with at least one real estate property (household's main residence or other real estate) so as to focus on households with collateralizable assets.

unobservable characteristics. They may be more concerned with the value of their housing assets, have a more accurate evaluation of their wealth, and ultimately be more sensitive to it compared with households that do not provide any real estate collateral.

6. Conclusion

Estimates based on aggregate household consumption and wealth data generally find limited wealth effects on consumption in France. Yet household wealth is highly concentrated and its composition (in terms of asset categories and debt components) varies a great deal across the population. This heterogeneity cannot be taken into account in macro-based estimates of the marginal propensity to consume out of wealth.

This paper provides micro estimates of the marginal propensity to consume out of wealth, controlling for income expectations and investigates its heterogeneity across the population.

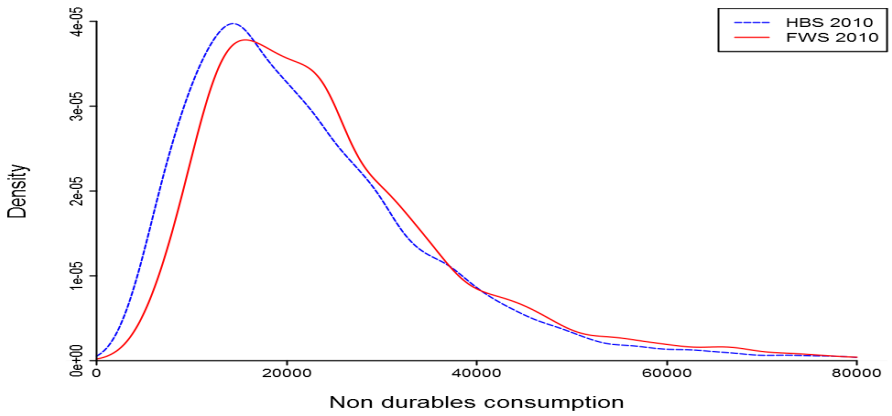
As expected, our results confirm the limited wealth effects on consumption in France, driven both by housing and financial wealth. Most interestingly, we find decreasing marginal propensity to consume out of wealth across the wealth distribution. Despite the theoretical work by Carrol and Kimball (1996), empirical evidence of such a pattern across the entire wealth distribution is scarce in the literature.

We also contribute to the debate on which wealth effect is the largest (housing or financial wealth effect) and show that the answer depends on the position of households in the wealth distribution. At the bottom of the net wealth distribution, the marginal propensity to consume out of financial wealth dominates the housing wealth effect; while at the top of the net wealth distribution, the marginal propensity to consume out of financial wealth is not significant. The pattern of wealth effects changes slightly when looking at consumption

elasticity to wealth, as the wealth concentration at the top of the distribution counterbalances the decreasing marginal propensity to consume out of wealth.

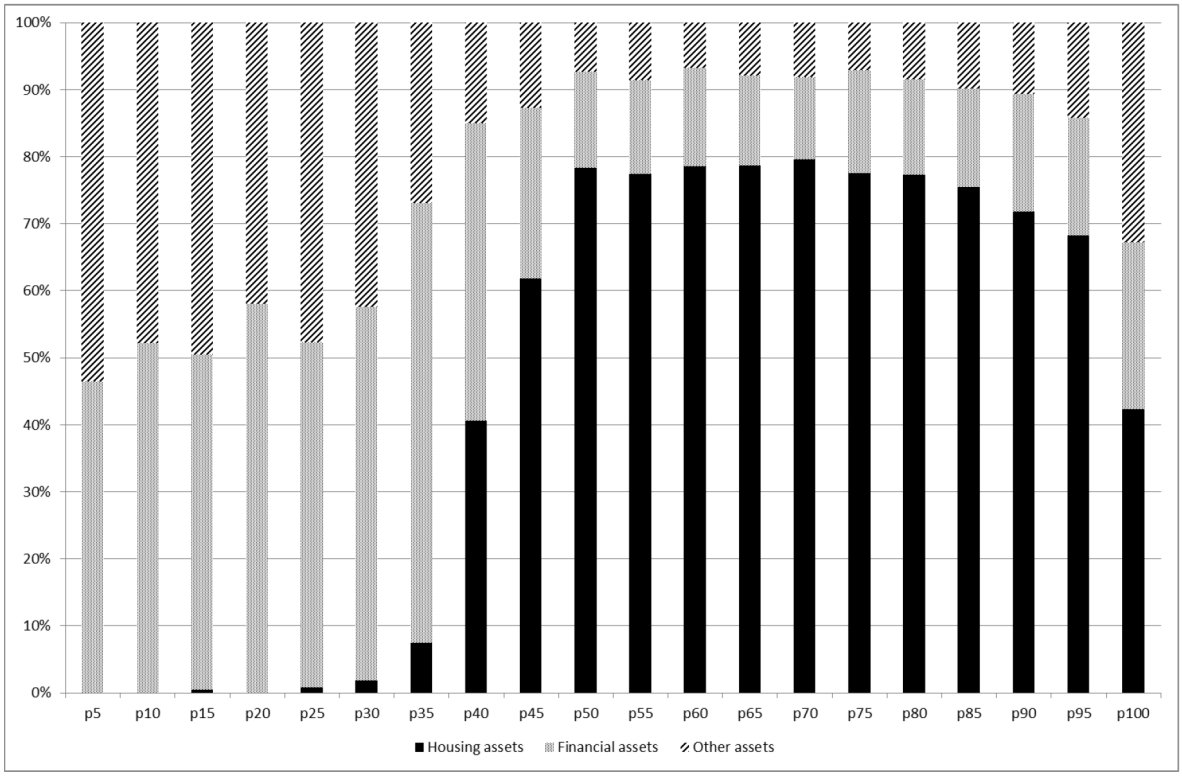
Taken together, there are a number of policy implications arising from this heterogeneity in the MPC and consumption elasticity. First, the decreasing MPC means that the consumption of some sub-populations (the less wealthy ones) is more sensitive to a change in their asset values. So public policy (monetary policy regarding interest rates as well as tax policy regarding income from assets, for instance) could have distributive effects across the population. Heterogeneous MPC is then a key factor to be taken into account to analyze the transmission of wealth shocks to aggregate consumption (See the European Central Bank, 2014). However, our computed elasticity reflecting the wealth concentration within the population suggests that the consumption response of rich people plays a key role in the overall wealth effect on consumption at the aggregate level. We argue that such heterogeneities have to be taken into account when performing welfare analysis.

Fig 1. Observed (HBS) and imputed distribution (FWS) of non-durable consumption



Source: Household Budget Survey and French Wealth Survey (*Enquête Patrimoine 2010*)

Fig 2. Average gross wealth composition by gross wealth percentiles in France



Source: French Wealth Survey (*Enquête Patrimoine 2010*) - Whole population- Weighted statistics. Housing assets: household's main residence and real estate property other than the household's main residence (holiday homes, rental homes, excluding real estate property held for business purposes). Financial assets: deposits, mutual funds, shares, voluntary private pensions, whole life insurance and other financial assets (excluding business assets). Other assets: assets held for business purposes (land, farms, office space rented out to businesses, etc.) and valuables.

Table 1. Distributions of non-durable consumption, net wealth and income

	Non durable consumption	Net wealth	Income	
			Total Income	Excl. Capital income
Mean (euros)	24,500	229,300	36,900	32,700
Median (euros)	22,300	114,500	29,200	26,900
P90/Median	1.99	4.42	2.20	2.16
Gini	0.33	0.65	0.38	0.36

Source: French Wealth Survey (*Enquête Patrimoine 2010*) and Household Budget Survey (*Enquête Budget de Famille* 2010)- Whole population- Weighted statistics.

Table 2. Mean values of gross and net wealth and share of asset categories and debt in total across the wealth distribution

Gross wealth percentiles	Mean values		Shares in total assets				
	Gross wealth	Net wealth	Financial wealth	Main residence	Other housing assets	Other Assets	Debt
0-25	9,700	-700	0.61	0.00	0.00	0.39	0.15
25-50	76,100	49,400	0.34	0.36	0.05	0.25	0.13
50-70	208,500	174,400	0.16	0.66	0.05	0.13	0.16
70-90	370,800	340,200	0.15	0.60	0.09	0.16	0.12
90-99	876,200	812,600	0.17	0.44	0.22	0.17	0.10
99-100	4,486,200	4,256,200	0.26	0.22	0.26	0.27	0.07
All	259,000	229,300	0.20	0.48	0.14	0.18	0.12

Source: French Wealth Survey (*Enquête Patrimoine 2010*) - Whole population- Weighted statistics

Financial assets: deposits, mutual funds, shares, voluntary private pensions, whole life insurance and other financial assets (excluding business assets). Other housing assets: real estate property other than the household's main residence (holiday homes, rental homes, excluding real estate property held for business purposes). Other assets: assets held for business purposes (land, farms, office space rented out to businesses, etc.) and valuables. Debt: all forms of debt contracted by households (mortgage debt, non-collateralized debt including debt contracted for business purposes).

Table 3a. Marginal propensity to consume out of wealth: baseline results

	(1)		(2)		(3)	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
Wealth						
Gross wealth	0.005 ***	0.001	-	-	-	-
Net wealth	-	-	0.006 ***	0.001		
Financial wealth	-	-	-	-	0.002 ***	0.001
Main residence	-	-	-	-	0.007 ***	0.001
Other real estate	-	-	-	-	0.007 ***	0.001
Other assets	-	-	-	-	0.007 ***	0.001
Age						
25 to 29	ref.		ref.			
30 to 39	-0.125 ***	0.033	-0.124 ***	0.033	-0.125 ***	0.033
40 to 49	-0.130 ***	0.032	-0.132 ***	0.032	-0.135 ***	0.032
50 to 59	-0.214 ***	0.032	-0.218 ***	0.032	-0.222 ***	0.032
60 to 69	-0.165 ***	0.038	-0.172 ***	0.039	-0.174 ***	0.039
70 to 75	-0.173 ***	0.044	-0.181 ***	0.044	-0.180 ***	0.044
Situation on labor market						
Self-employed	0.016	0.023	0.023	0.022	0.020	0.023
Employee	ref.	-	ref.	-	ref.	-
Retired	0.052 *	0.027	0.052 *	0.027	0.051 *	0.027
Unemployed	0.098 ***	0.031	0.096 ***	0.031	0.096 ***	0.031
Others	0.127 ***	0.042	0.132 ***	0.042	0.139 ***	0.042
Education						
No qualification	ref.	-	ref.	-	ref.	-
Primary or Secondary	-0.041 **	0.019	-0.041 **	0.019	-0.040 **	0.019
Baccalaureat	-0.068 ***	0.025	-0.067 ***	0.025	-0.064 ***	0.025
Post-secondary	-0.093 ***	0.026	-0.092 ***	0.026	-0.089 ***	0.026
Tertiary	-0.162 ***	0.022	-0.160 ***	0.022	-0.155 ***	0.022
Household composition						
Number of adults	-0.174 ***	0.013	-0.173 ***	0.013	-0.173 ***	0.012
Number of children	0.011 *	0.007	0.012 *	0.007	0.012 *	0.007
Credit constraint	0.078 ***	0.020	0.078 ***	0.020	0.076 ***	0.020
Periodes of unemployment						
Long periods of unemployment	0.049 **	0.020	0.048 **	0.020	0.048 **	0.020
Short periods of unemployment	0.043 **	0.020	0.044 **	0.021	0.045 **	0.020
Past sick leaves	0.037	0.042	0.034	0.042	0.033	0.042
Intercept	1.201 ***	0.039	1.202 ***	0.039	1.201 ***	0.039
R^2	0.153		0.154		0.157	
# observations	3,454		3,454		3,454	

Dependent variable: ratio of non-durable consumption to income (excluding income from financial and housing assets).

OLS estimates. Significant at ***1%, **5% and *10%. Econometric sample.

Table 3b. Marginal propensity to consume out of wealth: baseline results accounting for subjective income expectations

	(1)		(2)		(3)	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
Wealth						
Gross wealth	0.005 ***	0.001	-	-	-	-
Net wealth	-	-	0.006 ***	0.001		
Financial wealth	-	-	-	-	0.002 ***	0.001
Main residence	-	-	-	-	0.007 ***	0.001
Other real estate	-	-	-	-	0.007 ***	0.001
Other assets	-	-	-	-	0.007 ***	0.001
Positive income expectations	0.002 **	0.001	0.002 **	0.001	0.002 **	0.001
Age						
25 to 29	ref.		ref.			
30 to 39	-0.096 ***	0.036	-0.093 ***	0.034	-0.095 ***	0.036
40 to 49	-0.070 *	0.045	-0.068 *	0.045	-0.072 *	0.045
50 to 59	-0.127 **	0.055	-0.127 **	0.054	-0.131 **	0.055
60 to 69	-0.063	0.065	-0.064	0.065	-0.065	0.065
70 to 75	-0.061	0.072	-0.062	0.072	-0.060	0.072
Situation on labor market						
Self-employed	0.030	0.024	0.038 *	0.024	0.035	0.024
Employee	ref.		ref.	-	ref.	-
Retired	0.063 **	0.028	0.063 **	0.028	0.063 **	0.028
Unemployed	0.103 ***	0.031	0.101 ***	0.031	0.101 ***	0.031
Others	0.145 ***	0.043	0.150 ***	0.043	0.157 ***	0.043
Education						
No qualification	ref.	-	ref.	-	ref.	-
Primary or Secondary	-0.042 **	0.019	-0.041 **	0.019	-0.040 **	0.019
Baccalaureat	-0.068 ***	0.025	-0.067 ***	0.025	-0.064 ***	0.025
Post-secondary	-0.088 ***	0.026	-0.086 ***	0.026	-0.083 ***	0.026
Tertiary	-0.164 ***	0.022	-0.162 ***	0.022	-0.157 ***	0.022
Household composition						
Number of adults	-0.174 ***	0.013	-0.173 ***	0.013	-0.173 ***	0.012
Number of children	0.009	0.007	0.009	0.007	0.009	0.007
Credit constraint	0.079 ***	0.020	0.079 ***	0.020	0.078 ***	0.020
Periodes of unemployment						
Long periods of unemployment	0.049 ***	0.020	0.049 **	0.020	0.049 **	0.020
Short periods of unemployment	0.044 *	0.020	0.044 **	0.021	0.045 **	0.020
Past sick leaves	0.032 **	0.042	0.029	0.042	0.028	0.042
Intercept	1.002 ***	0.102	1.007 ***	0.102	1.004 ***	0.102
R^2	0.154		0.155		0.158	
# observations	3,454		3,454		3,454	

Dependent variable: ratio of non-durable consumption to income (excluding income from financial and housing assets). OLS estimates. Significant at ***1%, **5% and *10%. Econometric sample.

Table 4. Marginal propensity to consume out of wealth and average elasticity across the wealth distribution

Specification			Regression results			Computation of elasticities		
			(1)			(2)	(3)	(4)=(1)*(2)/(3)
			Marginal propensity to consume wealth			W	C	Consumption elasticity to wealth
		Wealth percentile dummy	Coefficient		*Std. Err.*	(mean - euros)	(mean-euros)	
	Net wealth							
		p1-p49	0.037	***	0.005	25,900	22,014	0.044
		p50-p69	0.013	***	0.002	181,000	23,700	0.096
(A)		p70-p89	0.010	***	0.001	354,150	28,200	0.123
		p90-p99	0.006	***	0.001	846,200	35,800	0.133
	Control variables		yes					
	R^2		0.168					
	Financial assets							
		p1-p49	0.122	***	0.014	8,000	22,000	0.044
		p50-p69	0.020	***	0.008	26,400	23,700	0.022
		p70-p89	0.013	**	0.006	52,800	28,200	0.024
		p90-p99	0.002		0.001	178,100	35,800	0.009
	Housing wealth							
		p1-p49	0.014	**	0.006	14,650	22,000	0.009
(B)		p50-p69	0.009	***	0.002	139,700	23,700	0.051
		p70-p89	0.008	***	0.002	269,800	28,200	0.080
		p90-p99	0.008	***	0.001	519,300	35,800	0.116
	Other assets							
		p1-p49	0.025	**	0.008	1,300	22,000	0.002
		p50-p69	0.035	***	0.008	14,000	23,700	0.020
		p70-p89	0.014	***	0.003	29,000	28,200	0.015
		p90-p99	0.006	***	0.001	261,800	35,800	0.044
	Control variables		yes					
	R^2		0.175					

Table 4 (continued). Marginal propensity to consume out of wealth and average elasticity across the wealth distribution

Specification			Regression results (1)			Computation of elasticities (2)	(3)	(4)=(1)*(2)/(3)
			Marginal propensity to consume wealth			W	C	Consumption elasticity to wealth
		Wealth percentile dummy	Coefficient		*Std. Err.*	(mean - euros)	(mean-euros)	
	Financial assets							
		p1-p49	0.122	**	0.014	8,000	22,000	0.044
		p50-p69	0.020	***	0.008	26,400	23,700	0.022
		p70-p89	0.013	***	0.006	52,800	28,200	0.024
		p90-p99	0.002		0.001	178,100	35,800	0.009
	Main residence							
		p1-p49	0.012	***	0.006	14,650	22,000	0.008
		p50-p69	0.007	***	0.003	128,500	23,700	0.039
		p70-p89	0.009	***	0.002	233,200	28,200	0.073
		p90-p99	0.008	***	0.002	332,000	35,800	0.077
(C)	Other real estate							
		p1-p49	0.030	**	0.015	700	22,000	0.001
		p50-p69	0.023	***	0.008	16,400	23,700	0.016
		p70-p89	0.006	***	0.004	41,600	28,200	0.008
		p90-p99	0.008	***	0.001	233,600	35,800	0.051
	Other assets	p1-p49	0.026	***	0.008	1,300	22,000	0.002
		p50-p69	0.035	***	0.008	14,000	23,700	0.021
		p70-p89	0.014	***	0.003	29,000	28,200	0.015
		p90-p99	0.006	***	0.001	261,800	35,800	0.044
	Control variables		yes					
	R^2		0.184					

Dependent variable: ratio of non-durable consumption to income (excluding income from financial and housing assets). Other control variables: income expectations, age, work status, reference person's education, household composition, credit constraint, periods of unemployment, sick leave.

OLS estimates. Econometric sample. Significant at ***1%, **5% and *10%.

.

Table 5. Marginal propensity to consume out of wealth: sub-samples of homeowners and stockholders

Wealth variables	Wealth percentile	Homeowners		Stockholders	
		(1)		(2)	
		Coeff.		Coeff.	
		Std. Err.		*Std. Err.*	
Financial Wealth					
	p1-p49	0.086	***	0.170	***
		0.030		*0.032*	
	p50-p69	0.023	*	0.018	
		0.012		*0.015*	
	p70-p89	0.023	***	0.023	***
		0.006		*0.009*	
	p90-p99	0.004	***	0.004	***
		0.001		*0.002*	
Housing wealth					
	p1-p49	0.062	***	0.055	*
		0.007		*0.034*	
	p50-p69	0.031	***	0.032	***
		0.003		*0.009*	
	p70-p89	0.019	***	0.020	***
		0.002		*0.004*	
	p90-p99	0.012	***	0.012	***
		0.001		*0.001*	
Other wealth					
	p1-p49	0.013	*	0.023	
		0.008		*0.055*	
	p50-p69	0.030	***	0.032	
		0.010		*0.039*	
	p70-p89	0.013	***	0.031	***
		0.003		*0.009*	
	p90-p99	0.007	***	0.008	***
		0.001		*0.002*	
Control variables		yes		yes	
R^2		0.266		0.302	
#observations		2,364		837	

Dependent variable: ratio of non-durable consumption to income (excluding income from financial and housing assets). Other control variables: income expectations, age, work status, reference person's education, household composition, credit constraint, periods of unemployment, sick leave. OLS estimates Significant at ***1%, **5% and *10%.

Table 6. Differences across household groups: debt pressure

Wealth variables	Wealth percentile	Debt to asset ratio		Debt service to income ratio	
		ratio>2	ratio<2	ratio >0,25	ratio <0,25
		Coeff.	Coeff.	Coeff.	Coeff.
		Std. Err.	Std. Err.	Std. Err.	Std. Err.
Financial Wealth					
	p1-p49	0.017	0.117 ***	0.041	0.124 **
		0.044	0.015	0.062	0.015
	p50-p69	0.068 **	0.021 ***	0.030	0.021 ***
		0.034	0.008	0.041	0.008
	p70-p89	0.042 ***	0.013 **	0.054 **	0.013 ***
		0.016	0.006	0.022	0.006
	p90-p99	0.002	0.001	0.004	0.000
		0.003	0.001	0.002	0.001
Housing wealth					
	p1-p49	0.032 **	0.016 **	0.041 ***	0.013 ***
		0.016	0.007	0.016	0.007
	p50-p69	0.03 ***	0.009 ***	0.019 **	0.010 ***
		0.007	0.003	0.007	0.003
	p70-p89	0.018 ***	0.008 ***	0.010 **	0.009 ***
		0.005	0.002	0.004	0.002
	p90-p99	0.013 ***	0.007 ***	0.007 ***	0.009 ***
		0.002	0.001	0.002	0.001
Other wealth		0.006 ***	0.007	0.006 ***	0.008 ***
		0.002	0.002	0.002	0.001
Control variables		yes	yes	yes	yes
R^2		0.258	0.177	0.227	0.184
#observations		550	2904	527	2927

Dependent variable: ratio of non-durable consumption to income (excluding income from financial and housing assets). Other control variables: income expectations, age, work status, reference person's education, household composition, credit constraint, periods of unemployment, sick leave.

OLS estimates. Significant at ***1%, **5% and *10%. Econometric sample

Table 7. Differences across household groups: indebtedness and collateral

Wealth variables	Wealth percentile	With loans guaranteed by real estate collateral	Without loans guaranteed by real estate collateral	
			All	Indebted households with a real estate property
		(1)	(2)	(3)
		Coeff.	Coeff.	Coeff.
		Std. Err.	*Std. Err.*	*Std. Err.*
Financial Wealth				
	p1-p49	0.045	0.117 ***	0.204 ***
		0.079	*0.015*	*0.047*
	p50-p69	0.060 *	0.021 ***	0.018
		0.036	*0.008*	0.026
	p70-p89	0.042 **	0.013 **	0.028 **
		0.019	*0.006*	0.011
	p90-p99	0.005	0.001	0.004 **
		0.004	*0.001*	*0.002*
Housing wealth				
	p1-p49	0.078 ***	0.012 *	0.048 ***
		0.019	*0.006*	*0.011*
	p50-p69	0.034 ***	0.010 ***	0.032 ***
		0.010	*0.003*	*0.005*
	p70-p89	0.020 ***	0.008 ***	0.021 ***
		0.005	*0.002*	*0.003*
	p90-p99	0.012 ***	0.008 ***	0.011 ***
		0.002	*0.001*	*0.001*
Other wealth		0.008 ***	0.007 ***	0.009 ***
		0.002	*0.001*	*0.001*
Control variables		yes	yes	yes
R^2		0.227	0.178	0.247
#observations		437	3,017	1,166

Dependent variable: ratio of non-durable consumption to income (excluding income from financial and housing assets). Other control variables: income expectations, age, work status, reference person's education, household composition, credit constraint, periods of unemployment, sick leave. In column 1, the econometric sample is restricted to households with at least one mortgage (i.e. a loan with one of the following associated guarantees: "Hypothèque", "Inscription en privilège de prêteur de deniers", "bien immobilier". The results for the other households without mortgages are in column 2. Column 3 reports the results for a sub-population of column 2: households without mortgages that are nonetheless in debt and have at least one real estate property. OLS estimates. Significant at ***1%, **5% and *10%. Econometric sample

Table 8. Percentage of indebted households

Purpose of the loans	% of households with one loan (or more) contracted for the following purpose	% of households with at least one mortgage for financing the associated purpose (among HH declaring the associated purpose)
Main residence	20.1	41.2
Other real estate	6.3	36.9
Renovation work	6.8	7.4
Cars, vehicles	20.1	0.5
Others (consumption)	9.9	2.3
Business	5.6	2.6
All purposes	47.6	22.7

Among the French population, 20.1% of households are indebted to finance the household's main residence. Among these households, 41.1% have, at least, one mortgage loan (defined as a loan with one of the following associated guarantees: "hypothèque", "Inscription en privilege de prêteurs de deniers" or "bien immobilier").

Source: French Wealth Survey (INSEE) - Whole population-Weighted statistics.

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Appendix A: Consumption variable

The introduction of a small number of questions to measure consumption in wealth surveys in the FWS follows Browning et al., 2003.[23] Instead of asking one question about the total amount spent on (non-durable) consumption, Browning et al. (2003) recommend asking a small number of questions about highly precise, delimited parts of their expenditure[24] in the wealth survey. The approach consists in estimating a sort of empirical Engel curve using data from a standard Household Budget Survey, mapping expenditure on good j to total expenditure on non-durable goods along with other household characteristics (family size, location, etc.) based on the following linear relationship:

(A1) $$c_j = \alpha_j + \beta_j \cdot c_{ndur} + \gamma_j \cdot z + u_j$$

where c_{ndur} is non-durable consumption and $(c_1,...,c_L)$ the small set of expenditure.

If coefficient β_j is not equal to zero, the inverse relationship gives total consumption as a function of consumption of good j and other covariables. A set of weighting coefficients $(\omega_j)_{1,...,L}$ equal to 1 gives rise to the following imputation equation in the wealth survey:

(A2) $$c_{ndur} = -\left[\sum_{j=1}^{L} \alpha_j \frac{\omega_j}{\beta_j}\right] + \frac{\omega_j}{\beta_j} \cdot c_j + ... + \frac{\omega_j}{\beta_j} \cdot c_j - \gamma \cdot z - \left[\sum_{j=1}^{L} \frac{\omega_j}{\beta_j} u_j\right]$$

Total non-durable consumption is then imputed for the Household Wealth Survey using the estimates obtained from the HBS and applying the same model.

The full set of questions on consumption in the FWS is as follows:

[23] Browning et al. (2003) explain that the best way to obtain accurate information on consumption at household level is to conduct consumption surveys where households have to fill in diaries, as is the case with the Household Budget Survey (HBS, Eurostat) for example. Obviously, this approach cannot be used in a survey where the core output (assets and liabilities assessment) is already a difficult task in itself that calls for a long and demanding questionnaire.

[24] Food consumption at home, food consumption outside the home and utilities (water expenditure, electricity, fuel and communications). They show that households seem to be able to provide more reliable information for these precise questions than for an aggregate amount.

[Q1.] Over the last 12 months, how much have you spent, on average per month, on food at home (excluding food consumption in restaurants), considering every member of your household?
[Q2.] And how much do you spend, for your household as a whole, on food consumed outside of the home (including school and work canteens, fast food, and meals and sandwiches at the workplace)?
[Q3.] Over the last 12 months, how much have you spent, on water, electricity, gas, heating and communication bills (telephone and Internet connection)?
[Q4-Q11.] Over the last 12 months, has any member of your household spent regular outlays on:

- clothing
- public transport (train, bus, plane, subway and taxi)
- other transport with a motorized vehicle or bicycle (gas expenses, insurance, etc., but not the vehicle purchase expenses themselves)
- cultural and recreational goods or services (books, movies, music, concert, museum and art exhibitions, etc.)
- other forms of recreational goods or services
- health (expenses not covered by the public or employer insurance scheme)
- children's education or childcare
- personal services (housekeeping, gardening, other)

[Q12.] How much do you spend, in an average month, on your usual consumption only (food, clothes, heating, transport, leisure, various services, etc.), excluding rent, repayments, large expenditure on durables (e.g. buying a car, refrigerator, washing machine or furniture)?

These questions were put to a random, representative sub-sample of one-third of the full sample (4,519 households of the 15,006 in the entire sample).

Non-durable consumption (equation (A2)) is estimated for the French 2006 HBS using the following specification:

$$(A3)\ \log c_{ndur} = \log C'\alpha + \sum 1_i \beta + u$$

where C is the vector of non-zero or missing log consumption (food at home, food outside the home, and utilities), and $\sum 1_i$ are the dummies for regular expenses (Q4-Q11). Aggregate consumption components were computed for the HBS based on the COICOP classification.

The regression model displays a good fit with an R^2 equal to 77%. Imputation also deals with potential heteroskedasticity in the expenditure amounts: in addition to the predictive part of the model, a residual component is drawn from the observed residual distribution conditional on the observables (using hot-deck imputation to address the potential heteroskedasticity of the residuals coming from the regression performed on the HBS data) and added to the best prediction.

Comparisons between imputed consumption in the Wealth Survey and the HBS

A comparison of FWS data with HBS data finds that the distributions for the consumption items (food at home, food outside the home and utilities) are very close in both sources (Fig. A1). Given that these three variables are explanatory variables in our imputation model with a high level of explanatory power, this close comparability establishes that there is a good match between the imputed non-durable consumption distribution in the Wealth Survey and the distribution measured in the HBS (Fig 1). Furthermore, the link between consumption and income is maintained (Fig A2).

Comparisons with aggregate figures (National Accounts)

Table A1 compares the 2009 National Accounts with our survey measure. We subtract durable consumption, insurance premiums and imputed rents to obtain comparable figures with the survey definitions of non-durable consumption. We then find that our imputed non-durable consumption covers about 89% of the non-durable consumption measured using the National Accounts.

Tab A.1 – Comparison of average consumption and disposable income based on the national accounts and our survey results (euros)

	Consumption	Disposable income
Average total amount in NA (1)	38,200	45,700
Including:		
Durable goods (2)	*3,600*	-
Imputed rents (3)	*5,500*	*5,500*
Insurance services (4)	*1,300*	*1,600*
FISIM (5)	*500*	*500*
Applying the survey definition to the National Accounts (a)=(1)-(2)-(3)-(4)-(5)	27,300	38,100
Measured using the surveys (b)	24,400	35,000
Coverage rate (b)/(a)	89%	92 %

Sources: National Accounts (a), French Wealth Survey and Household Budget Survey (b)

Fig. A1 - Observed distributions of consumption items in the HBS and the FWS

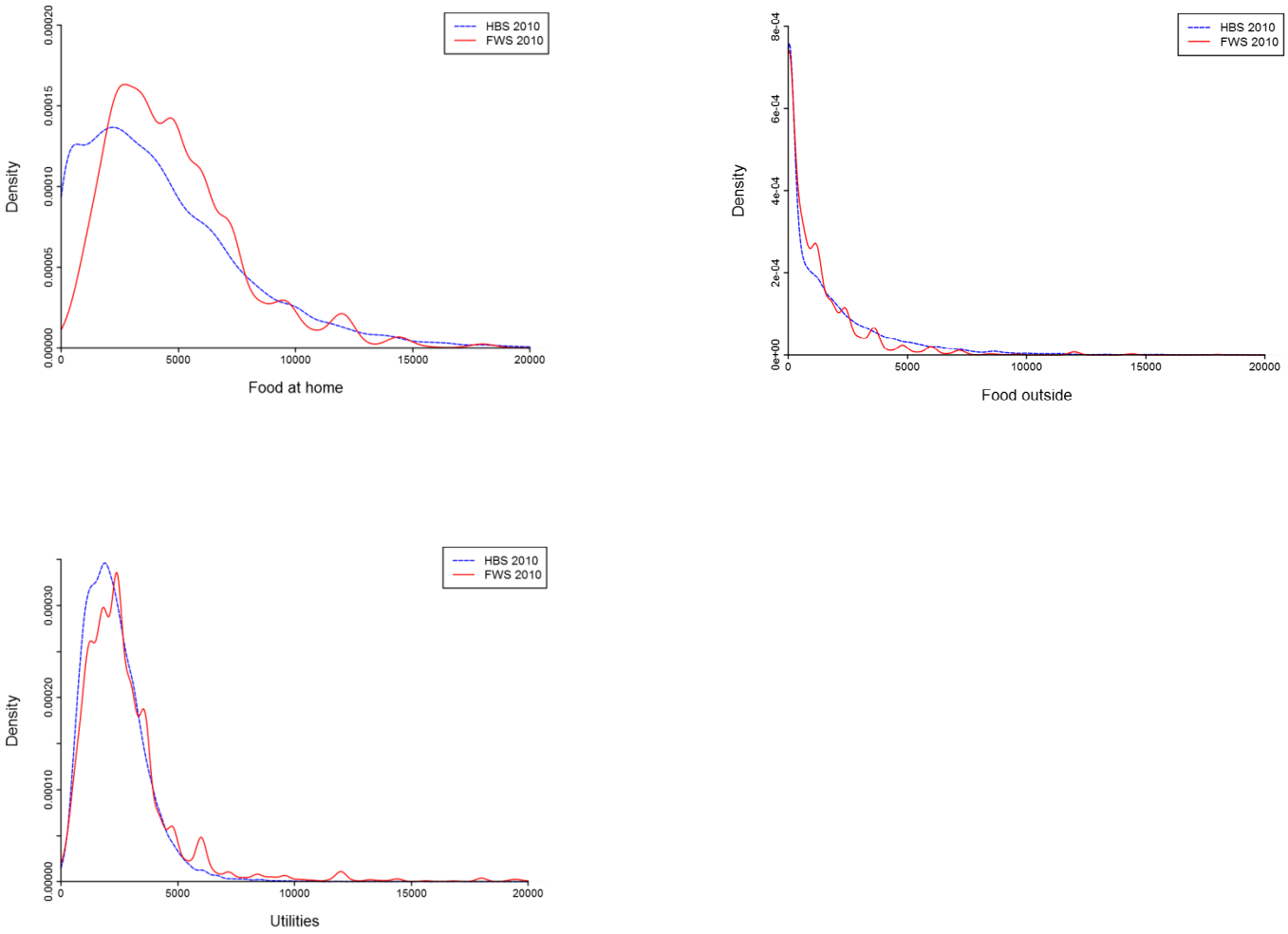
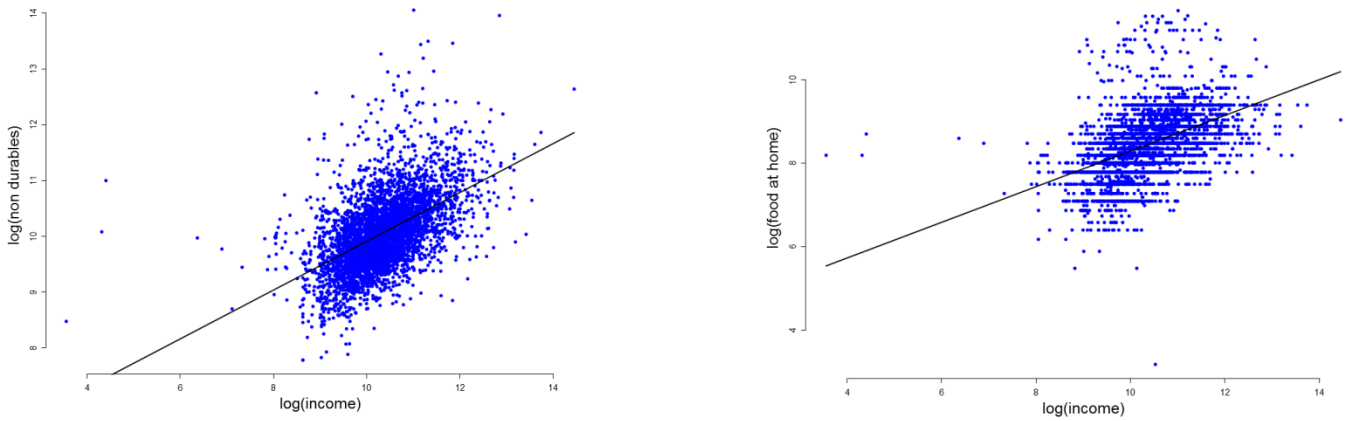


Fig. A2 – Correlation between consumption and income



Source: INSEE, French Wealth Survey, 2010

Appendix B: Other variable definitions

Net wealth components

For each category of assets, we consider the net values, i.e. the gross value of the assets less the remaining principal on loans taken out to buy these assets, based on the survey information on the main purpose of each contracted loan.

Net value of household's main residence (HMR) is the value of the HMR less the remaining principal on loans taken out to buy the household's main residence.

Net value of other real estate is the gross value less the remaining principal on loans taken out to buy other real estate property (excluding businesses).

Net financial wealth is gross financial wealth less the remaining principal on loans taken out for consumption purposes (excluding durable goods).

Net other wealth is gross other wealth less the remaining principal on loans taken out for businesses or to buy durable goods. As explained in section 5, the institutional features of the credit market in France are such that very few loans use a property (HMR or other real estate) as collateral for any other purpose than to finance the collateralized asset (see Table 8). When they do, these loans are included in the net value for "other wealth".

Measure of income expectations

The French Wealth Survey collects information on household's income expectations by asking a probabilistic question. This question is put in a specific module on preferences and expectations. In order to limit the questionnaire duration, the module is only put to a representative sub-sample (one-third of the full sample, 4,725 respondents) different to the sub-sample asked about consumption expenditure (there is no overlapping between the two sub-samples). This means that we need to compute a household-specific measure of income expectations in our econometric sample (sub-sample asked about consumption). To this end, we first estimate the probability of a household being "optimistic" about future household income in the sub-sample to which the expectations question is put. We then compute the estimated probability of "optimistic" expectations for each household in our econometric sub-sample. The reference person's expectations concerning future household income are elicited using the following question:

How do you imagine your household's total income will change over the next five years?

You have 100 percentage points to allocate among the 7 choices below:

Your household's total income will:

- *increase by [more than 25%, 10% to 25%, less than 10%]*
- *be the same as today,*
- *decrease by [less than 10%, 10% to 25%, more than 25%]*

We compute the mean expected changes for each respondent considering the mean value for each bracket and the percentage points given for each choice. We define "optimistic households" as those where the respondent expects a positive mean change in total income in the next five years. Then we estimate the linear probability of a household expecting a positive change in household income in the next five years based on the detailed household

composition, the reference person's demographic variables (age, age squared, detailed social status, education) and certain information on the reference person's *parents* (father's main occupation during the reference person's childhood). These variables aim at accounting for the household's permanent income and heterogeneity in expectations formation. The estimation results (Table B2) show that they are closely correlated with our income expectations indicator. Taking this estimated model to impute a similar qualitative indicator for optimism in our econometric sub-sample, we find that the percentage of predicted optimistic households is very close to both the observed and the estimated percentages in the "expectations and preferences" sub-sample (Table B1).

Table B1. Indicators of income expectations: quality of fit

		Average expected changes in income (%)	% of "optimistic" households
"expectations and preferences" subsample	Observed	3.25	56.3
	Estimated	3.13	56.5
Econometric subsample	Predicted	1.56	52.2

Table B2. Determinants of the probability of expecting a positive change in total household income

Social status of the reference person (RP)			
Farmer	ref.		
craftsman, merchant	0.062		0.043
Industrialist	-0.063		0.086
Self-employed professional (lawyers, doctors, etc.)	0.036		0.058
Executive	0.143	***	0.042
White collar (higher grade)	0.134	***	0.039
White collar (lower grade)	0.061		0.040
Blue collar (higher grade)	0.090	**	0.041
Blue collar (lower grade)	0.025		0.050
Retired-Farmer	0.093	*	0.056
Retired independent workers or bussinessman	0.143	**	0.051
Retired liberal profession or executive	0.052		0.047
Retired white collar (higher grade)	0.069		0.045
Retired white collar (lower grade)	0.067		0.045
Retired blue collar	0.114	***	0.045
Unemployed	-0.019		0.049
Education of RP			
No qualification	ref.		
Primary or Secondary	-0.005		0.020
Baccalaureat	-0.013		0.028
Post-secondary	-0.056	*	0.031
Tertiary	-0.016		0.030
Age of RP	-0.027	***	0.003
Age square of RP	0.000	**	0.000
Father's social status during the RP's childhood			
Farmer	ref.		
craftsman, merchant	0.064	**	0.026
Industrialist	0.085	**	0.039
Self-employed professional (lawyers, doctors, etc.)	0.022		0.045
Executive	0.103	***	0.028
White collar (higher grade)	0.118	***	0.032
White collar (lower grade)	0.065	***	0.023
Blue collar	0.058	***	0.021
Unemployed	0.013		0.085
Family composition			
One adult	ref.		
One adult with children	-0.023		0.028
Couple without children	-0.043	**	0.019
Couple with children	0.009		0.021
Others	0.025		0.041
Intercept	1.381	***	0.084
R^2	0.153		
# observations	4,725		

Dependent variable: the dummy variable equals one if the household's expected income change over the next five years is positive, and equals zero otherwise. Linear probability model (OLS estimates). Significant at ***1%, **5% and *10%. Representative sub-sample for the specific FWS module on "expectations and preferences".

Appendix C

Table C1. Summary statistics: mean values

Variables	Full sample	Consumption Sub-sample	Econometric sample
Gross wealth	258,958	265,330	254,861
Net wealth	229,259	235,231	220,654
Financial assets	50,840	52,023	44,593
Main residence	122,419	129,177	137,786
Other real estate	38,124	39,418	39,130
Other assets	47,574	44,712	33,352
Consumption	-	27,057	25,486
Income (excluding income from housing and financial assets)	32,567	32,841	36,143
Income Expectation (positive) over 5 years	0.520	0.507	0.522
Age			
25 to 29	0.115	0.110	0.074
30 to 39	0.173	0.187	0.224
40 to 49	0.180	0.193	0.231
50 to 59	0.175	0.183	0.214
60 to 69	0.158	0.147	0.177
70 to 75	0.113	0.105	0.081
More than 75	0.086	0.074	0.000
Employment status			
Self-employed	0.063	0.050	0.050
Employee	0.488	0.527	0.611
Retired	0.345	0.316	0.253
Unemployed	0.058	0.056	0.031
Others	0.046	0.051	0.055
Education			
No qualification	0.184	0.160	0.147
Primary or Secondary	0.447	0.447	0.447
Baccalaureate	0.134	0.134	0.127
Post-secondary	0.104	0.095	0.103
Tertiary	0.133	0.164	0.176
Household composition			
Number of adults	1.575	1.578	1.624
Number of children	0.655	0.665	0.792
Credit constraint	0.114	0.122	0.130
Periods of unemployment			
Long periods of unemployment	0.134	0.139	0.152
Short periods of unemployment	0.117	0.127	0.139
Past sick leaves	0.035	0.034	0.035
# observations	**15,006**	**4,519**	**3,454**

Source: French Wealth Survey (*Enquête Patrimoine 2010*). Full sample: whole population.

Table C2. Robustness of regression results: Considering 5 wealth groups instead of 4 groups

Specification			Regression results (1)			Computation of elasticities (2)	(3)	(4)=(1)*(2)/(3)
			Marginal propensity to consume out of wealth			W	C	Consumption elasticity to wealth
	Wealth percentile dummy		Coefficient		*Std. Err.*	(mean - euros)	(mean-euros)	
	Net wealth							
		p1-p29	0.162	***	0.024	1,500	22,800	0.011
		p30-p39	0.098	***	0.015	28,500	27,300	0.102
(A)		p40-p79	0.014	***	0.001	177,700	25,400	0.097
		p80-p89	0.010	***	0.001	401,100	32,800	0.122
		p90-p99	0.006	***	0.001	1,096,300	38,700	0.162
	Control variables		yes					
	R^2		0.178					
	Financial assets							
		p1-p29	0.433	***	0.051	2,100	22,800	0.040
		p30-p39	0.152	***	0.028	16,300	27,300	0.091
		p40-p79	0.025	***	0.006	29,000	25,400	0.029
		p80-p89	0.022	***	0.007	71,100	32,800	0.048
		p90-p99	0.002	*	0.001	263,000	38,700	0.013
	Housing wealth							
		p1-p29	0.064	*	0.038	-800	22,800	-0.002
		p30-p39	0.040		0.028	5,300	27,300	0.008
		p40-p79	0.010	***	0.002	134,400	25,400	0.053
		p80-p89	0.007	***	0.002	293,600	32,800	0.067
(B)		p90-p99	0.008	***	0.001	573,400	38,700	0.122
	Other assets							
		p1-p29	0.016	*	0.009	-3,500	22,800	-0.003
		p30-p39	0.094	***	0.027	6,900	27,300	0.024
		p40-p79	0.032	***	0.005	14,000	25,400	0.018
		p80-p89	0.014	***	0.004	35,600	32,800	0.015
		p90-p99	0.006	***	0.001	242,400	38,700	0.039
	Control variables		yes					
	R^2		0.195					

Table C2 (cont.) Robustness of regression results: Considering 5 wealth groups instead of 4 groups

Specification			Regression results			Computation of elasticities		
			-1			-2	-3	(4)=(1)*(2)/(3)
			Marginal propensity to consume out of wealth			W	C	Consumption elasticity to wealth
	Wealth percentile dummy		Coefficient		*Std. Err.*	(mean - euros)	(mean-euros)	
	Financial assets							
		p1-p29	0.445	***	0.052	2,100	22,800	0.041
		p30-p39	0.152	***	0.028	16,300	27,300	0.091
		p40-p79	0.025	***	0.006	29,100	25,400	0.029
		p80-p89	0.023	***	0.007	71,100	32,800	0.049
		p90-p99	0.002		0.001	263,000	38,700	0.013
	Main residence							
		p1-p29	0.162	*	0.084	1,200	22,800	0.009
		p30-p39	0.024		0.030	4,900	27,300	0.004
(C)		p40-p79	0.009	***	0.002	118,300	25,400	0.044
		p80-p89	0.008	***	0.002	241,200	32,800	0.061
		p90-p99	0.008	***	0.002	353,100	38,700	0.077
	Other real estate							
		p1-p29	0.070	*	0.038	-2,000	22,800	-0.006
		p30-p39	0.064	**	0.032	400	27,300	0.001
		p40-p79	0.017	***	0.006	16,000	25,400	0.011
		p80-p89	0.004		0.005	52,400	32,800	0.006
		p90-p99	0.008	*	0.001	220,300	38,700	0.046
	Other assets							
		p1-p29	0.020	**	0.009	-3,500	22,800	-0.003
		p30-p39	0.108	***	0.028	6,800	27,300	0.027
		p40-p79	0.032	***	0.005	14,000	25,400	0.018
		p80-p89	0.014	***	0.004	35,600	32,800	0.015
		p90-p99	0.006	***	0.001	242,400	38,700	0.039
	Control variables		yes					
	R^2		0.1959					

Dependent variable: ratio of non-durable consumption to income (excluding income from financial and housing assets). Other control variables: income expectations, age, work status, reference person's education, household composition, credit constraint, periods of unemployment, sick leave.

OLS estimates. Significant at ***1%, **5% and *10%.

Table C3. Comparing indebted households with and without mortgages

	All households	All households holding one property or more	Indebted households holding one property or more		
		(mean values)	With at least one mortgage (mean values)	With other loans (and no mortgage) (mean values)	
Wealth and income					
Gross wealth	259,000	413,500	460,600	429,200	
Net wealth	229,300	366,800	346,700	350,200	
Financial assets	50,800	72,800	52,200	61,600	
Main residence	122,400	204,700	229,600	212,700	**
Other real estate	38,100	63,800	84,800	61,800	**
Other assets	47,600	72,200	93,900	87,100	
Income (excluding income from housing and financial assets)	32,600	38,300	46,000	44,200	**
Total debt	31,700	49,800	121,200	71,500	**
Debt Service	3,400	5,200	12,000	7,700	**
Asset holding (% of HH)					
household's main residence	0.552	0.924	0.950	0.924	**
Other real estate	0.199	0.333	0.316	0.322	
Business	0.156	0.219	0.283	0.236	**
Demographics					
Age					
25 to 29	0.115	0.032	0.049	0.046	
30 to 39	0.173	0.145	0.289	0.213	**
40 to 49	0.180	0.193	0.351	0.253	**
50 to 59	0.175	0.213	0.211	0.257	**
60 to 69	0.158	0.197	0.083	0.179	**
70 to 75	0.113	0.133	0.011	0.044	**
More than 75	0.086	0.088	0.006	0.008	
Employment status					
Self-employed	0.063	0.080	0.141	0.108	**
Employee	0.488	0.470	0.735	0.635	**
Retired	0.345	0.407	0.087	0.224	**
Unemployed	0.058	0.019	0.022	0.019	
Others	0.046	0.025	0.015	0.014	
Education					
No qualification	0.184	0.147	0.107	0.094	
Primary or Secondary	0.447	0.466	0.377	0.436	**
Baccalaureat	0.134	0.123	0.161	0.145	
Post-secondary	0.104	0.110	0.174	0.137	**
Tertiary	0.133	0.152	0.181	0.188	
# observations	15,006	10,710	1,681	4,200	

Source: French Wealth Survey (*Enquête Patrimoine 2010*, INSEE). Weighted Statistics. In the last column,** indicates significant differences (at the 5% level) in the mean values of the household characteristic between households with and without mortgages (columns 3 and 4) among indebted households holding one property or more.

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