Do wealth inequalities have an impact on consumption?

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On average, wealth effects on consumption are weak in France. However, this average effect may hide differences in behaviour. This issue of Rue de la Banque *looks at the effects of wealth on consumption, and shows that they vary according to the size and composition of households' assets. In the event of an unexpected increase in wealth, poorer households tend to consume a larger share of this surplus. For these households, the propensity to consume is 11 cents per euro of additional wealth, whereas for wealthier households it is almost nil. These differences could be explained by the existence of stronger liquidity constraints on poorer households. An increase in the price of equity holdings tends to raise overall consumption inequalities. However, our simulation shows that an unexpected wealth shock would have a relatively limited effect on consumption inequalities.*

According to the life cycle theory, households take into account their resources (income and wealth) to smooth and stabilise their consumption levels over their entire life cycle. An unexpected wealth shock leads them to revise their consumption plan (wealth effect).

The macroeconomic literature has shown a strong interest in this monetary policy transmission channel via the valuation of assets and its impact on consumption (see Ludvigson et al., 2002). These studies find a modest but significant effect on average wealth in France, of the order of less than 1 euro cent[1] of additional annual consumption for one euro of additional wealth (Slacalek, 2009; Chauvin and Damette, 2010). However, these estimates based on aggregate data do not take into account wealth inequalities and the diverse composition of wealth. Indeed, households are not uniformly affected by a change in asset prices depending on whether they are homeowners, whether they hold an equity portfolio and the size of the portfolio, etc. Such wealth heterogeneity can be expected to induce differentiated wealth effects on consumption. The effect of this heterogeneity on aggregate consumption remains an open question, which is part of the discussions on the relationship between inequalities and non-standard monetary policy measures, in particular (Draghi, 2016; Yellen, 2016).

This issue of *Rue de la Banque* presents the results of the first empirical study measuring the heterogeneity of wealth effects in France according to the level of wealth and the composition of household wealth (Arrondel, Lamarche and Savignac, 2015). The marginal propensity to consume wealth is estimated on the basis of the wealth decile (net of indebtedness) by type of asset (real estate, financial). The estimates obtained are used to illustrate the effect of a wealth shock on consumption inequalities.

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[1] *This figure is to be compared with the estimates obtained for the Anglo-Saxon countries which estimate the marginal propensity to consume wealth at around 5 cents.*

Sources and estimation method

We combine the data from two Insee "household" surveys, the Wealth survey[2] and the Family Budget[3] survey, in order to have the measures of the distribution of consumption and wealth in the population. The Wealth survey also provides detailed information on the composition of assets (financial assets, real estate assets, debt), income and socio-demographic characteristics of households.

We estimate a consumption equation: the ratio of consumption to household income is explained by the ratio of wealth to income, which is controlled for by many characteristics of the household. Once these variables have been taken into account, residual differences in wealth can be interpreted as involuntary and unexpected gains (wealth effect). The control variables include: the age of the household reference person, his employment status and qualifications, the composition of the household, a credit constraint indicator and variables indicating whether the reference person has experienced episodes of unemployment or health problems in the past. We are also able to take into account the expectations of the household regarding its future income, and thus to distinguish the wealth effect from a confidence effect (Disney et al., 2010).

According to our specifications, the marginal propensity to consume wealth varies with the level of wealth and with its composition. The estimation sample includes 3,432 observations.[4]

Beyond the wealth inequalities, the composition of assets is heterogeneous

The comparison of different indicators of inequality reveals two stylized facts, already well documented in the literature:

■ consumption is less unevenly distributed than income (Gini indices[5] of 0.31 and 0.38 respectively);

■ wealth is much more concentrated than income (Gini indices of 0.66 and 0.38).

In addition, there is a strong heterogeneity in the composition of household assets (see Table 1).

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2 *The Wealth survey is carried out within the framework of a partnership between the Banque de France and Insee and is part of the French contribution to the harmonised survey of the Eurosystem, the "Household Finance and Consumption Survey".*

3 *To do this, we adopt the method proposed by Browning et al. (2003) for imputing consumption in the Wealth survey (2010) from the Family Budget survey (2010).*

4 *The Wealth survey includes 15,006 households, but consumption questions were only asked to a representative sub-sample of one-third of the total sample. We exclude households with a reference person aged 76+ (to avoid selection biases linked to wealth-based mortality differentials) and clean the sample of some extreme values concerning the consumption-to-income ratio.*

5 *The Gini index is an indicator of inequality which is equal to 0 in the case of perfect equality and 1 in a situation of extreme inequality (where only one household holds the entire wealth).*

T1 Average wealth and share of asset classes and debt in total assets, in 2010

(amounts in euros, shares in %)

Percentiles gross wealth	Mean wealth		Share of asset classes and debt in total assets				
	Gross	Net	Financial wealth	Main home	Other real estate assets	Other assets	Debt
0-25	4,000	2,000	52	0	0	47	50
25-50	61,200	51,700	31	46	8	15	15
50-70	202,700	169,600	13	73	6	8	16
70-90	362,000	318,900	15	64	12	9	12
90-99	851,200	762,700	19	40	22	19	10
99-100	4,448,600	4,174,200	28	13	16	42	6
All	259,000	229,300	20	47	15	18	11

Source: Arrondel, Lamarche, Savignac (2015).
Note: Gross wealth is the sum of financial assets, real estate and other assets held by households (durable goods, jewellery, works of art). Net wealth is the value of gross wealth minus debt.
Key: The 25% of households in the top quartile of the distribution of assets (0-25) have an average gross wealth of 4,000 euros and their debt represents 50% of the value of their assets.

At the lower end of the distribution, households mainly hold financial assets (deposits) and other non-real estate assets (durable goods and professional assets for some of them). Beyond the 25th percentile, the share of real estate rises sharply, reaching 70% of the value of assets for households of the p50-p90 percentiles. At the top end of the distribution, the importance of real estate decreases and its composition changes: the share of the main home decreases in favour of that of other real estate assets (second home, buy-to-let).

In the top 1% of the distribution, the assets of households are more diversified; financial assets and other assets have a greater share than real estate assets. Debt also varies greatly along the wealth scale, in relation to households' real estate purchases: it decreases almost continuously with the size of the wealth.

Thus, the concentration of assets, the heterogeneity of their composition and the size of debt for some households are likely to induce marginal propensities to consume wealth that vary along the distribution of assets.

Marginal propensities to consume wealth are decreasing...

The first contribution of this study is to show that the marginal propensity to consume wealth decreases with the level of net wealth of households, irrespective of the type of asset considered[6] (see Charts 1 and 2). Our estimates

also confirm the results generally obtained on aggregated data: on average, wealth effects on consumption are significant but of small scope.
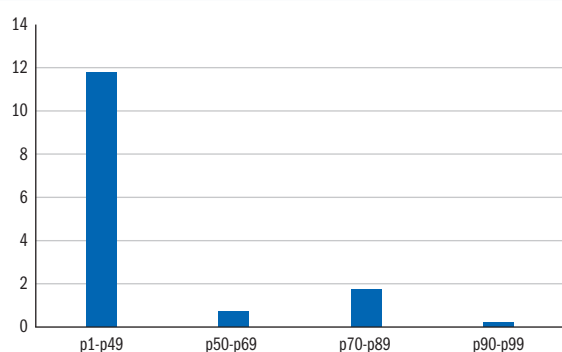
The marginal propensity to consume financial wealth is estimated at around 11.8 euro cents for households at the lower end of the distribution and becomes not significantly different from zero at the top end of the distribution. The high propensity of modest households to consume wealth could be explained by the existence of liquidity constraints on their consumption. In the event of an unexpected wealth shock, they tend to adjust their consumption more strongly.

Additional analyses that distinguish the equity portfolio from the rest of the financial assets were carried out. They suggest that changes in equity prices have an impact on consumption only for households at the top of the distribution. The consumption of other wealth groups is affected by changes in other financial assets (for example, through taxation, regulated savings, etc.).

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6 *The information available does not allow us to deal with the question of the endogeneity of wealth allocation. We nevertheless conducted many robustness checks that enabled us to ensure that the observation of a decreasing marginal propensity to consume is robust for all the sub-samples displaying homogeneous wealth structures (homeowners, shareholders, etc.). Geographical variables (*département*, rural/urban environment, size of agglomeration) were also taken into account to control for the geographical heterogeneity of housing prices.*

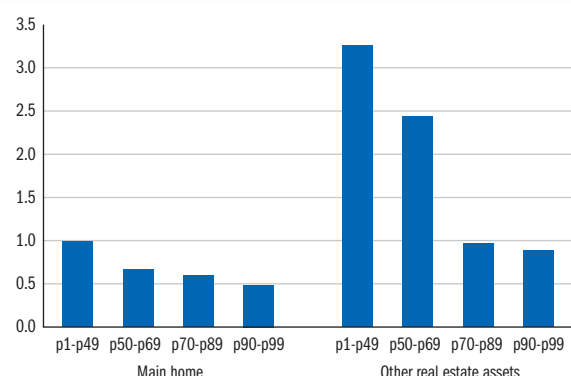**C1 Estimation of the marginal propensity to consume financial wealth according to the percentile of net wealth**

(in euro cents)

Source: Arrondel, Lamarche, Savignac (2015).
Note: Financial wealth is the sum of the household's financial assets, minus the value of its debt not associated with the purchase of real estate. Significance of the estimated coefficients: 5% threshold for p1-p49 and p70-p89, 10% threshold for p90-p99.

C2 Estimation of the marginal propensity to consume real estate wealth according to the percentile of net wealth

(in euro cents)

Source: Arrondel, Lamarche, Savignac (2015).
Note: Real estate wealth is measured net of debt. The value of the main home (and of the other real estate assets) is therefore reduced by the debt incurred for the purchase. Significance of estimated coefficients: threshold of 5% or 1%, with the exception of the main home for the p1-p49 group.

The heterogeneity is less pronounced for the marginal propensity to consume real estate wealth (see Chart 2).

The marginal propensity to consume real estate wealth (excluding main home) decreases from 3.3 cents for households in the first two wealth quartiles, to 0.9 cents for households in the last decile. It is significantly higher, along the entire distribution, than the marginal propensity to consume associated with the main home. This difference is explained by the nature of the goods considered: other real estate fulfills an investment purpose and can be sold more easily than the main home, which also meets housing consumption needs.

… and they vary with household debt

Debt[7] also influences household consumption behaviour. Only the most heavily indebted households from the lower end of the net wealth distribution have a marginal propensity to consume real estate wealth significantly different from zero. These real estate wealth effects suggest the existence of liquidity constraints for these households, linked to the weight of their debt. For the others, it is not surprising that real estate wealth effects are not significant, since in France, households cannot derive liquidity from their mortgage financing.[8] It is therefore unlikely that the collateral channel (Mian et al., 2013) is relevant here.[9]

In the end, consumption inequalities are relatively insensitive to unanticipated wealth shocks

What would be the effect of a shock affecting the value of financial wealth, for example following an asset purchase programme conducted by the central bank, on consumption inequalities? To answer this question, we simulate a voluntarily extreme increase of 100% in the value of households' financial assets, taking into account the heterogeneity of the composition of their assets and their marginal propensity to consume wealth.

According to our simulation exercise, this shock would induce a 20.7% increase in average net wealth and, through wealth effects, would result in a 3.3% increase in average consumption and 4.3 % in median consumption (see Table 2). This shock tends to lower the consumption inequality indicators, notably the Gini index, under the combined effect of the marginal propensity to consume the declining wealth and the two-fold increase in the financial wealth of almost all the population.

A similar shock limited to equities has a more moderate effect on consumption (+ 0.7% on the average, + 0.6% on the median). However, it induces a slight increase in overall inequalities in consumption (the Gini index rising by 0.10%). This increase in consumption inequalities comes from the top end of the distribution: the share of the highest 10% (S90) is up by 0.2%, while the ratio between the highest 20% and the lowest 20% (S80 / S20) decreases (-0.9%). These contrasting trends according to wealth groups are explained by the concentration of equities held by the wealthiest households (Arrondel et al., 2016).

In conclusion, the impact of wealth effects on consumption inequalities is limited and depends on the nature of the shocks and the assets concerned. An increase in equity prices, however, tends to raise overall consumption inequalities.

T2 Simulation of a financial wealth shock on the distribution of consumption excluding durable goods

(mean and median in euros, other indicators in %)

	Consumption excluding durable goods (forecasted)	Change in consumption, excluding durable goods, with a 100% increase in:	
		Financial wealth	Equities
Mean	26,000	3.3	0.7
Median	22,700	4.3	0.6
Gini	0.29	-1.8	0.1
Quintile S80/S20	4.37	-3.2	-0.9
Quintile S90	22.61	-0.9	0.2

Source: Arrondel, Lamarche, Savignac (2015).
Note: Reference year 2010. Simulations obtained from the estimation of heterogeneous marginal propensities to consume wealth by level of wealth and according to the composition of assets. S80/S20 measures the share of consumption, excluding durable goods, of the 5th quintile relative to that of the first quintile. S90 is the share of household consumption in the last decile of the distribution.

7 *Debt is measured alternately by the ratio of debts to the value of assets or by the ratio of the repayment amount to household income.*

8 *Rechargeable mortgages were only authorised for a few years in France (2007-2014), including the period surveyed. In addition, the value of the guarantee was set at the initial value at the time of purchase and was not revalued over time.*

9 *Additional investigations were carried out according to the type of guarantee for real-estate loans. The marginal propensity to consume real estate wealth is significantly higher for households with a mortgage loan than for those with a loan guaranteed by a surety company. Households with a mortgage loan have different observable characteristics (younger and more often entrepreneurs, higher income and wealth), which could reflect a bank offer policy effect. These households may also differ in terms of unobservable characteristics (temporal preference, risk aversion) and may be more sensitive to real estate wealth.*

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