

Measuring precautionary savings related to the risk of unemployment

By [Céline Antonin](#)

The question of how disposable income is shared between savings and consumption involves trade-offs that take place at the household level and has direct implications at the aggregate level. For example, if the propensity to save is higher among wealthy households, a consumer stimulus will be more effective if it targets low incomes. Another example concerns how progressive the income tax system is: if the savings rate rises with income, then making income tax more progressive will have a more than proportional effect on the decline in national savings, with consequences for investment. Other issues such as tax incentive schemes to encourage savings (life insurance, Livret A accounts) or the question of the relevant tax base (work versus consumption, income versus wealth) depend on this trade-off. The measurement of precautionary savings is essential, especially to understand the implications of rising unemployment during a shock such as the 2008 crisis. So if the increase in unemployment affects all households equally, and if rich households have a stronger precautionary motive than others, then the recession will be more violent.

Historically, the models of the life cycle and permanent income, which originated with Modigliani and Brumberg (1954) and Friedman (1957), provided one of the first theoretical frameworks for thinking about savings behaviours. Friedman (1957) introduced the notion of permanent income, defined as the constant income over time that gives the household the same discounted income as its future income, and showed that the permanent consumption (and thus the savings) is

proportional to the permanent income over the lifetime. Thus, households should save during their working lives and start dis-saving upon retirement. These models have been enriched by the precautionary savings theory, which shows that savings also serves as insurance against contingencies that might affect the household, particularly with respect to income (unemployment, loss of wages, etc.). As a result, households are saving not only to offset lower future income, but also to insure against all kinds of risks, including risk to income. The main difficulty when trying to evaluate this precautionary behaviour is to find an accurate measure of the risk to income. The most convincing approach involves the use of subjective household survey data about trends in income and in the likelihood of unemployment (Guiso *et al.*, 1992; Lusardi, 1997; Lusardi, 1998; Arrondel, 2002; Carroll *et al.*, 2003; Arrondel and Calvo-Pardo, 2008). This approach quantifies the share of wealth accumulation that is related to the precautionary motive.

What is the amplitude of the precautionary motive? Do all households exhibit precautionary behaviour, or does it depend on their income? The working paper on [The Linkages between Savings Rates, Income and Uncertainty. An illustration based on French data](#) ["Les liens entre taux d'épargne, revenu et incertitude. Une illustration sur données françaises"] first seeks to test the homogeneity of savings rates empirically according to the level of income. It is also interested in the existence of precautionary savings behaviour related to income and tries to quantify this, based on the French INSEE 2010-2011 Family Budget survey. The precautionary motive is assessed by means of the subjective measure of the likelihood of unemployment that is expected by household members over the next five years.

The precautionary motive exists for all French households: the extra savings linked to the risk of unemployment is around 6-7%, and the proportion of precautionary holdings

attributable to the risk of unemployment comes to around 7% of total wealth. The precautionary motive can be differentiated according to the level of income: middle-income households accumulate the most precautionary savings. Their savings represents 11-12% of the total household wealth of the second, third and fourth income quintiles, compared with about 5% for households in the income quintiles at the extremes.

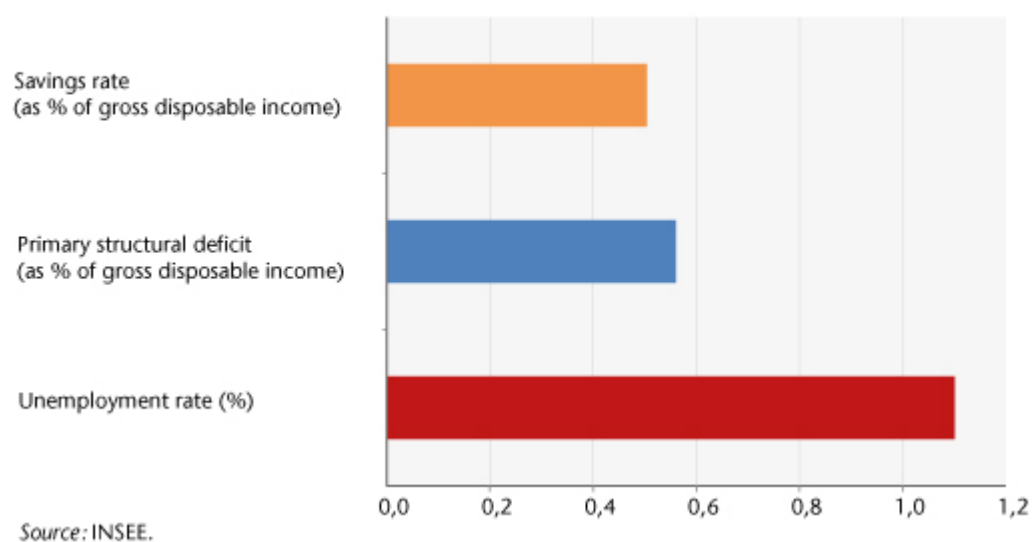
The “Ricardian effect”: to be taken with caution!

By David Ben Dahan and [Eric Heyer](#)

Is the deterioration in the public finances influencing households' consumption behaviour? [A recent INSEE study](#) tries to answer this with an econometric estimate of the determinants of the savings rates using yearly data from 1971 to 2011. Based on the results of the study, the authors attribute recent changes in the French households' rate of consumption to fiscal policy and the state of the public finances. Their model thus concludes that there is a significant “Ricardian” effect: having noted the worsening state of the public finances during the crisis, households are anticipating future tax hikes, leading them to up their savings during the recent period. Note that this effect is only temporary: the results of the INSEE's econometrics indicate that while this has reined in consumer spending in the short term, the effect will fade quickly and disappear in the long term. Households are therefore “Ricardian” ... but only in the short term!

This oxymoron may be due to the fact that the standard determinants of consumption, *i.e.* inflation, interest rates and the unemployment rate, do not have any effect over the period studied by the INSEE. Hence for the INSEE, French households are forming rational short-term expectations, but without building up any “precautionary savings” against the risks associated with a deterioration in the labour market. However, in a recession, since a deterioration in the public finances goes hand in hand with a consequent rise in unemployment, the “Ricardian effect” and “precautionary savings” are in competition, making it difficult to distinguish them (Figure 1).

Figure 1. Change in the savings rate, the public deficit and the unemployment rate between 2008 and 2011



It should be noted in this regard that the stability of the parameters estimated by the INSEE is not guaranteed over the period 1970-2011: the non-significance of the unemployment rate is resolved once the estimation period begins later, after 1975, and this variable becomes highly significant from 1978. This is why we have reproduced the INSEE’s analysis by starting the estimate in 1978. The results from modelling the rate of household consumption using an error correction model (ECM), based on three different specifications presented in Table 1, can be summarized as follows:

1. As with the INSEE’s results, there is no significant

“Ricardian effect” in the long term over the period 1978-2011. In the short term, this effect is marginally significant (at 10% in equation 1);

2. When we integrate the unemployment rate into the analysis, the effect is significant in the short and long term (equations 2 and 3);
3. When placed in parallel with precautionary savings, the “Ricardian effect” loses its short-term explanatory power (equation 2).

Table1. Summary of the results of estimates of the determinants of the household consumption rate

Périod:1978-011

	Equation 1	Equation 2	Equation 3
Long-term effect			
Adjustment coefficient	-0,003*** (-5,18)	-0,004*** (-5,37)	-0,004*** (-6,66)
Precautionary savings		Yes	Yes
Unemployment rate (%)		-0,98*** (-3,32)	-0,78*** (-3,67)
Ricardian effect		Non	
Structural primary public balance (% GDI)		0,16 (0,91)	
Short-term dynamic			
Precautionary savings		Yes	Yes
Unemployment rate (%)		-0,04** (-2,04)	-0,05*** (-3,37)
Ricardian effect	Oui	No	
Structural primary public balance (% GDI)	0,12* (1,94)	-0,02** (-2,47)	
Statistical diagnosis			
R ²	0,98	0,98	0,99
SSR	0,0005	0,0004	0,0003
SSE	0,005	0,0045	0,0038
LM	0,018 (p>0,98)	0,32 (p>0,73)	0,55 (p>0,58)
Jarque-Berra	0,70 (p>0,70)	1,06 (p>0,59)	1,19 (p>0,55)
Arch	0,14 (p>0,71)	0,66 (p>0,42)	0,11 (p>0,73)

Notes:

The household consumption rate is the ratio between household consumption and the household's gross disposable income (GDI).

***, **, * signify that the coefficients are significant at respectively 1%, 5% and 10%.

Student's t is given in parenthesis.

The short-term dynamic is not reproduced in full in the table. Only the “Ricardian effects” and the “precautionary savings” are reproduced here.

The three specifications have satisfactory statistical properties. The LM tests lead to the rejection of the hypothesis of autocorrelation of the residues of the equation. These residues are homoscedastic with respect to the White test and the ARCH test. The functional form of the equation is validated by the Reset test. Finally, according to the Jarque-Bera test, the residues of the equation follow a normal law

Our estimates show that the increase in the deficits is not

leading to a reduction in consumption and that the increase in the savings rate observed between 2008 and 2011 can be explained by “precautionary savings” due to the dramatic worsening in the job market.

This result also confirms the analysis made in other OFCE studies concerning the importance of the multipliers during economic downturns.