

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.

Austerity and purchasing power in France

By [Mathieu Plane](#)

Is France implementing an austerity policy? How can it be measured? Although this question is a subject of ongoing public debate, it hasn't really been settled. For many observers, the relative resilience of wage dynamics indicates that France has not carried out an austerity policy, unlike [certain neighbours in southern Europe, in particular Spain and Greece, where nominal labour costs have fallen](#). Others conclude that France cannot have practiced austerity since government spending has continued to rise since the onset of the crisis^[1]. The 50 billion euros in savings over the period 2015-17 announced by the Government would therefore only be the beginning of the turn to austerity.

Furthermore, if we adhere to the rules of the Stability and Growth Pact, the degree of restriction or expansion of a fiscal policy can be measured by the change in the primary structural balance, which is also called the fiscal impulse. This includes on one side the efforts made on primary public

spending (*i.e.* excluding interest) relative to the change in potential GDP, and on the other side the change in the tax burden in GDP points. Thus, over the period 2011-13, France's primary structural balance improved by 2.5 percentage points of GDP according to the OECD, by 2.7 points according to the European Commission, and by 3.5 points according to the OFCE. While there are significant differences in the measurement of fiscal austerity during this period, the fact remains that, depending on the method of calculation, it amounted to between 55 and 75 billion euros over three years[2].

A different way of measuring the extent of fiscal austerity involves looking at the change in the components of household purchasing power. Purchasing power can in fact be used to identify the channels for transmitting austerity, whether this is through labour income or capital, benefits or the tax burden on households[3]. Changes in the components of income clearly show that there was a pre-crisis and a post-crisis in terms of the dynamics of purchasing power per household.

Over the period 2000-2007, purchasing power grew by more than 4000 euros per household ...

This corresponds to an average increase of about 500 euros per year per household [4] (Table) over the eight years preceding the subprime crisis, a growth rate of 1.1% per year. On the resource side, real labour income per household (which includes the EBITDA of the self-employed), supported by the creation of more than 2 million full-time equivalent jobs over the period 2000 to 2007, increased on average by 0.9% per year. But it is above all real capital income per household (which includes the imputed rents of households occupying the accommodation that they own) that increased dramatically over this period, rising twice as fast (1.7% on average per year) as real labour income. As for social benefits in cash, these increased by 1% on average in real terms in this period, *i.e.* a rate equivalent to the rate for total resources. As for levies, tax and social contributions from 2000 to 2007 have

helped to reduce purchasing power per household by 0.9 points per year, which corresponds to about 100 euros per year on average. Breaking down the increase in levies, 85% came from social contributions (employees and self-employed), mainly due to hikes in premiums related to pension reform. Taxes on income and wealth contributed to cutting purchasing power per household by only 14 euros per year, despite a sharp increase in capital income and property prices over the period 2000-2007. During this period, taxes on households deflated by consumer prices increased by less than 2%, whereas real household resources grew by almost 9% and real capital income by 14%. The reduction in income tax, which began under the Jospin government, and was continued by Jacques Chirac during his second term, explains in large part why taxes have had so little negative impact on purchasing power during this period.

Changes in the components of purchasing power per household (in 2013 euros)

		Labour income (incl. EBITDA of IU)*	Capital income (incl. imputed rent**)	Social benefits in cash	Other resources	Total resources	Tax on income and wealth	Social contributions (salaried and non-salaried)	Total contributions	Purchasing power per household
Cumulative change	2000-2007	2283	1376	1120	34	4814	-110	-668	-778	4036
	2008-2015 o/w:	-1059	-911	1502	-61	-529	-785	-318	-1102	-1631
	2008-10	-293	-613	1021	-1	114	36	-36	0	114
	2011-13	-680	-314	355	-60	-699	-789	-143	-932	-1631
	2014-15	-85	16	125	0	56	-31	-139	-170	-114
Average annual change	2000-2007	285	172	140	4	602	-14	-83	-97	504
	2008-2015 o/w:	-151	-130	215	-9	-76	-112	-45	-157	-233
	2008-10	-98	-204	340	0	38	12	-12	0	38
	2011-13	-227	-105	118	-20	-233	-263	-48	-311	-544
	2014-15	-43	8	63	0	28	-16	-69	-85	-57

* IU = Individual undertakings.

** The notion of an imputed or fictive rent covers the service that is rendered to the owner of an accommodation by that accommodation, that is, the rent that owners would have to pay if they were tenants.

Sources: Insee national accounts, author's calculations, France's 2015 Budget Act.

...but over the period 2008-2015, purchasing power per household fell by more than 1600 euros

The crisis marks a sharp turn with respect to past trends. Indeed, over the period 2008-2015, purchasing power per household fell, on average, by almost 1630 euros, or 230 euros per year.

Over the eight years since the start of the crisis, we can

distinguish three sub-periods:

– The first, from 2008 to 2010, following the subprime crisis and the collapse of Lehman Brothers, is characterized by the relatively high resistance of purchasing power per household, which increased by nearly 40 euros per year on average, despite the loss of 250,000 jobs over this period and the sharp decline in capital income (200 euros on average per year per household). On the one hand, the sharp drop in oil prices from mid-2008 had the effect of supporting real income, including real wages, which increased 0.9% annually. On the other hand, the stimulus package and the shock absorbers of France's social security system played their countercyclical role by propping up average purchasing power through a sharp rise in social benefits in kind (340 euros on average per year household) and a slightly positive contribution by taxes to purchasing power.

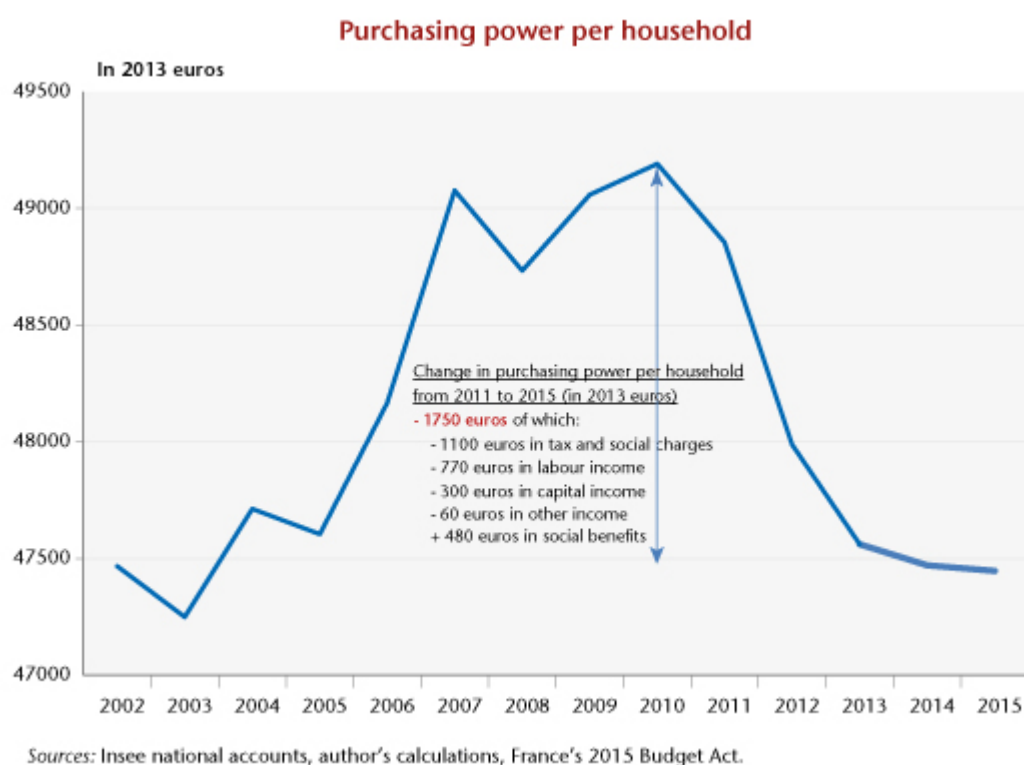
– The second period, from 2011 to 2013, is marked by intense fiscal consolidation; this is a period in which [the tax burden increased by about 70 billion euros in three years](#), with a massive impact on purchasing power. Higher tax and social security charges wound up eroding purchasing power by 930 euros per household, more than 300 euros on average per year. Moreover, the very small increase in employment (+32,000) and stagnating real wages, combined with the impact of an increase in the number of households (0.9% annually), led to a reduction in real labour income per household of almost 230 euros per year. In addition, real capital income per household continued to make a negative contribution to purchasing power from 2011 to 2013 (-105 euros on average per year per household). Finally, although social benefits were slowing compared to the previous period, they were the only factor making a positive contribution to purchasing power (about 120 euros per year per household). In the end, purchasing power per household fell by 1,630 euros in three years.

– The third period, 2014 and 2015, will see yet another slight reduction in household purchasing power, amounting to about 110 euros in two years. The weak situation of employment and real wages will not offset the increase in the number of households. Thus, real labour income per household will decline slightly over the two years (-43 euros per year on average). Real capital income will, in turn, be roughly neutral in terms of its effect on purchasing power per household. Although they are not rising as much, [tax and social contributions will continue to weigh on purchasing power due to the ramp-up of certain tax measures approved in the past \(environmental taxes, higher pension contributions, local taxes, etc.\)](#). In total, the increase in the rate of levies on households in 2014-15 will reduce purchasing power per household by 170 euros. In addition, the expected savings on public spending will hold back growth in social benefits per household, which will rise by only about 60 euros per year on average, a rate that is half as high as the pre-crisis period despite the worsening social situation.

While this analysis does not tell us about the distribution per quantile of the change in purchasing power per household, it nevertheless provides a macro view of the impact of austerity on purchasing power since 2011. Out of the 1750 euros per household lost in purchasing power from 2011 to 2015 (see Figure), 1100 euros is directly related to higher taxes and social contributions. In addition to the direct impact of austerity, there is the more indirect impact on the other components of purchasing power. In fact, by cutting activity through the mechanism of the fiscal multiplier, France's austerity policy has had a massive impact on the labour market, by either reducing employment or holding down real wages. While the magnitude is difficult to assess, the fact remains that real labour income per household fell by 770 euros in five years. Finally, while since the onset of the crisis social benefits have up to now acted as a major shock absorber for purchasing power, the extent of savings in public

spending planned from 2015 (out of the 21 billion euros in savings in 2015, 9.6 billion will come from social security and 2.4 billion from spending on state interventions) will have a mechanical impact on the dynamics of purchasing power.

Thus, with purchasing power per household falling in 2015 to its level of thirteen years ago and having suffered a historic decline in 2011-13 in a period of unprecedented fiscal consolidation, it seems difficult to argue on the one hand that France has not practiced austerity so far and on the other hand that it is not facing any problem with short-term demand.



[1] Since 2011, the rate of growth of public spending in volume has been positive, but has halved compared to the decade 2000-10 (1.1% in volume over the period 2011-14, against 2.2% over the period 2000-10). Moreover, in the last four years, it has increased at a rate slightly below the rate

of potential GDP (1.4%). From an economic point of view, this corresponds to an improvement in the structural balance due to an adjustment in public spending of 0.5 percentage point of GDP over the period 2011-14.

[2] These differences in the measurement of austerity come from differences in a number of evaluation factors, such as the level of potential GDP and its growth rate, which serve as the benchmark for calculating the structural fiscal adjustment.

[3] It is important to note that gross disposable income includes only income related to cash benefits (pensions, unemployment benefits, family allowances, etc.) but not social transfers in kind (health care, education, etc.) or public collective expenditures that benefit households (police, justice, defence, etc.).

[4] Here we use the concept of average purchasing power per household and not purchasing power per consumption unit.

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

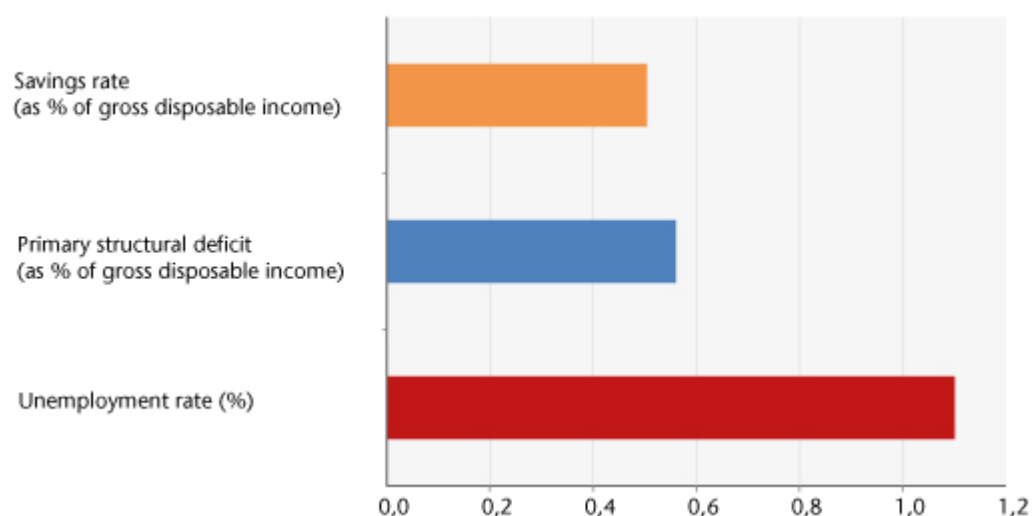
By David Ben Dahan and [Eric Heyer](#)

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



Source: INSEE.

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 (<i>p</i> >0,98)	0,32 (<i>p</i> >0,73)	0,55 (<i>p</i> >0,58)
Jarque-Berra	0,70 (<i>p</i> >0,70)	1,06 (<i>p</i> >0,59)	1,19 (<i>p</i> >0,55)
Arch	0,14 (<i>p</i> >0,71)	0,66 (<i>p</i> >0,42)	0,11 (<i>p</i> >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.