An initial assessment of pension entitlements of French households[1]

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The main purpose of this paper is to provide an initial assessment of French households' pension entitlements on the basis of currently available data, extended with estimates made by running the World Bank pension model (PROST) on French social security liabilities.[4] In the light of this new information, it examines French household portfolios in terms of risk, as well as household saving behaviour, comparing these realities with those of American households. The United States has been chosen for comparison because employers' pension schemes play a larger role in the US than in France, leading, it has been thought, to different saving behaviours.

The paper is organised in five sections. Section 1 briefly describes the French and American retirement systems; section 2 compares French and American households' balance sheets in the light of their retirement-related asset holdings; section 3 deals with social security pension entitlements in France and in the United States; section 4 focuses on asset structures and wealth effects; and section 5 presents some brief conclusions.

1. Privately funded schemes play a marginal role in the French pension system, but are significant in the American one

1.1 The French retirement system

The French pension system relies heavily on social security, which comprises several mandatory pay-as-you-go multi-employer schemes representing 80.4% of pensions paid and 86.3% of pension entitlements as of 2005 (Annex 1, Table 2). The State's civil servant pension scheme is financed by the State budget but is operated on the same pay-a-you-go basis as social security. It represents 17.1% of pensions paid and 12.3% of pension entitlements.

Significant financial transfers between these different schemes regularly occur in order to compensate for imbalances between contributors and beneficiaries. The State makes annual social security payments that represent more than 10% of its pension payments to civil servants and military personnel.

Two pension reforms were implemented, in 1993 and 2003, with a view to reducing the financing gap in social security and civil servant pension schemes. With these reforms, the number of work years required for a full pension increased from 37.5 to 40. Pegged to increases in life expectancy, it is expected to reach 41.75 years in 2020.

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[1] The opinions expressed in this article are those of the authors and do not necessarily represent the views of the Bank of France.

[2] Bank of France, DESM-SESOF 47-1421. ☏ 33 1 42 92 28 11.

[3] Bank of France, DAMEP-SEMSI 46-1374. ☏ 33 1 42 92 49 53.

[4] See Annex 1, and Holzmann, Palacios, Zviniene (2004).

People are allowed and encouraged to work after the normal retirement age of 60. The full pension is further discounted if the required number of years is not reached before 65. Conversely, any year of work between 60 and 65 beyond the required number of years entitles the worker to a bonus. Furthermore, the reference salary for the private sector is calculated on the highest-earning 25 years instead of the highest-earning 10 years. The 2003 reform gradually brought the civil servants' scheme in line with the private sector in terms of required number of years and retirement age incentives, though final salary (excluding bonuses) remained the reference salary for civil servants.

For a worker in the private sector retiring in 2003 after having worked the required number of years, the replacement rate on net income after the reforms is between 64% for an executive and 84% for other workers. The corresponding rates will be 53% and 73% for individuals retiring in 2050. The replacement rate for civil servants will remain around 69% throughout this period.[5]

Employer pension schemes are still poorly developed. Autonomous employer schemes represent 2.5% of the pensions paid in 2005 and 1.5 % of pension entitlements. They are managed mainly by insurance companies and by the new collective pension schemes created in 2003 (the so-called PERCO schemes, comparable to 401(k) defined contribution schemes in the United States). Personal schemes offered by insurance companies represent an even smaller proportion. Occupational and personal schemes are included in households' financial assets as a component of life insurance reserves and mutual fund shares. In fact, life insurance in France plays the same role as voluntary pension schemes in the United States, functioning as a complement to social security for high earners.

1.2 The US retirement system

The US pension system rests on three pillars: a pay-as-you-go system (social security), employers' schemes and individual retirement savings.

People over 65 rely primarily on social security as a source of income (Graph 1). Nine out of ten retired people are covered, and in 2005 social security accounted for approximately 38% of the income of people over 65. In 2006, the fund paid US $461 billion in benefits to 34 million retired workers, and received US $642 billion in contributions from 162 million people. Nevertheless, according to the trustees' projections, annual deficits will occur starting in 2018, and the fund will be exhausted in 2042 unless a reform is implemented. President Clinton (in 1999) and President Bush (in 2005) failed to pass social security reforms that would promote the development of individual accounts.

Company and union pension schemes are voluntary. According to the US Bureau of Labor Statistics, 60% of workers in private industry had access to employer retirement schemes in 2006, and 51% chose to participate. Of these, 20% were in defined benefit schemes and 43% defined contribution schemes. In 2005, corporate pension funds were significantly under-funded (by more than US $450 billion, according to the US Bureau of Labor Statistics), threatening the viability of the Pension Benefit Guarantee Corporation (PBGC), the federal institution that insures private single-employer and multi-employer defined benefit pension schemes. In response to this, the US Congress passed the Pension Protection Act of 2006, which increases the PBGC premium rate, and requires and promotes adequate single-employer scheme funding. Nevertheless, the estimation of under-funding is highly sensitive to the discount rate used in the calculation of the present value to participants of the pension schemes. Except for some temporary exceptions, this discount rate should be no more than 105% of a weighted average of 30-year treasury bond yields. Thus, the recent increase in long-term rates has provided some relief for pension scheme funding.

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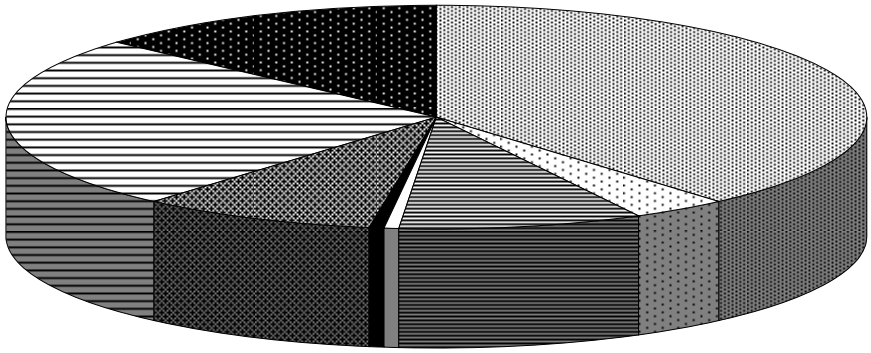
[5] See Conseil d'orientation des retraites (2006), p.142.

Graph 1

Retirement income, by type, for people over 65, in 2005

In thousands of dollars



Social security
Federal, State and Local government retirement
IRAs
Earnings
Other transfers
Annuities
Company or union retirement
Property income

Source: Census Bureau.

Annuities and Individual Retirement Accounts, which benefit from tax exemptions, still account for only a moderate share of the retirement income of people over 65. They held US $4.2 trillion as of the end of 2006 – more, for the first time, than the amount held by defined contribution schemes, which was $US 4.1 trillion.

2. As a proportion of net disposable income, French households hold more real estate and implicit pension assets, whereas American households hold more financial assets

American households are generally assumed to hold more financial assets than French households, and to rely more heavily on private retirement funds. To assess the reliability of such an assumption, it seems instructive to compare the structure of the households' balance sheets in the two countries. Data cover households and non-profit organisations in France and the United States (excluding the self-employed).

To make appropriate comparison possible, (1) durable goods, which are classified as consumption in French accounts, are not included in American household assets; and (2) a net disposable income has been computed for France.[6]

Given these modifications, French and American disposable incomes are still affected by some institutional differences, such as the larger size of pension funds as compared to social security in the United States.[7]

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[6] However, methodologies used by the INSEE and the BEA to estimate capital consumption differ somewhat (see Baudchon and Chauvin, 1999).

[7] "Comparison of household saving ratios: Euro area/United States/Japan" (2004), R. Harvey, Statistics Brief, OECD, June.

Households' pension entitlements include three categories of implicit assets: government employees' retirement entitlements, private pension funds, and life insurance reserves earmarked for retirement. The difference between the total pension entitlements (excluding social security) of American and French households may not be as large as one might expect (Table 1): 1.7 years of net disposable income in the United States versus 1.0 years in France, as of 2006.

Table 1

Pension liabilities

Excluding social security, in years of net disposable income

	France				United States			
	2003	**2004**	**2005**	**2006**	**2003**	**2004**	**2005**	**2006**
Government employees' retirement schemes	1.0	1.0	0.9	0.9	0.4	0.4	0.4	0.4
Life insurance	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3
Pension funds	0.0	0.0	0.0	0.0	0.9	0.9	0.9	1.0
Total pension entitlements	1.0	1.0	1.0	1.0	1.5	1.6	1.6	1.7
Real estate	3.9	4.5	5.1	5.5	2.0	2.2	2.3	2.4
Other financial assets	2.0	2.1	2.2	2.2	2.6	2.6	2.7	2.7
Total assets	7.0	7.6	8.3	8.7	6.2	6.3	6.6	6.8
Liabilities	0.5	0.5	0.6	0.6	1.2	1.3	1.3	1.4
o/w mortgages	0.4	0.4	0.5	0.5	0.8	0.9	1.0	1.0
Net worth	6.5	7.0	7.7	8.1	5.0	5.0	5.3	5.4
Net worth excluding pension entitlements	5.5	6.0	6.7	7.1	3.4	3.5	3.7	3.7

Sources: FFSA, French Ministry of Finance, AFG, Federal Reserve System.

In fact, private pension funds are also voluntary in the United States, and still represent a small share of the source of retirement income for people over 65 (1.0 years of disposable income).

Furthermore, government employees' retirement schemes represent a larger share of net disposable income in France (0.9 years of disposable income in 2006, as compared to 0.4 years in the United States).

As indicated in Table 1, French households' housing assets represent a much greater proportion of their net disposable income than is the case for their American counterparts, and they have smaller home mortgages. In 2006, housing assets represented 5.5 years of disposable income for French households, as compared to 2.4 years for American households. However, the gap in gross real estate wealth between American and French households is smaller when calculated as a per capita ratio rather than as a proportion of disposable income. American households' housing assets at the end of 2006 represented approximately US $94,900 per person over 15 years of age, as compared to US $116,900 per person over 15 in France (using the average 2000–2006 euro/USD exchange rate).

Home mortgages represented 0.5 years of disposable income in France, as compared to 1.0 years in the United States.

3. Social security pension entitlements are greater in France than in the United States

As in most countries, in both France and the United States pay-as-you-go pension schemes are not fully funded, thus creating an implicit liability for government vis-à-vis households (in the form of State schemes for government employees, and social security for non-government employees). Nevertheless, as pointed out in Holzmann et al. (2001), unfunded pension schemes cannot be likened to government bonds, for employees are legally obligated to participate, and pension promises are more flexible, in that reforms may be implemented between the contribution and benefit dates.

Although not recorded as explicit government debt and household assets, the implicit pension debt does have significant macroeconomic implications in terms of household consumption and the government's intertemporal budget constraints.

Van den Noord and Herd (1993) estimated the present value of accrued rights as 113% of GDP for the United States, as compared to 216% for France. As of 2005, the present value of accrued rights has increased to 126% of GDP in the United States, using a 2.9% discount rate in the United States, according to the Treasury Department, and to 3.2 years of GDP according to Blanchet and Ouvrard (2006), using a comparable discount rate of 3%. Our estimate, based on PROST using a 2.9% discount rate, is 3.25 years of GDP. As of 2005, the implicit ex-ante debt over 75 years (open-group) was also far larger in France than in the United States: 107% of GDP according to our estimates, as compared to 32% of GDP in the United States, according to the US Treasury Department.

Even taking account of differences in estimation methods, implicit pension liabilities are much larger in France than in the United States. This is due primarily to the benefit formula, and only secondarily to the population structure. This becomes clear under an "everything else being equal" analysis, running PROST with French parameters for the benefit formula, labour and per capita GDP, but American parameters for population (population by sex and age, fertility, immigration and mortality). The resulting implicit liability per American over 15 is US $105,900 (versus the published figure of US $69,700), while the corresponding figure for France is US $135,600 (using the average 2000–2006 euro/USD exchange rate). All estimates converge, with French households being more fully covered by their pay-as-you-go system than their American counterparts.

4. Taking account of implicit pension assets alters the structure of households' assets and may explain limited wealth effects in France

Taking social security pension entitlements and civil servant schemes as being part of French household assets results in a doubling of the figure for these assets as a proportion of net disposable income (14.6 times disposable income versus 7.5, as of 2005, as shown in Annex 2, Graph 5). In fact, in 2005, these entitlements (7.4 trillion euros) were greater than housing assets (5.3 trillion euros) and financial assets combined (2.4 trillion euros). Pension entitlements offered by insurance companies, included in the latter figure, amounted to only 0.1 trillion euros (Annex 2, Table 2).

However, taking account of these assets does not significantly change households' risk exposure – high-risk assets being defined here as assets whose price may undergo large proportional changes due to market fluctuations). According to this definition, high-risk financial assets include shares and other equities, unit-linked insurance contracts and defined contribution retirement schemes, which represented 23.7% of French households' financial assets in 2005. Social security and government employee pension entitlements should, in theory, not be prone to risk, given that they are defined benefit schemes.

However, it may be argued that households are at risk due to the financing gap, since the scheme may well be unsustainable and require them to pay higher contributions in the future, or may reduce pension benefits to accommodate intertemporal budget constraints. High-risk assets, taking account of the net present value of the financing gap, represent 28.1% of financial assets plus pension entitlements, or 23.7% of financial assets alone (Annex 2, Graph 6). If high-risk housing assets are taken into account, the risk component of households' investments rises to 53.2 % of assets.

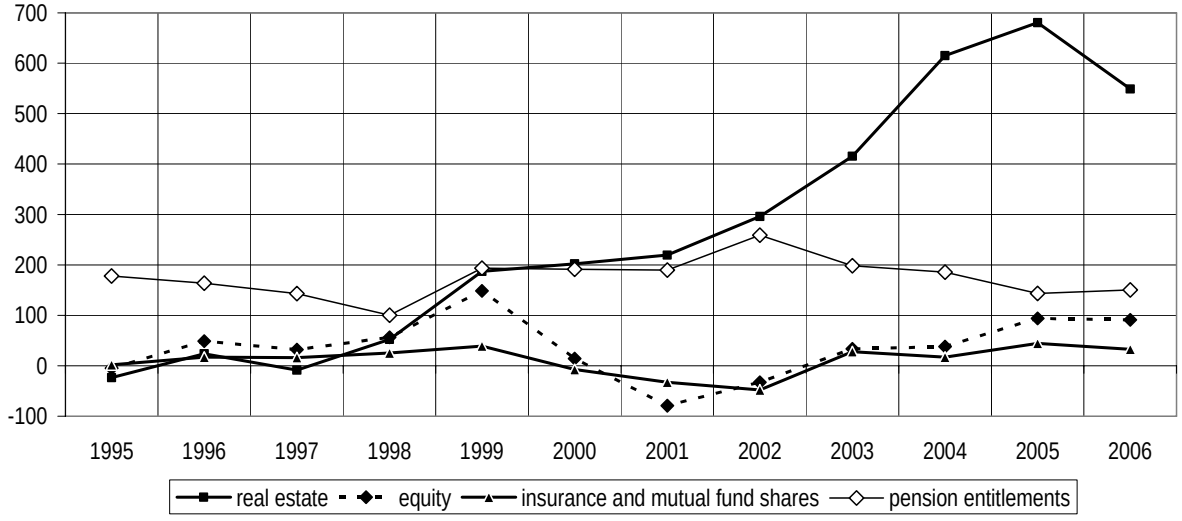
Though housing assets constitute a smaller portion of American households' assets, their investments are much more risk-oriented: 58.7% of their financial assets may be considered high-risk. If real estate is taken into account, the proportion increases to 73.7%.

Another way to gauge the risk exposure associated with household assets is to trace the potential gains and losses in held assets as a result of changing market valuations, even though households may never realise the gains or losses (Graph 2): for tradable assets, the gains or losses are realised only in the case of selling, while for non-tradable assets such as deposits, non-unit-linked life insurance contracts and defined benefit pension schemes, the change in market interest rates impacts the net present value of the future revenues without changing these future revenues themselves. In an actuarial framework, potential holding gains in pension entitlements, as measured by the authors – with PROST for France – are negatively correlated with interest rates as well as with share prices. Since they are also very large, due to the large amount of pension entitlements, they are able to offset potential holding gains and losses on stock and mutual fund shares.

Graph 2

Holding gains of French households

Flows, in billions of euros



Sources: INSEE, Ministry of Finance, Ministry of Labour, CNAM, FFSA, AFG. Authors' calculations.

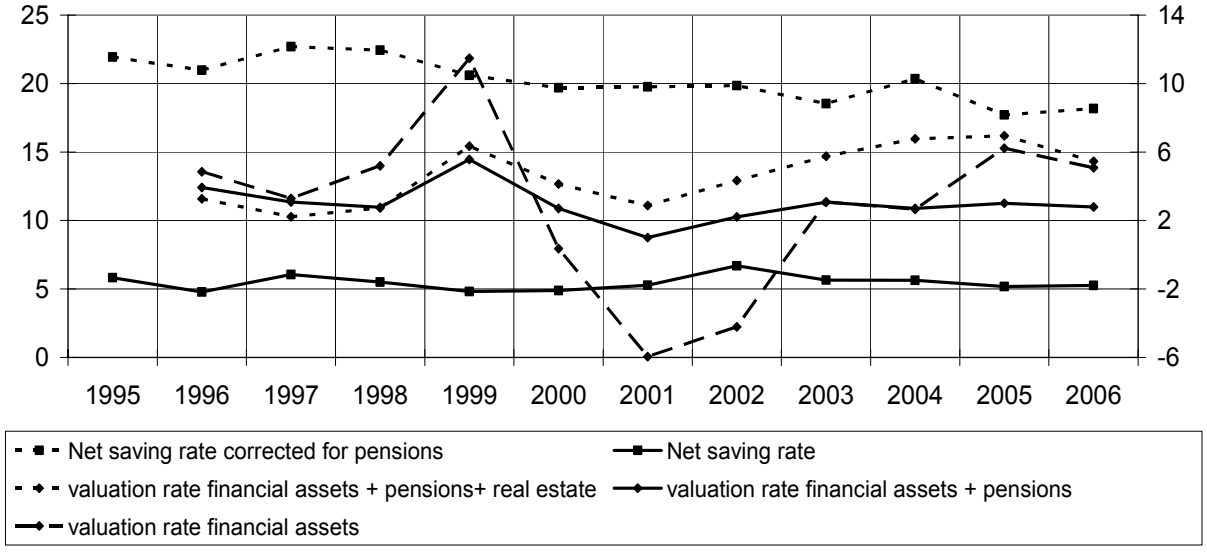
As a consequence, the valuation rate of financial assets plus pension entitlements, computed as the ratio of potential holding gains to the stock of assets, is much more stable than the valuation rate of financial assets alone (Graph 3). This may help to explain why it is usually difficult to identify statistically significant wealth effects in France (Annex 2, Graph 7): the explicit valuation of financial assets, driven by stock markets, registers wide fluctuations, but households may consider that they also hold implicit pension liabilities, with a stabilising affect on the valuation rate of their assets. Thus, there would be a smooth change in the saving ratio, in line with this (implicit and explicit) valuation rate of total assets. In countries such as the United States, where a larger portion of pension entitlements are funded – making their valuations explicit – and where real estate financing channels are quite different, the wealth effect is more significant (Graph 8 in Annex 2).

In actuarial accounting, French households' net financial saving rate is dramatically higher: 18.5% as estimated with PROST, compared to 5.3% for the "usual" financial saving rate (Graph 3). In actuarial accounting for a funded pension scheme, net disposable income is the same as in a pay-as-you-go scheme but saving is much higher, as the amount that households invest in pension fund assets will be returned to them. This return includes the employer contribution that should be invested in bonds today in order to eventually pay the pensions of present workers, as well as the property income owed (minus the pension paid) to anyone investing in assets. For an ageing population, the first of these elements is substantially higher than the actual contributions recorded in a pure pay-as-you-go scheme, which are equal to the pension paid to present pensioners, corrected by the scheme's financing gap or surplus.

Graph 3

Net saving rate and valuation rate

As %



Sources: INSEE, Ministry of Finance, Ministry of Labour, CNAM, FFSA, AFG. Authors' calculations.

Accounting rules aside, however, it is not certain that French households would save much more if their pension scheme were funded rather than pay-as-you-go. The comparison with the United States shows that French households save more than American households despite the larger role of funded pension schemes in the US (Annex 2, Graph 9).

5. Conclusions

There is merit in making implicit pension liabilities data available, in order to make possible international comparisons of households' saving behaviour, regardless of the prevailing pension system in a given country. However, one should remain cautious about drawing conclusions. Pension entitlements are specific assets. Their value is highly sensitive to estimation parameters; they are neither transferable like deposits (or even insurance contracts) nor marketable like securities. They are subject to very specific forms of risk, as explained in this paper. Moreover, households may not consider pension entitlements in the same way as they view financial assets. Though pay-as-you-go schemes and pension fund reserves clearly fulfil the same need – providing streams of payment after retirement – they do not give rise to the same saving strategies. Financial assets and housing may be transferred to heirs, while the transfer of pensions is limited to spouses. Though the above analysis of wealth effects may indicate that French households consider pension entitlements a part of their wealth, this remains to be confirmed, for example through direct surveys exploring households' saving and financial behaviour.

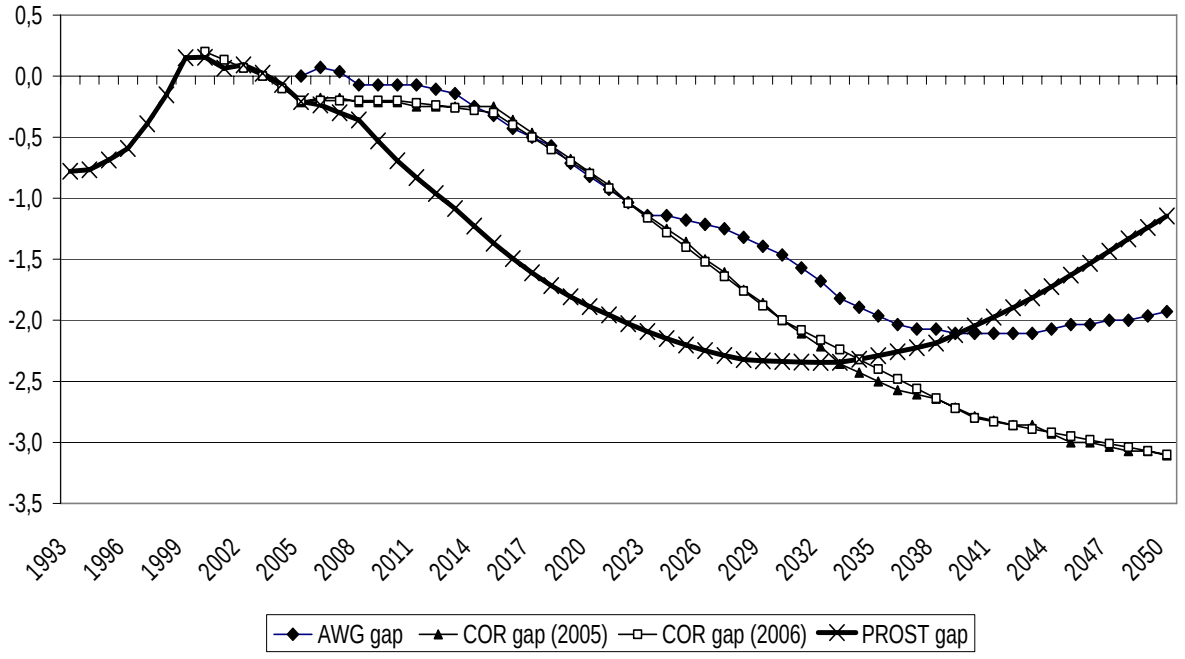
Annex 1:
Estimate of French social security liabilities using PROST

Figures for pension entitlements of French households have been collected from several sources. The accrued pension liabilities of the State civil servants' pension scheme have been calculated by the Ministry of Finance since 2003, with a generational model (Ariane) that considers specific factors for civil servants (career, life expectancy, etc).[8] For social security, the national statistical institute (INSEE) ran a micro-simulation model (Destinie) for 2005 with 2050 as the time horizon.[9] The calculation was based on the benefit formula for the main regime, which covers about 70% of the population. The results were extended to the entire population, using data collected from the social security offices by the "Conseil d'Orientation des retraites" (COR), a public body devoted to monitoring pension reform. Both estimates use the PBO method and provide several scenarios, including several different discount rates. Data for private autonomous pension funds are collected primarily from insurance companies via their professional association (FFSA), and are computed in accordance with their accounting rules.

Graph 4

Four estimates of the financing gap

As % of GDP



Sources: INSEE, Ministry of Finance, Ministry of Labour, CNAM.

In order to complement these data to deal with a longer time span, PROST was run for the French social security system from 1993 to 2050. The benefit formula for the main regime was used, and simply extended to the whole population covered by social security schemes (thus excluding State civil servants). The macroeconomic assumptions for 2005–2050 are

[8] See Direction générale de la comptabilité publique (2005), Pellé (2006).

[9] See Blanchet, Ouvrard (2006), Conseil d'orientation des retraites (2006).

the ones provided to the European Commission's Ageing Working Group (AWG).[10] Mortality tables are those published by INSEE and used by COR. However, the financing gap calculated by PROST was only roughly consistent with the AWG and COR estimates. The reasons for the differences lie mainly in the use of a simplified benefit formula (for example, it was not possible to take into account benefits associated with children) and the use of a unique formula to describe the different situations of the different social security schemes.

[10] See European Commission (2005).

Annex 2

Table 2

	2005	Insurance companies	Civil servants	Social security	o/w PROST	Total
	Contributors	**2 635**	**2 459**	**22 027**	22 058	**24 486**
	Beneficiaries	**2 635**	**1 961**	**12 297**	12 168	**13 900**
1	Pension entitlements (opening BS)	**105**	**956**	6 605	6 156	**7 666**
2	Actual contributions	**8**	**34**	136	141	**177**
3	Taxes and govt. transfers			13	13	13
4	Imputed contributions	5	19	277	253	301
5	o/w property income	2	19	132	123	153
6	Pensions paid	**5**	**34**	**159**	158	**197**
9	Pension entitlements (closing BS)	**113**	**975**	**6 872**	6 406	**7 960**

4 = 9 + 6 -1 – 2 - 3

5 = average pension entitlement discounted at 2% * 2%

discount rate = 2%

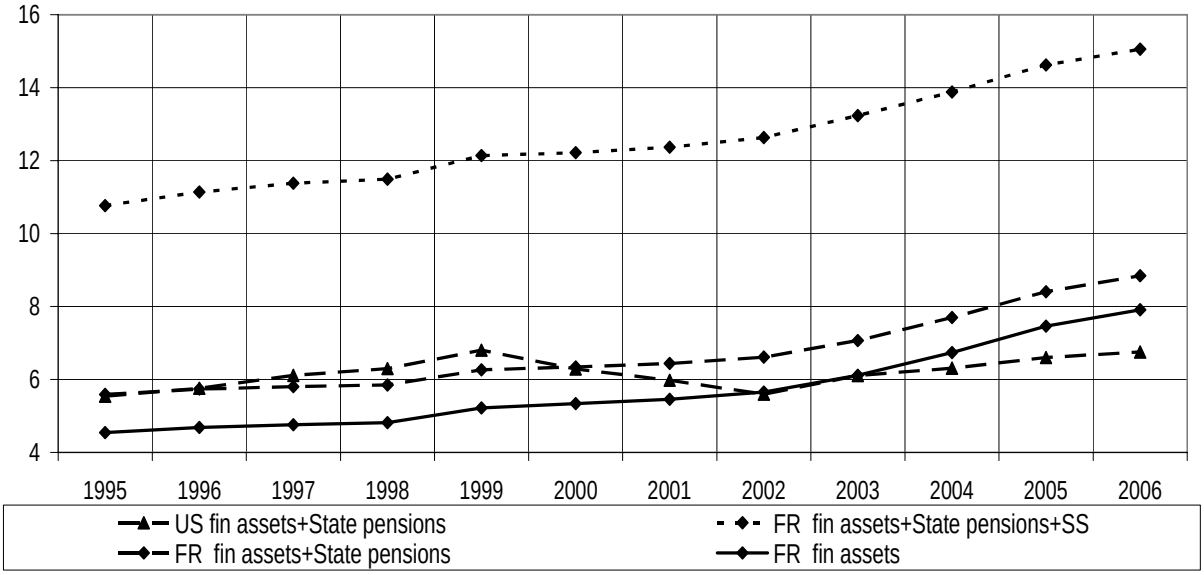
Data in bold are published

Sources: INSEE, Ministry of Finance, Ministry of Labour, CNAM, FFSA, AFG); others are estimates of the authors.

Graph 5

Total assets

As % of net disposable income

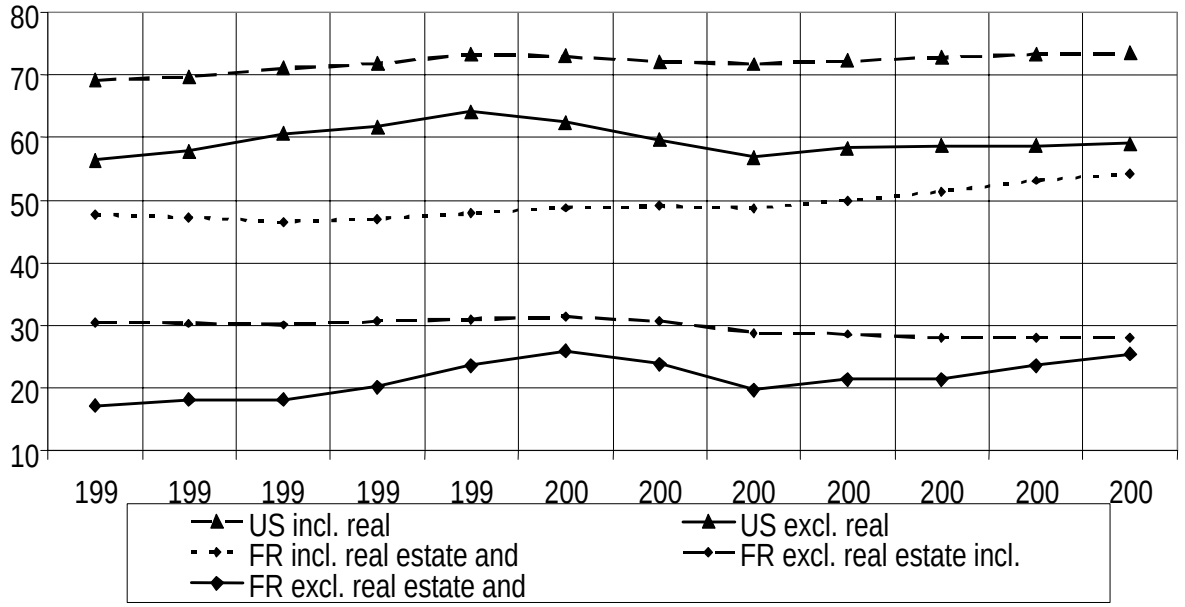


Sources: INSEE, Ministry of Finance, Ministry of Labour, CNAM, FFSA, AFG, Federal Reserve System. Authors' calculations.

Graph 6

High-risk assets

As % of total asset of the same type

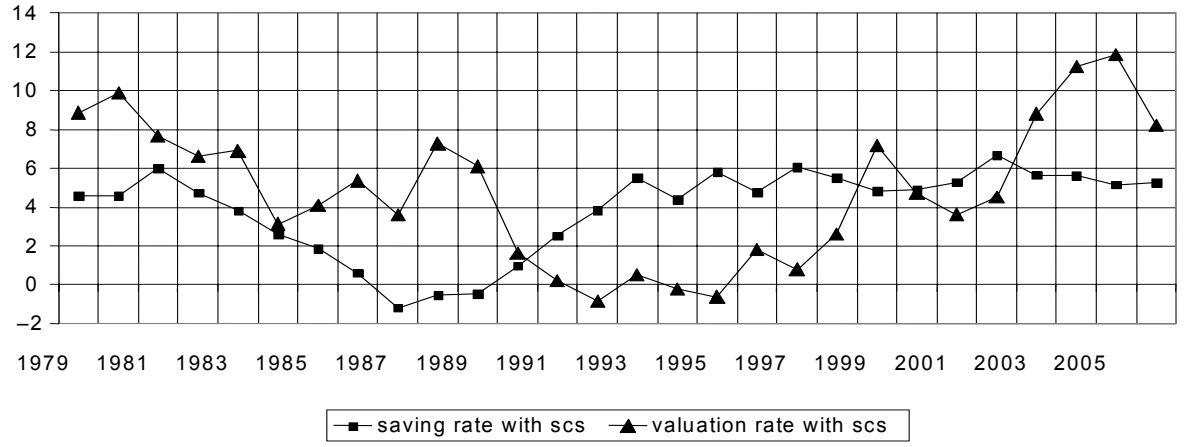


Sources: INSEE, Ministry of Finance, Ministry of Labour, CNAM, FFSA, AFG, Federal Reserve System. Authors' calculations.

Graph 7

France

Ratio as a % of net disposable income



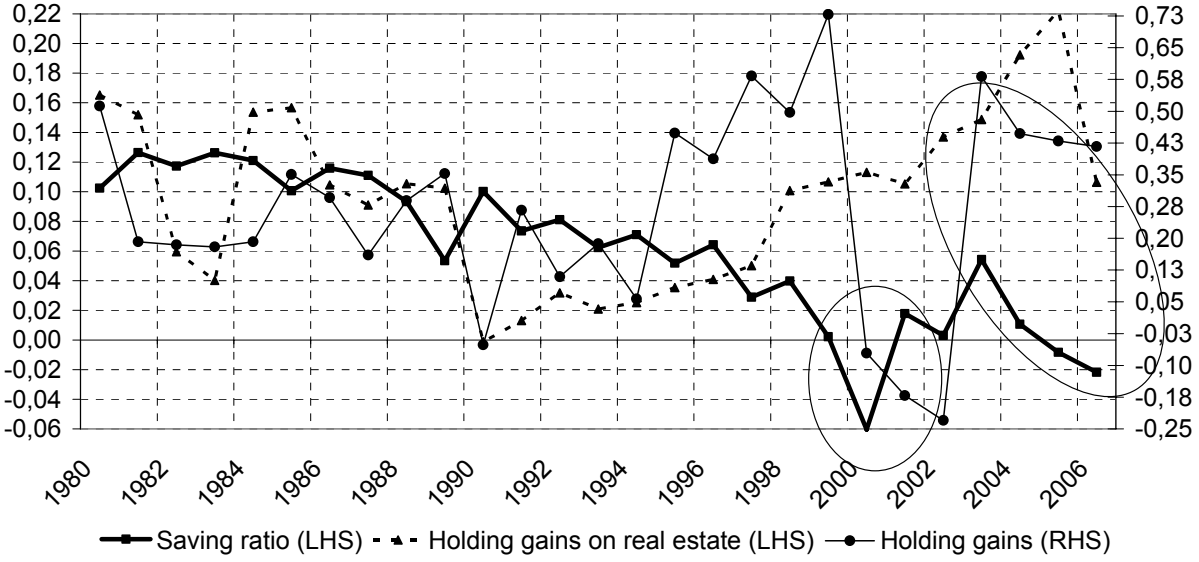
Sources: INSEE, Ministry of Finance, Ministry of Labour, CNAM, FFSA, AFG. Authors' calculations.

In France, saving and valuation effects are, in general, positively correlated over the period 1980–2006, confirming the difficulty of identifying any statistically significant wealth effects.

Graph 8

United States

Ratios as a % of net disposable income



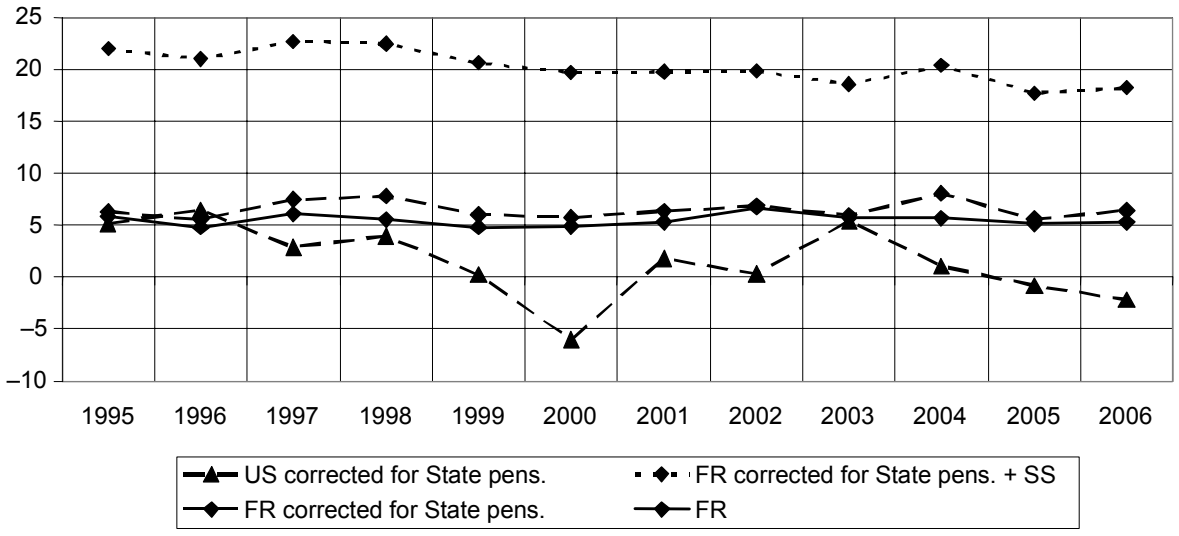
Source: Federal Reserve System.

Over the 1980–2006 period, savings and valuation gains, as a percentage of net disposable income, are, in general, negatively correlated, reflecting the possible existence of wealth effects. Nevertheless, the correlation becomes positive in sub-periods, between 2000 and 2001, and as of 2004. The first sub-period corresponds to a recession associated with the bursting of financial asset bubbles. Indeed, if only housing capital gains are taken into account, the negative correlation becomes larger and holds during these two sub-periods. This is consistent with the assumption that housing wealth effects are larger than financial ones.

Graph 9

Net saving rate

As % of net disposable income



Sources: INSEE, Ministry of Finance, Ministry of Labour, CNAM, FFSA, AFG, Federal Reserve System. Authors' calculations.

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