

PENSION SCHEMES: LIMITING PAYG TO INCREASE SAVINGS?

The introduction of a funded pension scheme to complement an existing PAYG scheme is often presented as a way of increasing savings. Indeed, agents expecting to benefit from a PAYG pension when they cease to work cut their retirement savings flows. But a comparison between countries with different retirement schemes contradicts this pattern. Nor does taking into account population structures explain per se the spread in savings between countries. This spread can only be justified by differences in expected returns or causes of uncertainty and a preference for the present. In continental Europe, the impact of pension scheme reforms on savings is thus uncertain.

Public pensions based on PAYG schemes began being criticised by international institutions during the 1990s: the OECD (“Ageing Population, the Social Policy Implications”, 1988), then the World Bank (“Averting the Old Age Crisis: Policies to Protect the Old and Promote Growth”, 1994) provide alarming prospects, based on calculations that the burden of public pension schemes in national budgets will become unsustainable. Pensions finally entered the European Union agenda in Lisbon (March 2000). Lastly, at the Barcelona summit in March 2002, leaders from the EU asked that member countries put forward supplementary measures ensuring the security and viability of pensions, at the European Council meeting in spring 2003.

The reason for such worries are well-known. All demographic forecasts show that the share of the over 65-year-olds has risen and will still rise considerably. This large and growing part of the population will require pension payments and so will take up an increasing share of national wealth (Table 1). These trends are due to causes which are perfectly identified: a massive increase in life expectancy, especially among the very old, which is sometimes accompanied by a significant fall in fertility rates (this is especially the case in Spain, Italy and Germany). Aside from these fundamental long term trends, there is also a temporary phenomenon stretching from 2010 to 2020, namely the retirement of large population cohorts born in the 1950s (the *baby boom*).

To help the competitiveness of the European Union — and economies in general — the twofold idea is often put forward of restraining future payments by various measures relating to their size and the age of retirement, as well as encouraging access to pre-financed, individual or collective measures managed by private agents (pension funds or insurance companies). Such measures are generally justified by concerns about the need of containing public debt and/or mandatory contributions, of limiting the tax wedge — i.e. the spread between the cost of labour and the net wage — and by arguments in favour of raising the savings rate, and hence investment and growth.

Table 1 — Spending on pensions as a share of GDP (%)

	Germany	France	Netherlands	United Kingdom	Ireland	United States
2000	11.8	12.1	5.2	4.3	2.9	4.4
2020	12.6	15.0	7.3	3.9	2.7	5.4
2040	16.6	15.8	10.5	4.1	2.9	6.3
2050	16.9	nd	10.0	3.6	3.0	6.2

Source OECD, 2001.

To examine the link between the financing of pension schemes and savings¹, six countries will be analysed here which are strongly characterised by their type of pension scheme: two countries in continental Europe where public pensions account for more than 10% of GDP and which are normally qualified as “generous”, Germany and France; four countries in which public pensions represent less than

1. The link between savings and the various phases of the demographic transition within a general equilibrium, and with internationally mobile capital, has been studied using the INGENUE model, created by the CEPII, the OFCE and the CEPREMAP. The INGENUE team: “Our Future Pensions and Globalisation: An Exploration of the Issue Using the INGENUE Model”, *La Lettre CEPII*, English version available at <www.cepii.fr>.

10% of GDP, the Netherlands, the United Kingdom, Ireland and the United States. In fact, the first three countries in this second group have flat-rate state pension systems (in the “Beveridgian” tradition). The United States, in contrast, has a public pension scheme which pays benefits that are proportional to income (in the “Bismarkian” tradition), but a scheme that represents only a small share of national income. In these countries, public transfers only make up a small share of the income of citizens over 65 years old (30% in the United States and 40% in the United Kingdom, as opposed to 70% in Germany). Households top up these pensions via savings schemes (see Table 2), whose total assets may be substantial (equivalent to up to 110% of GDP in the Netherlands).

Table 2 — Nominal returns on pension funds over a long period of time, and assets as a share of GDP in 2000 (%)

	Germany	France	Netherlands	United Kingdom	Ireland	United States
1967-1990	8.6	nd	8.9	14.7	nd	nd
1990-2000	nd	nd	12.6	13.2	nd	12.9
assets/GDP	15	5	110	81	54	78

Source: Philips & Drew, 2002.

The basic idea put forward by proponents arguing for a transition from PAYG systems to funded schemes is easy enough to understand. By limiting mandatory payments linked to demographic ageing (be it through direct taxation as in the United Kingdom or contributions to public schemes as in France or Germany), working-households’ disposable income will rise, and those wishing to save for their pensions will be able to do so. Furthermore, by limiting the tax wedge, incentives to enter the labour market are strengthened and wage costs held down.

■ The Lessons of Economic Theory

Economists traditionally use so-called “overlapping generations” models to explain the links between pensions and savings. Such models rely substantially on life-cycle theory. They include two generations: a younger, active generation which works and pays for pensions out of its working income, saves and consumes; a retired generation which consumes the product of its savings, to which are added the payments from a pension scheme financed by the contributions of the working population. The most complete, general equilibrium models incorporate the interactions between PAYG schemes (which depend on demographic changes) and the behaviour of households (especially when this affects savings, which depend on the profile of the life-cycle income) as well as the behaviour of firms using household savings to build up their capital. With macroeconomic closure, the interest rate which balances savings and investment is then made endogenous. The conclusion of such theoretical models is quite clear: PAYG schemes are unfavourable to savings. The major

argument here is the so-called asset substitution effect. It is assumed that the returns on PAYG schemes and alternative systems are identical; agents reduce their retirement savings flows as they expect to benefit from a PAYG pension.

The problem is that the empirical evidence contradicts this pattern of events. Graph 1 shows that the highest savings rates of the six countries studied are not found in those countries with small PAYG schemes and significant funded schemes. Also, Ireland had a relative high savings rate at the start of the 1980s, but it has fallen since, fluctuating around a level of 8%.

The Netherlands is the only country with a pre-financed pension scheme that has a savings rate of over 10%, which has stabilised at around 12% since the mid-1990s. The two countries with PAYG schemes — France and Germany — have exhibited the highest savings rates of the period, running at 16% in France, since the mid-1990s.

The predictions of the theoretical model do not therefore seem to be verified. But demographic fluctuations and the uncertainties such fluctuations generate need to be examined to help understand these phenomena.

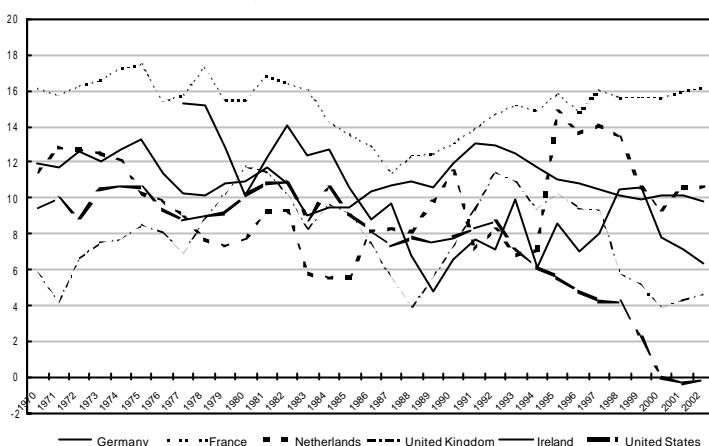
■ The Influence of the Demographic Cycle

In theory, the demographic cycle — the succession of cohorts of different size — has only a limited impact on the savings rate. What is important, however, is the rise in life expectancy: a direct result of the simplest form of the life-cycle behaviour indicates that agents who expect to have a longer period of retirement (due to higher life expectancy) will indeed increase their savings. The impact of the baby boom comes on top of this life expectancy effect. The savings rate will rise automatically when this “large” generation starts saving (statistically 40 to 60-year olds save most, and are known in the English-speaking world as “prime savers”), as its behaviour will both conform to the life-cycle theory and take into account higher life expectancy.

It is possible to examine whether these mechanisms explain or are likely to explain differences in savings rates between the countries studied here. In fact, matching savings rates (Graph 1) with the share of “prime savers” (Graph 2) does not explain the high spreads in the savings rates between the two countries. The two “youngest” countries, France and Ireland, have very different savings rates, as do the countries with a high share of 40 to 60 year-olds, such as the United States, the Netherlands, and Germany.

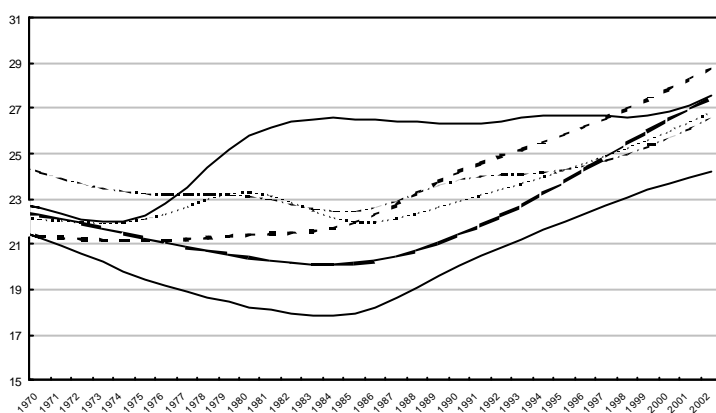
Population structure thus does not *per se* explain the differences in savings rates, of the countries analysed here. On the contrary, it may seem troubling that countries with low savings rates are precisely those in which public pensions are the lowest and are set to remain low for a long period of time, which may also be the time horizon of current savers.

Graph 1 — Household savings rates



Source: OECD, *Economic Outlook*, 2001.

Graph 2 — Shares of "prime savers" (40 to 60 year-olds) in the population (%)



Source: UN, 1998.

■ The Influence of Uncertainty

Disparities in the savings rate between the six countries can be explained by a slightly enriched form of the life-cycle model referred to above. Pensions in countries where households do not have access to a large and organised funded pension system (i.e. countries in continental Europe) depend directly on future demographic trends and on reforms that have occurred, or will occur, to limit spending on pensions. In this case, households have been informed about the pressure to reduce pensions if governments wish to limit transfers between the working and non-working population, and hence they expect a fall in their relative living standards upon retirement. If the risk of a fall in the income replacement rate is introduced into the life-cycle model, then households will increase their savings. In other words, they make up for not having funded pensions by saving more.

In Germany and France, spending on pensions is high and set to rise further through to the period 2040-2050, despite the reforms already carried out (in 1993 for France, and in 2001 for Germany). Households will hence probably expect new falls in the replacement rate, which may explain the high rate of savings. The Netherlands are in an intermediate situation in as far as pension spending has

so far been less than 10% of GDP, but will rise above this, over the period of time forecast here. This may explain why savings have risen recently.

Public pensions make up only a very small share of GDP in the United States, Ireland and the United Kingdom. They are accompanied by funded schemes which represent a significant share of national wealth. The low savings rate in these countries can only be explained by the strong confidence which agents have in collective savings scheme such as "pension funds" — due to rates of return that are clearly expected to be high — or by a strong preference for the present that may characterise Anglo-Saxon households.

■ Rates of Return

There is no obvious reason which suggests that British (Irish, American and Dutch) households have lower pension requirements — in terms of the income replacement rate — than French or German ones. Consequently, with far lower replacement incomes offered by public pension schemes, British households should have a savings rate that is much higher than the French rate, unless their financial assets (pension funds, specific retirement savings schemes) have a far greater rate of return than the more traditional savings schemes available to "continental" European households. Such a higher rate of

return may arise due to better asset management, stemming from the weight of pension funds in managing assets and/or from tax breaks.

It is possible to use the growth of the total wage bill as an approximate value for the rate of return on PAYG schemes. Each generation receives pensions whose overall value is equal to the contributions paid by the next generation. As these contributions are based on wages, the total volume of contributions collected and redistributed by the PAYG scheme will rise as wages do. This is quite a rough approximation as it assumes that the parameters of the scheme are constant, which is the case when all types of shocks are excluded (the approximation also assumes that schemes are in equilibrium). Examining Tables 2 and 3 together allows some comparison of the rates of return on pension funds — such returns are only available in countries with high pension assets, though it is reasonable to assume that similar rates of return would be attained by pension funds of different "nationalities" — and the rates of return on PAYG schemes, over a long period of time (see Table 3). Pension funds have benefited from high rates of return generated by financial markets, from the mid-1980s onwards in particular. In contrast, the returns on PAYG schemes have stagnated due to the combined impact of policies promoting wage moderation and the stagnation of

the working population. Overall, the return on funded schemes has been far higher than on PAYG schemes, and also much higher than interest rates.

Table 3 - Rates of nominal wage growth (%)

	Germany	France	Netherlands	United Kingdom	Ireland	United States
1970-1980	9	15	11	16	21	10
1980-1990	4	7	2	8	8	7
1990-2000	3	3	5	5	9	5

Source: OCDE, 2001.

The confidence of Anglo-Saxon households may have been stimulated by this gap in returns. Still, the hypothesis that they have a higher preference for the present cannot be totally discarded. Several "scandals" should have weakened their confidence in pension funds, especially company schemes (the Maxwell scandal in the early 1990s and Enron more recently). But no significant rise in savings was to be observed on either occasion. However, the repetitive nature of such "scandals" is still too recent to allow final conclusions to be drawn.

The reforms of pension schemes in continental Europe induced by demographic changes may take several forms:

- the parameters of schemes may be changed, for example by altering the mechanisms for acquiring pension rights or the number of years needed to acquire full rights, or simply by raising contributions;
- the introduction of an additional "pillar" to public pensions, or the consolidation of such a pillar (as in Germany).

The impact of such reforms on savings is uncertain. On the one hand, if such reforms are not credible or do not reduce the uncertainty surrounding the future of PAYG pensions (or even add to it), then savings rates may rise. On the other hand, if funded schemes are used to top up PAYG schemes, holding out the prospects for higher rates of return, then savings could fall. Savings flows would then be reoriented to areas traditionally targeted by pension funds.

Florence Legros
legros@cepii.fr

LA LETTRE DU CEPII

© CEPII, PARIS, 2002
EDITORIAL OFFICES

Centre d'études prospectives
et d'informations internationales,
9, rue Georges-Pitard
75015 Paris.
Tél. : 33 (0)1 53 68 55 14
Fax : 33 (0)1 53 68 55 03

PUBLISHER:
Lionel Fontagné
Director of the CEPII

CHIEF EDITORS:
Agnès Chevallier
Jean-Louis Guérin
Bronka Rzepkowski

TRANSLATION:
Nicholas Sowels
DTP:
Laure Boivin
DISTRIBUTION
La Documentation française.

SUBSCRIPTION only to the
original, French version.
(11 issues per year)
France 46 € VAT
Europe 47.50 € VAT
DOM-TOM (NET, econ. air mail)
47 € NET
Other countries (NET, econ. air mail)
47.50 € NET

Please send your orders to:
La Documentation française,
124, rue Henri Barbusse
93308 Aubervilliers Cedex
Tél. : 33 (0)1 48 39 56 00.

WEB site: www.cepii.fr
ISSN 0243-1947

CCP n° 1462 AD
3^e Quarter 2002
May 2002

Imp. ROBERT-PARIS
Imprimé en France

*The CEPII is entirely responsible for
the Lettre du CEPII and its on-line,
English translation. The opinions
expressed therein are those of the
the authors.*