European Pensions

An Appeal for Reform

Pension Schemes that Europe Can Really Afford

A Report by the European Round Table of Industrialists

ERT

Acknowledgements:

This Report has been prepared by the ERT Welfare Society Working Group, chaired by Carlo De Benedetti. It was approved by the ERT Plenary Session in Helsinki on 25th October 1999.

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The Report contains all the relevant economic aspects of European pension programmes, based on recent statistical evidence. A full set of tables and charts is contained in a Statistical Annex to the Report, which is available upon request from the ERT or Fondazione RDB.

The authors used a number of scientific contributions: a complete list of references is provided at the end.

This Report does not claim to represent a unanimous view of all ERT Members.

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Foreword

The European Round Table of Industrialists (ERT) is a forum of industrial leaders aiming at promoting competitiveness and growth in Europe. The ERT firmly believes that the long-term economic prospects of Europe and its job generation potential are hindered by excessive taxation on labour. It also believes that the private sector should play a role in the provision of social services to European citizens: the ERT view of the welfare systems of the future is one of social welfare societies, rather than welfare states.

This report addresses a key area of reforms of European welfare, namely public pension systems. It is argued that the reform of the public pension programmes would be best carried out through a co-ordinated approach among European countries. Co-ordination is required for at least four reasons. First, European countries should be forward-looking, and think now about the implications, at the European level, of the breakdown of the current pension arrangements. Second, European countries are facing similar adverse demographic scenarios, which, inevitably, will require a similar set of actions. Third, ERT as an organisation gathering industrialists of an integrated Europe, is aware of the fact that delays in reforming pensions in one country become a burden for all other countries; conversely, a step taken in the right direction in one country has beneficial effects on Europe as a whole. Fourth, an integrated Europe needs free movement of workers and capital, and neither can be fully realized without flexible pension arrangements, allowing for portability and transferability of pension rights across jobs and countries.

We hope that this report will contribute to making European governments feel the urgency of the reforms required to prevent the collapse of the current pension schemes. These reforms are time consuming and too much time has already been lost in delaying the necessary policy interventions. It is now time to act. For these reasons this report is deliberately pragmatic and calls for immediate policy action. It provides a set of recommendations that can be implemented by national governments. It also identifies ways to co-ordinate these reform efforts at the European level without requiring changes in the design and supranational powers of the current EU institutions.

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Table of contents

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Executive Summary

Good Government Anticipates Problems

The European Round Table of Industrialists has issued this report because it wishes to contribute to the good government of the European Union and its Member States. Governments are besieged by current problems, but good governments do not lose sight of the need to avoid future crises.

In many European countries, the public pension systems are becoming unsustainable:

- by 2030, 25% of the population of the 5 largest EU countries will be over 65. In 1950, the over-65s were only 9% of the population;
- not enough children are being born to support the elderly. Birth rates are so low in the big 5 EU economies that population is not being replaced;
- people are retiring younger – on average men at 61 and women at 58 in 1995. In 1950, in contrast, men were on average working until 67 and women until 66;
- life expectancy at birth in the big 5 has increased by more than 11 years between 1950 and 1999.

If they are not reformed soon, public pension systems in many EU Member states pose a threat to the competitiveness of the European economy, to public finances and ultimately to confidence in public pension systems and in those who provide them.

European industrialists want a proactive European approach to stop these systems from self-destructing. And just because pensions are under more strain in some countries than others does not mean that struggling national systems are not a European problem:

- 11 of our 15 currencies have merged into the euro. Confidence in the stability and political management of Europe's new currency will be rapidly undermined if markets come to fear an explosion of public debt in several Member States because of large, unfunded public pensions deficits;
- freedom of movement for capital and people in Europe's single market is still unfinished business, in pensions as in other fields. Why should workers have to worry about portability of their pension rights at the border when they want to work in another Member State? Why should private pension funds be prevented by national regulations from fully exploiting the opportunities of global markets?

Time is Running Out for Reform

Some Member States are spending more than 10% of their gross domestic product on pensions. Too many national budgets in the European Union are facing the pensions crunch from two directions:

- working populations are in decline, thus reducing the social security tax base;
- rapidly expanding populations of retired workers are entitled to pension payments that are too generous to be sustained by present systems of funding.

Many governments have then exacerbated the problem by encouraging workers to retire early. This pushes up the pensions bill and reduces the working population available to pay it.

Typically, European countries pay pensions from contributions from active workers. As pensioners grow in numbers and live longer and as work forces decline, higher taxes and payroll contributions are needed to keep the system afloat.

However, the 'window of opportunity' within which to do something is very limited. In the next 10 to 15 years, the 'baby-boom' generation starts to retire and the political cost of substantive pension reform becomes much greater.

The Unacceptable Costs of Doing Nothing

In the next decade, the EU badly needs to raise its annual growth rates above the dismal averages of the 1990s. If they are left unreformed, current pension systems will be a ball and chain holding back improvements in competitiveness and growth, or even undermining both.

Three things could happen as governments struggle to keep their systems afloat:

- public debt will be pushed upwards by government borrowing to cover pensions deficits - in the worst cases some governments will be spending 20% of their national incomes on pensions. Even though the scope for borrowing is limited by the debt ceiling imposed by Economic and Monetary Union, rising indebtedness in some Member States could be bad for the euro;
- firms and their employees will have to pay larger contributions. In Italy, for example, workers would need to be paying 48% of their salaries in contributions (currently they pay around 33%) to balance the pensions budget in 2030;
- workers may demand higher pay to compensate for higher contributions or insist that employers carry the main contributions burden. In both cases, jobs are likely to disappear.

Clearly, we cannot afford to do nothing. The pension promises that governments have made over the years will be broken and public confidence in public schemes will be shattered.

A Forward-Looking Objective - To Leave an Affordable Legacy

Worthwhile reform of public pension arrangements must be implemented across a broad front involving the European Union, Member States and social partners. Change will not be without costs, but if they are shared between and across the generations, so also will be the benefits. National pension schemes vary widely among Member States. There cannot be identical reforms in each country. But there must be a common set of principles underlying reforms in each Member State if the reforms are to achieve common objectives.

Recommendations

To the European Union, the ERT Recommends:

- Embody in the concept of European citizenship the right to transfer pension entitlements across borders. The current denial of portability penalises employees' freedom of movement;
- Create co-ordinated tax rules that are not an obstacle to the free movement of pensions. Taxing the benefit while exempting contributions and investment income avoids double taxation, minimises distortion of the individual's choice and guarantees governments a given level of revenues;
- Remove regulatory obstacles to mobility by gradually reducing widely varying vesting periods (the period in which contributions must have been paid to be eligible to claim pension benefits) and allowing transfers with a fully indexed allowance for benefits accrued. Any reduction in vesting periods must, however, be accompanied by tax relief for the plan sponsor. Also, make accounting and indexation of benefits more transparent;
- Protect the best interests of workers by requiring private pension funds to respect the "prudent man" framework (returns must be maximised for a given level of risk) while also allowing a flexible approach to investing in foreign markets and to the choice of investments (e.g. equities vs bonds).

To Member States, the ERT Recommends:

- Prioritise public pensions spending so that it does what the private sector cannot do, for example, guarantee a basic standard of living to the elderly.
- Aim for a proper balance between public and private pension provision with a significant funded component.
- Raise the normal retirement age in line with that of some other Member States, and provide incentives for older workers to stay in the workforce beyond normal retirement age, if workers wish to do so.
- Stop adding to the costs of pensions (e.g. by automatically linking benefits to nominal wages or promoting early retirement).
- Open up a market for private pensions and stimulate greater competition between private pension providers.
- Remove any obstacle to investing in equities in line with the "prudent man" principle. Stocks have proved to be an essential part of pension portfolios in order for pension funds to guarantee a successful performance and a good return on pension plans.
- Promote social partnership with employees and industry in the provision of retirement income.
- Encourage individuals to take responsibility for saving for their retirement.
- Provide tax incentives for employee contributions to company-sponsored schemes.
- Take away fiscal barriers to private pension investment.
- Monitor more closely and more accurately the prospective costs of public pension systems.

1

Crisis of Public Pensions

Crisis of Public Pension Programmes:

Policy Recommendations for Europe

1.1

We Need to Reform Public Pension Programmes in Europe Now

The Demographic Transition

Europe is now undergoing a demographic transition that poses major challenges for governments. The OECD (1998) lists some of these challenges: *"There is likely to be reduced growth in material living standards. Fewer workers to support more retirees raises fiscal issues and issues of intergenerational fairness. Growing periods of life being spent out of contact with the labour market in retirement raises fundamental issues about the allocation of work and leisure over life".*

(OECD, 1998, Maintaining Prosperity in an Ageing Society, Paris, p.9)

The facts of the demographic transition are well known. The 'support ratio' of workers to pensioners is falling throughout Europe, as the baby-boom generation nears retirement, and is succeeded by a smaller generation of workers. However, on the one hand, there has been a considerable lag in recognising that there exists more than one component in the "demographic-bomb" and, on the other hand, that recent demographic trends represent a very serious matter for pension programmes throughout Europe.

Urgency overrides complexity

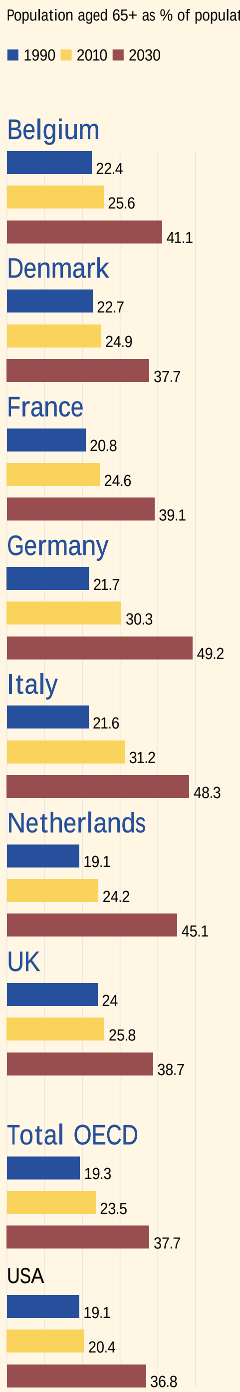
As OECD also points out, there is a small, and rapidly shrinking, 'window of opportunity' within which to gear European economies towards the aged society. The 'baby boom' generations are still in their late forties and fifties and should not have wholly retired for another 10 to 15 years. The costs to society of the demographic transition – higher costs of state pensions, higher costs of health care, and increased dependency – will rise rapidly thereafter. There is a time interval in which policies can be shaped to deal with this different type of society – in which, for example, older workers can be retained in the labour force and encouraged to save for their retirement.

But time has been lost

In an era when individuals should be encouraged to work longer, given increased longevity and the magnitude of the demographic transition, many governments and private employers have actively encouraged workers in their late middle age to leave the workforce and take early retirement. Governments still see cutting the size of the labour force as a way of solving unemployment, but this can only be a short run solution. And, at the same time, if workers primarily save for retirement in the second half of their working life, cutting that period short will simply reduce the private resources that individuals have to enjoy their retirement later in life.

Chart 1

Elderly Dependency Ratios 1990, 2010 and 2030



The Demographic Facts

Increasing numbers of elderly people...

The number of elderly people in the population is growing throughout Europe, relative to the number of people under pension age. In France, for instance, back in 1990 there were 19 people over 65 for every 100 under 65. That will rise to nearly 40 by 2030. A similar, only more dramatic, picture is evident in Germany and Italy. In the big 5 EU countries back in 1950 there were 9 people over 65 for every 100. That will rise to nearly 25 people over 65 by 2030.

And, in some countries, falling numbers of children...

Children are the future supporters of the elderly. For some countries, the 'demographic boom and bust' (the post-war baby boom followed by a fall in fertility) has been a transitory phenomenon – fertility has recovered to levels such as to maintain a static or slowly growing population in the future. And indeed demographic projections by the United Nations, OECD and other international bodies assume that birth rates will tend to revert to replacement levels in most industrialised countries. But in some countries, fertility rates have not recovered to pre-boom levels. In Italy, for example, the number of children declined by 3 million between 1950 and 1990 and is expected to fall still further. The current fertility rate in Italy is 1.34 and in Denmark 1.5. The current fertility rate in the big 5 is 1.4, this is well below the rate of replacement of the population, which requires a rate of just over 2. Net migration or growing participation are ways of boosting the labour force, but these may impose social and economic costs of their own. And in European countries, net migration rates on a scale that outweigh fundamental demographic changes seem in any event unlikely.

Overoptimistic projections on participation of older workers and longevity...

From a welfare point of view, growing longevity is welcome. But we cannot be sure by how much medical advances, as well as improvements in diet, social conditions and occupational changes will affect longevity. Life expectancy at birth between 1950 and 1999 has increased by more than 11 years in the big 5. Residual life expectancy as from age 60 has increased even more. If longevity is underpredicted, so are the future costs of providing public pensions, long term care, and medical facilities. And governments have tended to underpredict mortality improvements in the post-war period.

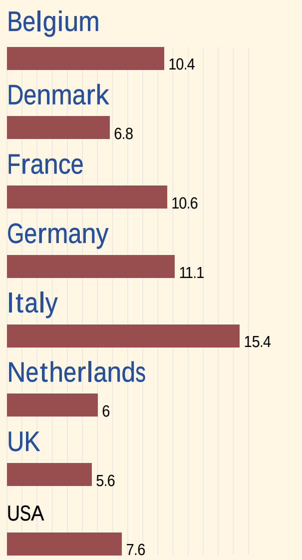
At the same time as governments have underpredicted mortality falls, they have tended to overpredict the retention of older workers in the workforce. Indeed, governments and employers have often encouraged earlier retirement as a means of dealing with unemployment and workforce reductions.

The Consequences of Demographic Trends for European Public Pension Programmes

Chart 2

Public Pension Spending

as % of Gross Domestic Product (GDP) (1995)



Source: OECD

Pension programmes throughout Europe are typically characterised by two components: a public and a private component. In some countries these components are well balanced, while in other States the private component is almost non existent. The financing method of public pension programmes is at the basis of the "pension crisis". Public pensions in each year can be financed through funds accumulated by workers in previous years (a financing system akin to private savings hence called "funded") or directly through the contributions paid in that particular year by current workers (unfunded or Pay-As-You-Go, PAYG-financing). Typically, European countries have largely used PAYG financing. Over time, not least because the population is ageing, PAYG financing imposes rising costs in the form of higher tax burdens and payroll contributions.

We can summarise the main elements of a typical pension programme by providing both the nature of the benefit design provided to retirees (flat rate, earnings related etc.) and then the type of financing method (funded or unfunded). The method of funding is crucial in determining the effects of changes in the population. Demographic change of the size we are experiencing is bound to have an impact on a pension system. One can easily gather the importance of this effect by looking at the amount of money that countries spend on state PAYG pensions today. However, the variation across Europe in spending on pensions is also quite remarkable. Despite relatively similar demographic profiles the amount that countries spend on pensions differs dramatically. The UK, for instance, spends less than 5% of its GDP on public pensions. France, Germany and Italy spend considerably more than twice this amount.

Public Components (Pillar 1)	Flat-rate social basic benefits or minimum benefits[1] ▶ *PAYG financing, often complemented by financing from general taxation*
	Earnings related-defined benefit or "notional defined contribution"[2] ▶ *PAYG (often complemented with financing from general taxation) or partly funded financing*
Private Components (Pillar 2 and Pillar 3)	Pillar-2 Occupational Pension Schemes[3] ▶ *PAYG or funded financing, book reserves schemes*
	Pillar-3 Individual Accounts (life insurance based or personal saving plans) ▶ *funded*

(1) For a precise definition of Social Security and PAYG financing see glossary at the end of the report.
(2) Pension benefits can be essentially of two types: a defined benefit pension formula (i.e. there is certainty about the benefit to be received at retirement but not about the contribution to be paid) or a defined contribution formula (the contribution is known but the future benefit is not specified). A defined contribution pension formula is normally associated with a funded system, however there exist examples of notional-defined contribution systems where the benefit is based on past contributions but there is no accumulation of funds. For more details see the glossary.
(3) Pension schemes offered by employers within a firm or industry. See glossary.

One aspect which is often overlooked is that demographics alone are not responsible for our concern with pension policy and the reform of pension policy. It is the combination of generous pension policies coupled with demographic change, which causes the public pension programmes crisis. The generosity of some public PAYG systems is clearly documented by the average replacement rate, i.e. by the pension benefit received by retirees relative to their last wage. The replacement rate tells us, on the one hand, what are the standards of living of retirees if compared to the standards of living while working, and, on the other hand, how generous the system is to retirees.

This measure ranges between an average of 32% in the Netherlands, 45% in Germany to 70% in France to reach a peak of 78% in Italy. And since final earnings are typically higher than average earnings, replacement rates of average pensions to average earnings are even higher.

The Euro-Debt for Pensions is Building Up

These facts clearly document the building up of a Euro-debt for pensions: the liabilities of one country affect all countries together. The stability pact between European countries greatly depends on the behaviour of the budget deficit in each individual country, in turn these deficits are affected by the hidden pension liabilities gradually coming to the surface. On the one hand, the lack of credibility of one country may clearly affect the stability pact, on the other hand, the increasing debt in one country may even result in higher interest rates throughout the EMU with a direct negative impact on European growth and employment. Hence the European dimension of this problem can be easily justified by three basic facts:

- the onset of the Single Market requires a sound pensions system in each European country;
- the competitiveness of European industries and growth of the European economy are in danger if firms and workers have to cope with increasing labour costs due to the pension bill;
- credibility of each single country depends on maintaining pension liabilities under control;
- spill-over effects of hidden pension liabilities threaten the stability pact.

1.2

Finding the Right Balance between Public and Private Pension Provision

The Advantages of a Mixed System

The following Box summarises the standard 'advantages and disadvantages' of a public PAYG system (pillar-1) versus a private funded system (pillar-2 and pillar-3). Whilst we have already spelt out some fundamental problems of PAYG-financed systems, it is obvious that funded systems are not trouble-free. In this respect a mixed-system may provide the best solution to pension arrangements. Whether, however, a country has an advantage in reforming its pension programme by moving in one direction or the other strongly depends on the steps taken and the starting point of each individual State. This requires a deeper understanding of the consequences of a particular social security design. This is why this Report goes through the main economic facts behind pension programmes. First, it will discuss the effects of having in place and maintaining a PAYG public pension programme and then look at the possibilities of reforming the system.

Public Provision, PAYG Financing

Advantages

- *Wide coverage.*
- *Solidarity between generations.*
- *Allows for redistribution and permits certain welfare goals.*
- *Usually it does not discourage labour mobility (Though retirees working in different sectors of the economy may be treated differently. This may bear implications both for mobility within a country and between countries where bilateral agreements are not wholly developed).*
- *Usually good inflation proofing.*
- *No investment risk.*
- *No selling costs.*

Disadvantages

- *Not flexible enough to cope with demographic crisis.*
- *Vulnerable to rule changes and to political risk.*
- *Contributions often perceived as taxes, if tax rates are particularly high negative effects on competitiveness would result.*
- *No responsibility given to workers and firms (paternalistic view of pensions).*

Private Provision, Funded Financing

Advantages

- *More responsibility given to workers in contributory plans.*
- *More actuarial fairness due to an explicit link between contributions and benefits (this is particularly true for defined-contribution occupational pensions or individual accounts, e.g. personal pensions or private annuities, as detailed below).*
- *Not subject to demographic risks (particularly if occupational pensions of defined contribution form).*
- *In defined-benefit occupational pensions some solidarity across generations is possible (but hardly realised).*
- *Defined contribution occupational pensions and individual accounts usually portable.*
- *It provides the ideal ground to exploit global investment opportunities.*

Disadvantages

- *Coverage could be limited (see however the Netherlands as a counter-example of this).*
- *For defined-benefit occupational pensions vesting periods may be long and represent an obstacle to mobility both within a country and between States.*
- *Also: if vesting periods are very long eligibility will be granted only to those staying with a firm.*
- *In defined-contribution occupational pension schemes and in individual accounts there is a 'rate of return risk' falling almost entirely on the retiree.*
- *Individual accounts involve some selling costs.*

The Advantages of a Mixed System

	Public Provision – PAYG	Private Provision – Funded
Coverage	Yes	Yes
Solidarity	Yes	No
High returns	No	Yes
Insurance against demographics	No	Yes
Insurance against market risk	Yes	No

A simple inspection of the above table points to an obvious complementarity between the two financing methods. This complementarity emerges very clearly when considering the economics behind pension systems in more detail.

Making Room for Pillar 2 and Pillar 3

Even given the very high levels of spending at the moment in some countries, further growth in those levels of spending is projected into the future. Without changes to policy in Germany and Italy we can expect to see pension spending approaching one fifth of total national income by the middle years of the next century. And that, of course, in turn will result in substantially higher rates of tax (very often this increase will go on top of existing remarkably high payroll taxes both for firms and workers).
So far, all that has been mentioned are simple arithmetic points. Spending on pensions is high, demographic change is against us, spending on pensions will get higher. But there are some other economic points about public pensions that are worth drawing out at the same time.

Thinking About Future Generations

A pension system financed through current social security taxes (contributions) is affected by two basic elements: the ratio of retirees over working population (a good measure of this is provided by the dependency ratio, i.e., the ratio of elderly people over the working population) and by the ratio of average old age benefits paid out to pensioners over the average wage (this ratio is also known as the average replacement rate).

Hence, there are two forces at work: the demographic structure and the generosity of the system vis-à-vis the current wage. Changes in one of these two elements affect the social security system in a way that is usually hard to counteract or to undo. These changes have built-in long run implications involving many generations. This is due to the dynamics of pension commitments by successive generations. Because each generation pays a pension to each preceding generation the system keeps going in good shape as long as the workforce increases at a suitable rate, i.e. as long as younger generations of increasing size accept playing the game. Also: it is in its very nature that first generations get out of the system more than they put into the system, i.e. there is intergenerational redistribution which is irrespective of the relative size of generations. In fact, in many European countries old age benefits started to be paid out to retirees even in the absence of (or with very little) contributions history. This intergenerational sharing of resources could be under pressure when, due to demographic imbalances and to over-generous benefits granted to older generations, younger generations feel that the build-up of commitments will not be honoured. In other words, while we cannot argue that a PAYG system goes bankrupt, because there is no bankruptcy of public programmes, there is a danger that a PAYG system may lack political support. Even if such a catastrophic event does not take place it is a fact that, given the current trends, smaller generations will pay substantially higher contributions to finance pensions of larger (older) generations. As a result the ‘return’ on contributions for later generations will fall.

This ‘return’ is simply the implicit rate of return offered to workers on public pension programmes, it is computed comparing the amount of money that a typical worker puts into the system and the benefits and that he can expect from the programme. Chart 3 clearly shows how such an implicit return is typically very high for older generations and plunges to very low (or even negative) values for younger generations.

Intragenerational Redistributions: the Danger of Perverse Redistributions

Public pension programmes also operate redistribution within generations. Such redistributions might be explicit and desirable (from the lifetime rich to the lifetime poor within a generation), but they could also be accidental redistributions, due to ill-design of pension benefits or even perverse redistributions. For example, it is often observed in European pension programmes that civil servants and public sector employees are treated more favourably than private sector employees. Also in some cases public pension benefits are based on final salary (or an average of final salaries), which favours workers whose earnings increase at the end of their career vis-à-vis workers with flat age-earnings profiles. The former workers tend to be richer on average.

Chart 4 and Chart 5 provide information on the contribution offered by public pensions to the reduction in income inequality. In particular differences in Gini coefficients[4], with and without pensions, are displayed for persons in working age, that is, individuals aged 15 to 64, and individuals in retirement age (64). The first picture refers to the working age population and shows that in countries like Norway, the Netherlands, Italy and Denmark pensions provided to individuals below retirement age (e.g., mainly early retirement, survival and disability pensions) play an important role in reducing income inequalities, typically arising from labour market related hardship. In all of these countries, except Italy, public pensions play a significant redistributive role also among the population of retirees (second picture), while in others redistribution tends to fall entirely on other social programmes.[5]

Overall, public pensions in all EU countries tend to reduce inequality, both among pensioners and among individuals aged below 64. However, there are important differences in degree as some countries consistently use pensions as a redistributive tool across all age groups, while others only among the working age population and others do not seem to assign to pensions any significant redistributive function.

(4) This is a widely used statistical measure which is increasing in the inequality of the income distribution.
(5) E.g., in Sweden housing benefits widely contribute to reducing inequality among pensioners, housing benefits are also particularly relevant in the UK.

Chart 3

Real Rates of Return to PAYG Pension Programmes

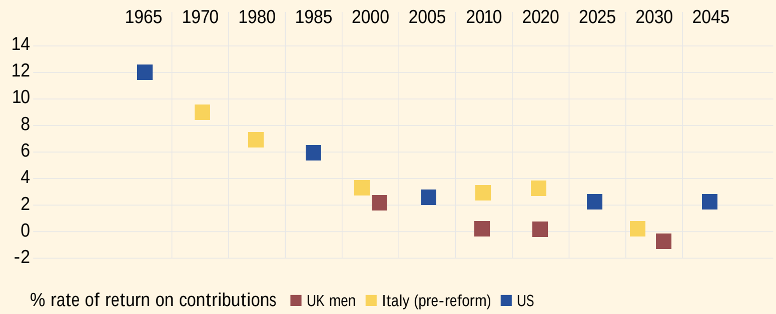


Chart 4

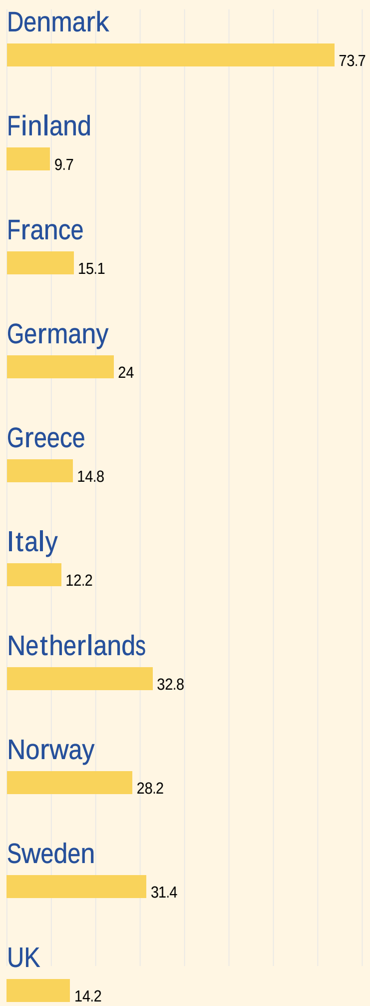
Contributions of Public Pensions in Reducing Inequality

Working Age Population

Chart 5

Contributions of Public Pensions in Reducing Inequality

Retirement Age Population



Note: Difference between the Gini inequality coefficient when pensions are excluded and when pensions are included.
Source: OECD, 1998.

1

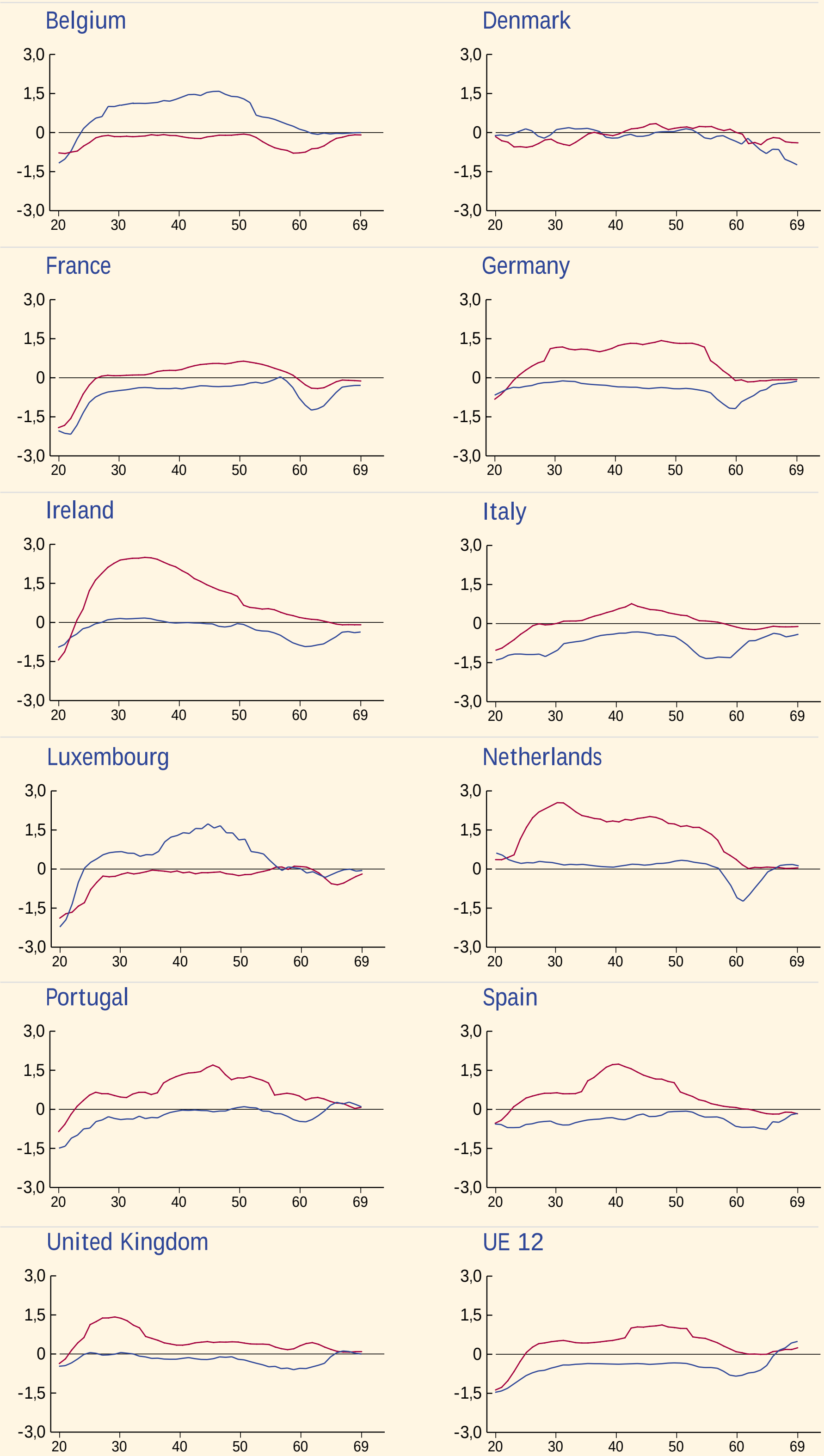
Early Retirement: the Non-Neutrality of Pension Systems and the Effects on the Labour Market

There is one other important cause for concern very closely related to the pension issue in countries throughout Europe. That is the problem of early retirement or rather of very low levels of economic activity among older men. Over the past 20 years or so in Germany, France, Italy, the UK, the Netherlands and most European countries the proportion of men in their sixties and late fifties who are in work has been falling very dramatically. This matters because it means that there is a smaller proportion of the overall population in work and providing productive resources for the payment of pensions and other transfers within the economy. It also magnifies the impact of demographic change. If you have not only a population which is growing older, but a population which is retiring earlier, then the dependency ratio (ratio of retirees over working population) will be rising for both reasons.

Pension programmes might be a major cause of this trend. The design of state pension systems in most countries actually results in significant disincentives for people to stay on in work beyond relatively early ages and, as we have suggested, employer-run 'defined benefit' programmes often have built-in incentives that encourage employers to retire workers at a relatively early age, notably the rising cost of pension rights as the worker extends his or her working life. This trend emerges quite clearly from the employment figures, on the one hand and from actual retirement ages, on the other hand. In Italy, in Germany, but also in the Netherlands, the male employment rate plunges between the ages 50 and 60. For example, average annual changes of male employment rates –provided in Chart 6 - show that in most European countries employment rates stay roughly constant (around zero or slightly negative) when the work force is between age 20 and age 50. This means that there is no appreciable variation in the stock of employed men, but the average change sharply turns to negative values – i.e. employment decreases – starting at age 50.

Chart 6

Average Annual Change of Male and Female Employment Rates by Age - for Single States and for the UE12 (Sample Period 1983-1998)

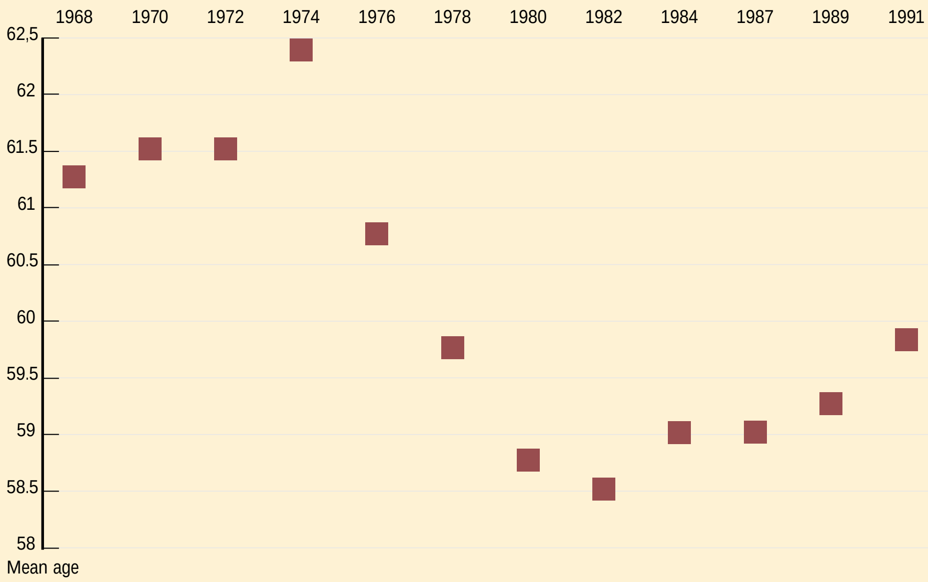


Women
Men

Source: Peracchi (1999).

Chart 7

Mean Retirement Age in Germany



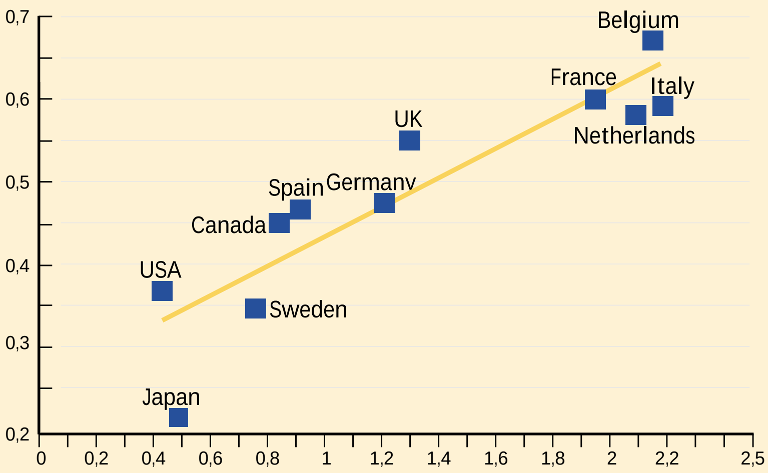
% rate of return on contributions

This trend is mirrored by the increasing number of "young retirees" which is due to the non-neutrality of pension arrangements vis-à-vis age. For example, in Germany mean retirement age has decreased dramatically as a result of changes in social security arrangements occurring in the early 1970's.

Furthermore, the Netherlands and the UK have implemented generous policies, not directly related to pensions, which give significant amounts of money to those who are leaving work because of disability or supposed disability. In countries like France and Italy early retirement schemes have been quite specifically used to ease people out of the labour market. All these disincentives, built into the social security systems throughout Europe, create an implicit tax on work: workers tend to leave the labour force through any existing loophole when the implicit tax on work is high. The implicit tax on work created by the social security system is a simple way to provide the link between labour market attachment and early retirement and it enables measurement of the impact of pension design on the labour market.

Chart 8

Relation between “Implicit Tax” intensity and Unused Labour Capacity



Source: Gruber and Wise (1999)

When measuring the “force” of the implicit tax on work (plotted on a suitable scale) against “unused capacity”, which is the average proportion of men not working between ages 55 to 65, there is a clear positive pattern emerging from the comparison across different countries. This pattern shows that, because of pension arrangements, where the implicit tax on work is high, there is plenty of unused labour capacity.

The Effects of Social Security on National Savings

It has been forcefully argued by Martin Feldstein at Harvard University that the US social security system has displaced savings. This argument refers to both public savings (by drawing resources from the government budget) and to private savings (by replacing savings for retirement of forward-looking individuals with social security taxes). Although it is not clear whether privatising social security will immediately convert into new capital accumulation, there are some striking examples of how the social security system has affected the behaviour of consumers in European countries. Take Italy, for example. Although Italian households are characterised by high levels of the saving rate, in the recent past one can observe a remarkable co-movement between the generosity of the system and the reduction in the national saving rate. The increase in the generosity of public pensions has displaced the creation of wealth via capital accumulation.

Whatever the evidence, however, the key point concerning public pension schemes financed through the PAYG method is the fragility of such systems when the need arises to cope with crises such as the rising burden of ageing populations.

2

Reforming Public Pensions

Reforming Public Pensions

Broadly speaking, there are two reform strategies:

“Hard” reforms substantially change the unfunded nature of the PAYG system, putting greater emphasis on funded, and probably privately run, arrangements.

“Soft” or “parametric” reforms are incremental changes to the existing PAYG system which may, on the one hand, attempt to separate out the insurance aspect (related to working activity) and the income-maintenance aspect (unrelated to working activity and aimed at carrying out redistribution policies) and, on the other hand, cut pension expenditures by reductions in benefit rates and reductions in eligibility criteria.

2.1

What Does it Mean to Privatise or to Prefund a PAYG System?

Privatisation, Prefunding and Diversification

It is first important to note that economists refer to the existing rights of individuals toward their pension benefits, within a PAYG system, as "hidden debt", because these rights are future liabilities for the social security system. The stock of pension liabilities has a similar nature to "explicit" government debt and it can amount to, or even exceed, the current resources (GDP) of a country. The existence of this debt can go hand-in-hand with a current Social Security Deficit (as is the case in many European countries) or a current Social Security Surplus (as in the US). There is much confusion in the media about reform terminology. This is partly due to the fact that some of the possible reform routes are implemented simultaneously, but they do not need to be.

Privatisation is the creation of funded individual accounts, prefunding means closing the gap between social security benefits promised to date and the assets on hand to pay for them. There are frequent references to the advantages of diversification in investing funds for pension provision: this means investing in a range of assets including stocks and including foreign assets. Diversification is often implemented along with privatisation or with prefunding, but it is a separate policy.

Pure Privatisation

In order to create individual accounts, the existing public pension programme has to honour existing pension rights. This can be done essentially by raising taxes and/or by issuing new (explicit) government debt, hence involving some costs, which can be spread in different ways across different generations. For example in some countries such as Chile, the government has issued "recognition bonds" which basically convert implicit debt into explicit debt. In other countries, the solution has been to utilise revenue from sales of privatised utilities to offset explicit pension liabilities: in essence this is balancing a reduction in liabilities against a reduction in publicly held assets.

The portfolios of individual accounts could be totally diversified or there could be portfolio constraints imposed by government-authorities (only domestic bonds, say). *Most authorities – such as OECD and the World Bank – argue that regulation by 'prudent man' rules is far better than imposing arbitrary restrictions on portfolio holdings of pension investors.*[6]

(6) The 'prudent man' rule and more generally investments by pension funds are discussed later in the text in more detail.

Pure Prefunding

Prefunding means to reduce benefit outlays and increase contributions to reduce liabilities. At the same time, such a strategy could invest the surplus (if one exists) either in bonds or in a diversified portfolio. For example, the US social security Trust Fund runs and invests its surplus, as we detail in the Box below, but also France is evaluating the possibility of implementing a form of prefunding.

One could easily imagine combinations of privatisation and prefunding (during the transition to a partially funded system, say). Finally diversification could take place whenever there exists a fund to be invested.

An example: the social security 'Trust Fund' in the United States

The US social security Trust Fund has invested its surplus in government debt. Whether this accumulation of a social security 'fund' is any different from using future taxes to cover future pension payouts depends on whether the Trust Fund softens the government's overall budget constraint. If the accumulated fund allows the government to increase its debt-financed spending in exact proportion, 'prefunding' and 'pay-as-you-go' have exactly the same generational incidence. If the Trust Fund assets can be 'ring fenced' and debt increases are completely independent of the existence of the Trust Fund, the generational incidence now differs and prefunding reduces the prospective rise in taxes.

It is now being proposed that part of the US social security Trust Fund can be invested in financial assets other than government debt, such as equities. The direct attraction of this is that returns on equities are higher and, although equities exhibit greater variance of returns, an overall portfolio of government debt and equities may not itself be more risky. However, returns on equities will be affected by this change in the portfolio composition of the Trust Fund and this cannot be the only reason for the change. The more subtle one, therefore, is that if the 'ring fencing' of the US Trust Fund in government debt is incomplete, the balanced portfolio with equities might permit some degree of prefunding which does not simply involve a softening of the Federal government's budget constraint. Again, however, this depends on the ability of the government to raise money more (or less) easily if the Trust Fund alters its portfolio in this way.

2.2

How do "Parametric" Reforms Cope? Learning from Experience

One could attempt "soft reforms" within a PAYG system to affect the dependency ratio or the replacement rate or both.

Changing the retirement age has the advantage that at the same time the number of beneficiaries decreases while the number of workers increases. However increasing the normal retirement age by a few years is not enough. For example, it has been estimated that, in order to compensate for the current demographic trends, the retirement age of German workers would have to increase by nine years. Furthermore the labour market should be sufficiently flexible to adjust to the increasing number of older workers. In particular, much depends on existing labour market conditions in terms of unemployment and on the welfare arrangements in place for protecting the unemployed: the overall cost of retaining older workers in the labour force may be considerable.

Encouraging female labour force participation is another option. Employment trends do play a major role in the sustainability of public pension programmes and policies which encourage female labour force participation would certainly be beneficial. However, apart from the obvious difficulties and costs of implementing such policies, this may be desirable in many respects, but it may not be enough. In particular, while these policies may help to achieve stability of the ratio of pension expenditures to resources (Gross Domestic Product – GDP) in the long run, many economies would still face a period of marked financial distress.

Encouraging (or not discouraging) migration is often claimed to be the way out of population ageing. However, in order for this to be an effective mechanism, one has to assume that the domestic labour market is flexible, that there are no basic differences between domestic workers and immigrants and, finally, that young immigrants do not move in taking along their older relatives. Furthermore, it is a well known fact that fertility behaviour of immigrants rapidly adapts to the pattern of fertility rates of the native population, hence positive demographic effects are bound to be temporary and probably inadequate. Finally, one has to make sure that the immigrants immediately start contributing to the social security system of the host country.

Reducing the replacement ratio by reducing benefits or eligibility is certainly effective. For example in Germany (and in other countries) substantial savings can be achieved by tightening the rules on disability or redesigning benefit payment formulae.

Reducing the replacement ratio over time by changing the indexation rules is another powerful way to reduce future social security expenditures. This has the advantage that it affects all generations of retirees and it can produce substantial and permanent savings for the social security administration. Europe is now experiencing a low inflation era and the gains from this policy are not immediately apparent, however one should not underestimate the potential costs of hypothetically reverting to double-indexation policies (indexing benefits to prices as well as to real wages) which have been extremely popular in the past decades.

Prefunding. If the above measures are sufficient to create a surplus within the PAYG social security system (or if this fund is pre-existent) this could be invested so that future benefits will partly be financed by a pure PAYG and partly be financed by the returns on the market. In principle this should provide a "pension-portfolio" to retirees with no need to go into a "clean-break" privatisation.

2.3

Privatising a PAYG System: What are the Trade-Offs?

Many economists and policy makers believe that, although piecemeal changes to the social security system generate some savings of public money, it is unlikely that such changes will reduce substantially the magnitude of pensions relative to the resources of the country. The problem is particularly acute when the projected number of retirees per worker is high and there is a desire to provide a given replacement rate in old age. This obviously implies large social security future liabilities, which are often associated with current social security deficits.

What are the Arguments in Favour of Converting a Public PAYG System Into a (Partially) Funded Pension System?

Both private savings for retirement (through funded schemes) and PAYG pension systems are mechanisms to redistribute resources over time. But while a PAYG system relies on intergenerational redistribution, private saving relies on intertemporal substitution of resources: an element of flexibility that permits sharing the demographic burden over a much longer period. Hence, if demographic changes are temporary, i.e. if there is a peak in the dependency ratio due to a temporary increase in the elderly relative to the working population (the baby-boom generation, say) and this change does not translate into a permanent shift in the age structure of the population, then funded systems can count on a longer horizon than PAYG systems and smooth out the resource crisis. Demographic projections do however suggest that, while there could be a peak in the dependency ratio due to the ageing of a few sizeable cohorts, the huge increase in life expectancy experienced in recent years will affect the age structure in a permanent fashion. This permanent change is bound negatively to affect both a PAYG and a funded system. A second element of flexibility of funded pensions over a PAYG social security system is that, if there are no portfolio restrictions on fund-investments, international diversification can automatically ease the pressure of an ageing population on social security precisely at the time when a PAYG system would suffer most from that pressure. It is this possibility of thinking in terms of "global productive investments" rather than national productive investments that makes a crucial difference.

Privatisation in Practice

The steps involved in a change from PAYG to a funded system are: (1) workers contribute to private accounts held in their names; (2) retirees and workers receive credits equivalent to the benefits accrued at the time of the change and (3) the expenditure for these benefits has to be financed (4) the funded system will provide annuities of some form. If the privatisation is only partial then the same argument applies to a given fraction of contributions and benefits.
Whether a funded system is better than a PAYG system ultimately depends on the system rate of return. If contributions to a PAYG are seen as “forced saving for retirement”, then, given the rules in place, the relationship between what a worker pays in and what he gets out can be expressed in terms of rate of return of those savings. While in a PAYG system this return depends on the growth rate of the work force and labour productivity, in a funded system this is the return on the investment of the fund. One could argue that the year-on-year growth of the real wage bill, is correlated with the year-on-year real return on a funded scheme and therefore there is no substantial difference. However studies which have looked for a correlation between the two rates of return have found no evidence of strong positive correlation between them, thus justifying the greater emphasis on funding pensions proposed here. The key point, however, is that if funding implies that the same result in terms of providing a given level of lifetime resources to retirees can be achieved through a lower contribution rate the advantages are obvious: lower effective tax rates, less distortions in the labour market, more competitive economy, ultimately this could have an impact on unemployment figures as well.

What are the Arguments Against a Move to a Funded System[7]

A much debated issue is whether a privatised social security can provide reasonably priced annuities that could replace social security annuities. In fact, PAYG social security systems are typically defined benefit with some form of indexation preserving the real value of retirement income, while funded systems would not normally deliver an annuity but the capitalised fund. One element of the real annuity[8] is protection against inflation risk: this can be achieved if indexed bonds are available in the capital market. The other element is that annuities should be priced fairly. The argument for explaining unfairly priced annuities (i.e. non-compulsory annuities are too costly for individuals) is that the annuity market is thin due to the adverse selection problem affecting annuity contracts[9]. However, as the demand for annuities increases, as a result of privatisation, the adverse selection problem should diminish and, in turn, loading factors on annuity premia should be reduced.

(7) We take on some of these points in more detail when looking at the private system.
(8) An annuity is a financial contract which pays, for a given premium, retirement income conditional upon survival. A pension has the nature of an annuity contract.
(9) Adverse selection occurs when annuity purchasers are a self-selected group of the population, in this case individuals characterised by higher than average longevity. These individuals represent bad risks for insurance companies which pay retirement income. Hence insurers charge load factors on insurance premia for all annuity purchasers to compensate for these bad risks.

A second issue is the risk associated with rates of return of capital markets. Higher returns can be achieved by investing pension funds in equities, but these are typically riskier than bonds. This is a crucial issue and portfolio choices by pension funds deserves a section on its own looking at the possibilities for diversification. However, it should be noted, that current PAYG social security benefits in almost all countries are anything but risk-free. Not only there is a risk associated to population and productivity growth, but social security is also subject to political risk to the same extent as capital markets.

Are there Important Differences between Individual Accounts and Government Prefunding?

In principle none of the benefits of higher returns would be lost if funds were invested by the government on behalf of workers. However there are two major problems: there is a political risk of misusing the fund to finance current government budget deficits, and there is a standard problem of the government not acting in the interest of retirees. As for the first problem, it was recently pointed out that "During the last 15 years the (US) Social Security Programme had surpluses every year: they were used to fund other government spending, not to pay down debt." (M. Feldstein, America's Golden Opportunity, Editorial of the Economist, 1.3.99).

The second problem is that the government may decide to preclude certain kinds of investments instead of maximising returns for a given risk in order to provide higher retirement income. Or, even if the government does act in the interest of retirees, some (e.g. Congressional leaders in the US) see an active investment policy by the Social Security Administration as entailing unacceptable political interference in the private economy.

The Cost of the Transition

Moving into a funded system requires raising taxes or issuing new debt (e.g. in the form of recognition bonds). According to the way the transition is financed, different generations will be affected in different ways. The issue is whether there is a mechanism which permits compensations across generations. It is often argued that some generations (existing employees) will have to pay twice: once for their own retirement and once for the retirement of their parents. We oppose this view: existing employees will have to save for their own retirement much less than they have to pay now to support existing employees. At the same time the cost of PAYG benefit outlays will go down as new retirees gradually substitute funded benefits for unfunded benefits.

There are two basic economic issues involved. The first one is how many generations should share the cost of the transition, that is how fast should we take the economy to the new funded system. The second issue is that the cost of the reform, for the generations which suffer a net loss, is essentially a reduction in consumption lasting for a number of years. Hence the question is what flexibility is left for individuals to smooth their future consumption when they are hit by the reform. Different transition mechanisms act in different ways, but someone has to pay.

1 Wage/income taxation. This is affecting only current workers and distorting labour supply decisions: hence the cost is spread on fewer generations. Workers of the middle-generations will bear the higher cost as there is little room left for consumption smoothing.

2 Consumption taxation. Agents are induced to delay consumption and save more from the very beginning of the transitional phase. There is a higher burden on the elderly (who presumably benefited from a generous PAYG-system), and a lower burden on working or future generations.

3 Creation of new explicit debt. This defers taxes to younger generations (including new-borns), who also benefit most from the new system. However, the creation of new debt often hits macroeconomic constraints. These constraints may be softened if one argues that, on the one hand, this debt is earmarked to achieve a given funding target, and, on the other hand, it represents a form of investment for future generations.

3

Coordinating Reform Efforts

Coordinating Reform Efforts

Towards a Mixed System

3.1

Social Security Reforms in European Public PAYG Systems: is there a Common Aim?

Our brief tour of the most important problems facing Europe with regard to pension provision has identified a number of issues.

- Demographic change resulting in a substantial increase in the number of older people.
- Expensive pay as you go financed pension schemes which do not adapt very readily to demographic change and which are already providing benefits at generous enough levels to be taking in some countries well over 10% of national income.
- Design faults of pension arrangements, along with other social changes, which are resulting in more and more people leaving the workforce at a relatively early age and widespread rigidities of the labour market.
- A combined impact of these factors which results in high tax rates on work in the period and a future in which either tax rates are unsustainable or pension promises are broken. Continued high tax rates will have a substantial adverse effect on the competitiveness of European economies, while broken promises will have an adverse impact on the credibility of politicians and the democratic system.

We have also discussed a few relevant facts about pensions. In this Report we argue that, although not every European country will be interested in major reforms of its social security system, all countries should be concerned with the sustainability issue and will be affected directly or indirectly by the problem. Furthermore, the European Union has high on the agenda the issue of free mobility of labour both within a country and between Member States, hence measures need to be taken to improve flexibility of the labour market via social security arrangements. It is clear that there is no template that all countries can follow. They start from different places. It is much easier in systems such as that in Ireland or the Netherlands, where the pay as you go earnings related system never really got off the ground, to move towards a fully funded or substantially funded type of arrangement on a compulsory basis than it is in countries which already have the very large pay as you go systems. There is no simple way around the transition funding problem and it almost certainly calls for a rather gradualist approach which involves some role for the private sector, some need for the cutting back of pension provisions in the future and probably also some role for the cutting back of pension provisions to those at and nearing retirement today. What is clear is that each country should reach the right balance in the public versus private pension mix and some countries are far behind.

3.2

Restoring the Credibility of the Public Pension Programme

There is a danger, in listing the adverse features of existing pension programmes, of drawing the inference that pension systems are bad and therefore those that can should simply opt out of the problem. Pension programmes, at the most fundamental level, insure participants against uncertainty as to length of life, and may also contain other insurance features such as smoothing income receipt over the lifetime, and permitting people with adverse health shocks, to reduce their commitment to work. Public intervention will be justified if there is a strong desire to redistribute explicitly between generations and across generations. By doing so, pension programmes permit public expressions of social solidarity across generations and across rich and poor people within the same generation.

Given these features, the strategy of restoring the credibility of Europe's pension programme should not prescribe abolition or the wholesale dismantling of public systems, unless a valid private alternative can be provided. More importantly the compulsory nature of the public system should be preserved. Permitting exemption means that some people will not be covered by retirement programmes and will either live on welfare or their (probably inadequate) savings. Permitting some to 'free ride' on the programme induces individual firms or employees to 'free ride' on the system. Even the UK strategy of allowing individuals or companies voluntarily to opt out of the public pension programme is not without its dangers. One has to balance the advantages and disadvantages of permitting voluntary exits as opposed to designing systemic reform which leaves a pension programme in a viable and credible shape for the future.

To understand the general direction of reforms that one might want to implement, governments in different countries have to be clear about what the purpose of the PAYG public pension programme is. In broad economic terms we could say that the public component (Pillar-1) is best suited for redistributing income from the lifetime rich to the lifetime poor and to guarantee a basic standard of living to the elderly. In those countries that currently have a substantial flat rate component to their public scheme this is done explicitly. Where public schemes are earning related, if contributions are earning related and pension benefits are not, there will be substantial redistribution to those who have had low lifetime earnings. Paradoxically, it is redistribution of this sort which is not a strong feature of those countries where large earnings related benefit schemes are the norm.

Given that all countries face a resources constraint in the paying of pensions, given that the amount that countries are going to be spending into the future will be substantially increasing unless changes are made, governments will have to prioritise their pension spending. It seems only natural that that prioritisation should involve making the judgement that the best use of public money is indeed in redistribution – doing the sort of job that it is not possible for the private sector itself to do. That does not rule out an earnings related component, though the greater the earnings related component, the higher the level of earnings which are replaced, the less room there is for redistribution and the higher likely future costs are going to have to be. A balance will need to be struck in each country.
So while we wouldn't advocate wholesale privatisation and overnight funding of pension systems we do see an urgent need for reshaping pension programmes.

This type of reform strategy has a number of consequences. In countries with already very substantial public pensions systems it limits the cost of transiting to a different type of system and indeed it can limit the cost if so desired to relatively high paid people without lower income people of younger generations having to pay. Most importantly it also opens up a market for private pensions which in many cases have not previously existed. Where the state has provided pensions at a level perfectly adequate even for those who are used to earnings of two or even three times average earnings there has been no room for a private sector.

Hence a second private tier (Pillar-2 plus Pillar-3) becomes important where the first tier focuses its role on redistribution policies and does not overdo it. If this route is taken then reforms will have to lead to individuals taking more responsibility for their own retirement income. With a population growing older, with already very high levels of taxation to fund pensions, there is little or no chance that current pension promises can be met entirely from the state. Even where the state continues to play by far the largest role in pension provision, some individuals and some elements of pension provision will have to be done more within the private sector. Workers and firms will have to work together to guarantee that each retiree can achieve a given replacement ratio through funded pension schemes. This can also help to bring back more actuarial fairness into the retirement decision. Workers who are particularly concerned about their retirement can top up their pension with additional voluntary contributions to a dedicated saving instrument (Pillar-3, say). These goals are best achieved through capital markets. Governments in each country will have to make sure that private pension funds act in the best interest of workers. This implies a simple set of rules which protect the accumulated fund and protect workers' retirement income by invoking prudence in the investment decision while allowing for flexibility in portfolio choices.

This report argues that the PAYG system is characterised by a structural lack of flexibility in coping with changes in demographic structure and provides a pervasive set of desired or unintended incentives on labour supply behaviour. These incentives, whether desirable or not, should be kept separate from old age insurance policies. In fact, we need to go all the way in the other direction and ensure portability of individual pension rights both within the country and across Europe. We argue that almost invariably pensions based entirely on a PAYG system, particularly for the earnings related part, could make it harder to achieve flexibility of the labour market and transferability of pension rights. A similar problem may apply to occupational pensions (pensions offered by employers) if these are of a defined benefit type and are based on final salary, unless agreements are reached between EU countries, which allow for full transferability.

If reforms are implemented, these must balance the losses to different generations from cuts in current and prospective benefits, find ways of reducing the level of early retirement, and must reduce the impact of the financing of the pension system on competitiveness and labour productivity. But, most importantly, European States will have to be forward-looking about their pension policy and look at the long-run configuration of the European economy and the legacy to future generations. This is the nature of the challenge facing European countries in the coming years. They are not challenges that can be met easily.
This Report has argued that there are a variety of directions in which different countries starting at different points may go in order to meet these problems. But the elements of any reform strategy addressed above will have to be common.

3.3

How Should the Private Sector be Shaped? The Single Market Framework

In some European countries private pensions of various sorts already form a very important part both of the incomes of current pensioners and of future provision for current workers. In other countries they exist barely at all. It is not surprising to find that they are important in those countries, like Ireland, the Netherlands and the UK where state provision is relatively low and largely flat rate. In countries such as France and Italy, where the state systems provide high levels of income replacement in retirement, there is little room for a significant private system and one does not on the whole exist.

Occupational or Personal Provision

There are two basic types of private pension provision. The first and internationally the most important is occupational provision in which employers, usually individually but sometimes collectively, organise pension arrangements for their employees on a collective basis[10]. Pension schemes linked to employment (and often compulsory) fall within the "Pillar 2" classification. Generally as a supplement to these schemes individual or personal pensions have grown up in some of those countries where occupational provision has left gaps in coverage or/and to provide old age insurance for the self-employed. So, for instance, individual schemes are important in the UK but not in the Netherlands. Such individual accounts belong to "Pillar 3".

It is not always necessary to see occupational and individual schemes as mutually exclusive. Under a relatively liberal regime they can work together, generally with larger companies running occupational schemes while better off individuals in other companies make use of personal arrangements. It is also possible to allow some people to have personal pensions in addition to any occupational scheme or to implement "additional voluntary contributions" arrangements. On the other hand one form or the other can be mandated or made universal by collective agreement. Around the world some countries have gone down the route of mandatory individual pensions (e.g. Chile) while others have achieved virtually complete coverage of occupational schemes (for instance the Netherlands).

Collective arrangements through employers have a number of advantages over individual schemes. They are, naturally, more cost efficient since they do not involve costs associated with selling, advice and administering a personal "pot" of money. As a matter of empirical observation they are more likely to attract higher contributions as employers tend to put money in on behalf of their employees (though this is not a necessary distinction). Importantly, such collective arrangements also allow a degree of risk sharing. This is often thought of as a

(10) The Danish system, in which covered employees are required to contribute to an independently run sectoral scheme, is somewhat different from this model

sharing of risk between employee and employer. In reality it involves sharing of risks between generations of employees. Those employees who retire when the stock market and asset prices are doing well ought to be able to cross-subsidise those employees who retire at less auspicious moments. However, it should also be mentioned, that this has not been the typical experience so far, hence this seems more a theoretical possibility than a practical arrangement.

Personal arrangements tend to be more flexible and portable from the point of view of the individual, but they also tend to be expensive. They can be mis-sold as occurred in the UK and they require some regulation. It is likely that they will only be appropriate for relatively well off individuals. It is interesting that following ten years of their existence in the UK they are effectively going to be superseded for average and lower earners by collective arrangements modelled more on the Danish collective sectoral schemes than on individual provision. Nevertheless for those on average earnings, an individual provision can play a very important role.

Coverage of occupational pensions among workers ranges from more than 90% in the Netherlands, through round about half in the UK, US and Canada, to less than 10% elsewhere. The size of pension funds as a proportion of current resources (measured by the Gross Domestic Product –GDP) confirm this pattern. The UK and the Netherlands have the biggest funded sectors, with the amount of money in pension funds being close to or above the annual Gross Domestic Product of those countries. The US and Canada have large occupational funds, but in relative terms are some way behind the UK and Holland. The very low level of funds in Germany is due to the involvement of "book reserves"[11]. This actually presents an important potential source of internal company financing, but since no actual fund is built up, money invested in pension funds as a proportion of GDP is low.

Pension benefits in all these countries tend to be taken as annuities – flows of income in retirement. Defined benefit arrangements, usually based on a measure of final salary and number of years worked, are commonest. In the UK and the Netherlands 90% or more of scheme members are members of DB pensions. In the US there has been a substantial shift towards defined contribution schemes in the past 20 years, a shift that is beginning to be mirrored in the UK.
The very high level of coverage among employees in the Netherlands reflects widespread collective agreements and the fact that if a company offers a scheme then membership of the scheme is compulsory. Occupational pensions provide approximately one quarter of total income for pensioners, only in the Netherlands these reach a third of total pensioner's income. This is a useful benchmark of what could be the optimal size of private pension provision for many other countries throughout Europe.

(11) That is, instead of putting money by in a separate fund, companies enter future pension commitments as liabilities in their accounts.

Chart 9

Assets of Pension Funds

as % of GDP in selected countries

	1988	1996
Australia	21.1	31.6
Austria	0.0	1.2
Belgium	2.4	4.1
Canada	26.4	43.0
Denmark	10.9	23.9
Finland	19.7	40.8
France	...	5.6
Germany	3.4	5.8
Greece	...	12.7
Ireland	29.0	45.0
Italy	...	3.0
Japan	33.7	41.8
Korea	3.4	3.3
Luxembourg	16.9	19.7
Netherlands	72.7	87.3
Norway	3.9	7.3
Portugal	...	9.9
Spain	0.1	3.8
Sweden	30.9	32.6
Switzerland	64.5	117.1
UK	58.2	74.7
US	36.8	58.2

Source: OECD (1998)

Source: OECD (1998) Table V.1

Defined Benefit (DB) or Defined Contribution (DC)

Within occupational or employer sponsored schemes there are two types – defined contribution and defined benefit schemes. The latter tend to be more common and are the main form of provision in Ireland, the UK and the Netherlands. Such DB schemes have tended to offer pensions based on years of service and some measure of final earnings.

The way they were originally set up, such final salary occupational schemes served best workers who stayed in the same company for many years and whose earnings rose towards retirement age. Up to the 1970s in virtually all countries leaving a job before pension age would have a hugely negative effect on pension rights. In general, and this was true of the UK, Ireland and the Netherlands, there would be limited indexation of benefits between leaving a job and retirement (in Germany there is no such indexation), so the eventual real value of benefits earned in a job that a worker might have left in his forties could be very low indeed, especially in times of high inflation.

This is a particular problem in the face of inadequate indexation. But it is important to recognise that it is a fundamental feature of final salary schemes that they reward people who stay and progress in an organisation (this is known in the economic literature as the back-loading feature of DB-plans). Even more obvious ways of doing this exist in the way in which vesting[12] arrangements have been used to deny workers with short enough tenures any benefits on retirement.

Defined Contribution schemes, in which pension received depends directly upon contributions made and the returns made by the fund, are much less prone to these types of problem. On the other hand they make risk sharing between generations less easy. There also tends to be less of an incentive for employers to set up, run and contribute to a DC scheme because such schemes are harder to use to manage other employment priorities – for example rewarding successful long stayers. In this sense DC plans can be viewed as "total compensations" tools while DB plans represent a burden to employers at times of adverse business cycles, when flexibility in the work force is most needed.

(12) Vesting arrangements for workers means the arrangements by which they are unconditionally entitled on leaving the scheme. For pensions this refers mainly to the period of time after which retirees become eligible to claim benefits.

3.4

Risks Involved in Retirement Income Provision and Insurance Aspects

It should be noted up-front that the discussion on this point is often focused on the risks involved in a PAYG public system versus a private funded system: the standard argument being that funded systems involve more risk because the money is invested in the market while a PAYG system is safer and it guarantees a given income in retirement. This is a partial and misleading version of the story.

First, there are many risks involved in receiving retirement income, whether from public or private sources. Secondly, in accordance with the view that only a public scheme can redistribute income from lifetime rich to lifetime poor, the main insurance principle of a public programme is to avoid that individuals fall into poverty in their old age or in particular events during their lifetime (disability). Even this simple role of public schemes may be subject to different shocks (political risk say). Furthermore, when public schemes play a predominant role, retirees face many potential risks to their future retirement income which are of the same order of magnitude as “market-related” risks.

Hence it seems more appropriate to think in general terms about risks affecting retirement income provision. A further point, which is often overlooked in drawing a comparison between private and public pension coverage, is that occupational pensions and retirement-saving-schemes possess several built-in insurance features designed to protect the employee during economic insecurity.

The major risks affecting retirement income are as follows.

1. Social Security Risk

Rules for public pension provision have a history of changing in unpredictable ways in almost every country. While the increasing generosity of public pension schemes has been a distinct pattern of many European countries in the past decades, this trend will necessarily revert in the foreseeable future. However it is hard for workers to figure out what their future public pension benefit will amount to. This could be quite a sizeable risk. What is more important, there could be co-movements between market returns and implicit returns from public pensions to be exploited in order to design a pension portfolio. In other words, a mix of public and private insurance can cover a multiplicity of risks.

2. Investment Risk

Funded pension schemes of the DC form derive retirement income from the value of the fund emerging at the time of retirement. Accumulated funds invested in the capital market are subject to the risk affecting rates of return. This risk is typically borne by the beneficiaries, but it is greatly reduced by a prudent management of the funds, which basically applies a diversification principle. This principle entails investing in assets which, if the appropriate mix is chosen, will guarantee a given return for the minimum risk exposure. Investment risk should not be discussed in isolation from the issue of matching assets and liabilities, particularly for DB-plans. Because liabilities of pension funds are long term (the working life plus retirement of the workforce), this gives fund managers an extra degree of freedom in investment strategies, as long as future liabilities can be matched. One aspect clearly emerging from this brief outline is that portfolio constraints imposed by governments (particularly on international diversification, but also on the amount of home equities versus bonds) prevent managers from pursuing the best interest of retirees.

As we argued above, the existence of investment risk is often used as an argument for preferring PAYG financing over funded programmes or, within the private sector, DB schemes over DC schemes. However, in global financial markets, private pension plans and in particular DC plans can offer investment options with minimal risk.[13]

3. Longevity Risk

This is the risk that a retiree will live longer than expected and exhaust her/his resources during retirement. The existence of longevity risks affects the design of retirement income in that there is a risk pooling mechanism (a basic insurance principle) operating in a fund (private or public) from those who die to those who survive and enjoy their old age benefits. Contracts which specify the amount of income paid conditional upon survival are known as annuities: public pension programmes and DB-schemes automatically guarantee an annuity because they promise a benefit as long as the retiree lives. DC-plans, on the other hand, cannot guarantee a benefit but only a “pot” of money and the annuity contract is typically signed at the time of retirement. Because annuity markets are often underdeveloped, individually purchased annuities may be priced unfairly for a typical retiree who needs to convert his pot of money in income for retirement. Employer pension schemes (pillar 2) offer an automatic way to overcome this problem: if the plan is mandatory within the firm or industry and/or the annuity is collectively purchased the insurance cost can be kept low. More generally it seems important to guarantee that annuities are fairly priced for those who purchase annuities at the time of retirement, whether individually or collectively. This result can be achieved in a competitive insurance market and it does not involve exclusively insurance companies but all the intermediaries and providers acting in this market.

4. Default Risk

There is a risk of bankruptcy of a pension fund. Though this is a rare event, it could be a catastrophe for the parties involved (particularly workers) and for the pension industry overall. This is probably the single most important point in motivating much of the regulation of pension schemes, although one should distinguish between the ‘criminal’ cases (the well known Maxwell affair) and genuine bankruptcy cases.

5. Inflation Risk

This is a risk potentially affecting all types of retirement income, including public pension programme’s benefits. Some forms of benefit-indexation mechanism may fail to guarantee full protection against inflation, on the other hand it can be very damaging to the performance of the fund to tie the hands of pension funds by imposing rigid, or even automatic, indexation procedures. Although it is often

(13) The U.S. University faculty scheme known as TIAA is a well known example of a very profitable –low risk- DC plan.

argued that DB-schemes offer better protection because of the possibility of pooling across generations, DC-schemes are not necessarily disadvantaged in providing inflation-proofing, as they can include in their portfolio indexed securities where these exist (like in the U.S.).

6. Earnings Risks and Portability

Future earnings uncertainty affects retirement income whenever retirement income is based on past earnings (hence both earnings related public programmes and DB-plans). In these cases a pension calculation based on "smoothing procedures", such as average lifetime earnings, has some insurance properties. However a major source of risk stemming from changes in earnings is the loss on pension rights occurring if one changes job.[14] This risk might be magnified if the job change involves crossing of national borders, as we will later argue. Hence the two important economic and policy points related to this type of risk are the issue of flexibility of pension arrangements and the issue of portability of pension rights.

7. Replacement Rate Risk

There is a possibility that the retiree will not have enough resources in old age to enjoy a given standard of living in relation to the pre-retirement situation. For countries where private pension provision is well developed this is a problem of planning and acquisition of information by the worker. Occupational pensions overcome this problem through competent management within the scheme. However for the rest of Europe it might be useful to think about scenarios which describe how much "saving" people would have to do to offer a certain fraction replacement rate of average lifetime earnings. Back-of-the envelope calculations suggest that to get a replacement rate of approximately 50% of lifetime earnings from private sources we would need an assets/GDP ratio of about 140%. Only Switzerland, the UK and the Netherlands get even close to this figure. Hence it seems crucial that a full development of private pension provisions, which meets certain requirements in terms of income provision for retirement, needs enough resources to build upon – these have to come partly from a re-balancing of pension programmes (public versus private) and partly from dedicated savings.

The following Table provides a brief recap of the major sources of risk and how occupational pensions and individual accounts fare in this respect.

Chart 10

Pension Insurance and Sources of Uncertainty

Source of Uncertainty	DB Schemes	DC Schemes (if portable and/or individual accounts)
Capital Market Risk	Yes	Yes
Inflation Risk	Some	Yes
Future Earnings Uncertainty	Some	Some
Job tenure Uncertainty	Yes	No

(14) This is due to the back-loaded character of many pensions design, i.e. the built-in feature of providing a higher value of pension rights the longer the time spent with the same employer. This feature does not occur in DC-schemes.

3.5

Investment Policies and Regulation

Regulation is not concerned solely with investment policies by pension funds, but it entails a number of elements in the creation and management of pension funds as detailed below. Regulation of investment policies is a key issue from a European perspective, as it directly affects the free-movement-of-capital principle. However, all the different aspects of the regulation framework of pension funds can contribute to create diversity across Europe as more weight or less weight is given to one of the regulatory aspects.
The regulatory structure for pension funds reflects two basic principles: protecting beneficiaries' rights and ensuring financial security. Hence, for example, regulation should provide the right incentives for no discriminatory access by workers to the scheme, for the protection of pension rights and the promotion of labour mobility. Furthermore, financial security can be achieved through liberalisation of investments within the 'prudent man' principle. These basic principles bear relevance for the following key components of the regulatory framework.

1. Licensing

Approval of the pension fund is usually related to legal, accounting, technical and management conditions.

2. Separate assets

Funded schemes could have reserves in real assets or book reserves. There is a need to separate the funds from their sponsors. Separation does not guarantee adequate funding, but it reduces the risk that default by the sponsor affects the pension fund.

3. Minimum funding
Actuarial and Accounting methods for funding

Specific minimum funding rules may be set up to prevent under-funding. A basic issue is the basis on which assets are valued relative to future liabilities. In particular it is important the way in which assets should be capitalised, whether using a 'riskless' rate of return (government bonds) or the rate of growth of the fund (usually resulting from a large equity component). However one should be aware of the dangers of imposing automatic mechanisms which limit the flexibility of management. This relates to the issue of accounting methods in general. Calculation methods, involving, particularly in DB-plans, aspects such as management expenses, wages' growth, inflation rate, interest rates, employees' turnover etc., should be based on comparable actuarial and accounting principles throughout Europe. This is a very sensitive issue and it is particularly important in the light of techniques that pursue investment policies based on matching assets to liabilities. However, there is a danger that some accounting reporting rules may implicitly affect managers' choices and lead to an undesirable shift into fixed-income securities away from equities.

4. Supervision

There might be a minimum level of supervision over and above the supervision carried out for tax purposes, in order to protect retirees' rights. This could be modelled on independent authorities of the type operating in other sectors such as banking and insurance industries and could operate by monitoring financial and accounting statements. However, no template can be provided to each individual country on how to set up effective supervision without discouraging competition.

Finally three important regulation items are related to the investment of funds. These are:

5. Prudent investment, competent management and self-regulatory practices, transparency.

Investment policies depend on the type of plan: for DC plans the decision is essentially similar to investment policies implemented for individual accounts. The basic principle is to maximise returns for a given level of risk exposure (prudent-man rule). For defined benefit plans immunisation strategies are often advocated to hedge benefits owed to retirees and to hedge benefits accruing to current workers (should the worker leave early or claim a disability benefit - if provided). In a DB plan the employee's pension benefit depends on a formula that takes into account years of service for the employer and - in most cases – wages and salaries. The annuities promised to retirees are the plan's liabilities. Hence future benefits can be immunised by investing in assets with the same duration – and even the same pattern of cash flows – as the liabilities. However immunisation of accruing rights by current workers calls for more complex portfolio insurance techniques. Whatever the investment strategy pursued by the scheme, there is now full agreement that what is crucial is the freedom of investments by pension funds, particularly in foreign markets. Instead, EU countries tend to regulate investments by pension funds, each State to a different degree. A typical and sensible restriction applies on investments in the sponsor's company, in order to reduce the risk of bankruptcy by the company spilling over to the pension fund, and, more generally to separate the performance of the fund from the performance of the sponsor. In spite of these overwhelming arguments in favour of capital markets flexibility, many restrictions can still be identified across Europe, particularly in the form of ceiling on investment in certain assets, which do not find ready economic justifications.

Quality of management is important to the performance of the fund. Promoting self-regulatory systems by managers, employers and beneficiaries makes all parties responsible for the correct behaviour of the fund itself. This might be particularly relevant for DC-plans as a higher fraction of the investment risk is borne by the beneficiaries. These principles go hand-in-hand with the principle of transparency of the activities of the fund and requirements of disclosure of relevant information. One additional, though unrelated, point on transparency is the level and quality of information offered to potential buyers of voluntary "individual accounts". The mis-selling of personal pensions in UK has shown a potential danger of greatly damaging the credibility of the pension industry through the misconduct of providers. While this does not necessarily call for additional regulation/supervision of the type described above, it certainly points to the need for a basic standard of information provision by the pension industry to the workers.

3.6

Taxation

The effects of taxation

"...the variety and complexity of the tax rules applied by the Member States to supplementary pension schemes is proving a major obstacle to the proper functioning of the Single Market in terms of labour mobility, freedom to provide services and capital movements."

(From the Speech of Commissioner Mario Monti, Brussels, 5.11.1998)

It is obvious that the taxation issue has paramount importance in this context. From the viewpoint of each individual country, the two main economic points involved in the taxation of pension funds are: avoiding "double taxation" and minimising distortions of individuals' choices. However, the most important issue from a European perspective is that tax rules often act as a barrier to free movement of workers.

Implications of Taxation of Pension Funds

With notable exceptions[15], both pillar 2 schemes and pillar 3 contracts are funded and we work under this assumption. In both cases (pillar 2 and pillar 3) there is a basic issue of deciding the model of taxation, i.e. deciding at which stage to levy the tax: when money is contributed, when investment income is earned, and when benefits are paid out to scheme members. As for pillar 3 there is often an additional issue of whether to offer tax privileges to this form of voluntary dedicated savings in order to encourage extra saving for retirement. However, tax privileges may come at different stages also within pillar 2, e.g. in order to encourage firms to set up a fund to the advantage of their employees.

In many countries - with major private pension sectors - the typical case is where contributions are tax exempt, the returns to funds are not taxed while pensions in payment are treated as taxable income (this is known as the Exempt-Exempt-Taxed, EET rule). A very common exception to this general rule is the availability of lump sum payments, which are free of tax in some countries. Different combinations of these rules give rise to alternative principles of taxation: for example taxing contributions only (the TEE rule) or benefits only (the EET rule) broadly conforms to the expenditure tax principle, which takes a life-cycle-inter-temporal view of workers' consumption decisions, however the two approaches are not exactly equivalent. For example, the TEE rule raises more revenue because there is no tax deferral: in the presence of progressive taxation the tax revenue will be lower on benefits. On the other hand, even governments may have an advantage in tax deferral if they pursue tax-smoothing policies in the face of demographic transition. Also: taxing contributions may be less than straightforward when contributions are collected within firms or industries in conjunction with employer's contribution and it becomes hard for the tax authority to assess the marginal tax rate of each individual worker. The EET

(15) In France the ARRCO and AGIRC schemes are financed through a PAYG system while being effectively compulsory pension schemes at industry level.

taxation model has become predominant because it defers the tax until the point at which the income is taken and then, presumably, spent. In doing this the tax system is neutral between spending now and spending in the future. A major departure from these two models (EET or TEE) is represented by models of taxation where investment income is also taxed. Then the comprehensive income-tax principle is applied. Saving for retirement is treated as any other commodity and neutrality of tax treatment of the different uses of money by workers within each period is invoked. Several examples suggest that the consequences of adopting one tax rule or another can be far reaching in terms of encouraging or discouraging private pension provision.

Avoiding Double Taxation and Minimising Distortions.

Taxation of pension funds or saving for retirement inevitably implies distortions on individuals' choices. The issue is to pursue the least damaging policy and enact the best practice. Many would agree that saving for retirement (whether forced or voluntary) is not like any other commodity and the EET model better conforms to the principle of neutrality of the tax between consumption now and consumption in the future. Obviously models which also tax investment income and capital gains would entail double taxation and have a negative impact on pension funds. One could argue that on the whole the EET tax treatment automatically renders private pensions (whether compulsory or voluntary) "privileged saving" by comparison with other forms of saving while preserving the basic government's objectives of raising revenue in a simple manner.

When dealing with individual accounts, the cost of tax privileges often offered on these accounts has led to suggestions, from time to time in many countries, that they should be withdrawn. The common argument being that they distort saving choices and the benefits emerging from the exemptions would be mostly enjoyed by rich people. But the costs are more apparent than real, the only real issue is whether they create a barrier to free movement of workers. In the first place it is not that there is no tax raised, rather it is deferred. This treatment conforms with the view of pensions as deferred pay. If tax exemptions were abolished and money not saved in pensions extra tax would be raised today, and less tax tomorrow. Secondly, there are other ways of saving money, for example in owner occupied housing that are often similarly tax privileged. So getting rid of the exemptions for pensions would be likely to lead to much of the money flowing into other tax privileged savings forms. Thirdly, it is hard to imagine why anyone would voluntarily lock their money away in a pension fund rather than save it in another more flexibly available form unless there were some fiscal advantages to doing so. If one wants to encourage workers to save for retirement on a voluntary basis tax privileges can be very valuable, particularly in a transitional phase where the role of the public pension programme is to be reduced. However, the right balance has to be struck between this objective and the objective of freedom of labour mobility.

Tax Rules in European Countries

To the same extent that the structure of pension programmes greatly varies across European countries there is diversity in the taxation model of private pensions. This clearly represents a barrier to free movement of people. It can be the result of a different tax model adopted – often leading to the failure to abide by the no-double-taxation principle when crossing borders, or the result of the application of tax privileges – which effectively discourage contributions to pension funds established in another European country. For example a scheme that, by meeting all the required rules, is approved in one State may fail to meet the tax requirement of another State and therefore workers will effectively be rationed in their choice set.

There are potential obstacles that a scheme-member may face when trying to transfer accrued benefits from a funded scheme located in country A to a funded scheme located in country B. The money being transferred may be subject to a tax: if country B does not allow for a corresponding tax-relief and the benefits are eventually taxed in the same fashion as for all other retirees, there is a tax-wedge discriminating against incoming workers.

Chart 11

Taxation of Pension Schemes in Selected Countries

	Employee's contribution	Employer's contribution	Interest and capital gains	Benefits and lump sum
Belgium	E	E	T	Marginal tax rate on benefit, flat rate on lump- sum
Denmark	E	E	Interest taxed, dividends exempt	Marginal tax rate on benefit and on 40% of lump-sum
Finland	E up to a limit	E up to a limit	E	Benefits taxed at prevailing income tax
France	E	E	E	Benefits taxed at prevailing income tax
Italy*	E	E	T to some extent	Benefits taxed
Germany	E up to a limit	E if in book reserves	E	Benefits taxed, partly at lower rates
Ireland	E	E	E	Benefits taxed, lump-sum not taxed
Spain	E	E	E	Benefits taxed
Sweden	E	E	Limited Exemption	Benefits taxed
Netherlands	E	E	E	Benefits taxed
UK	E	E	Limited Exemption	Benefits taxed, lump-sum not taxed
USA	E (401-k schemes and DC schemes such as IRAs)	E	E	Benefits taxed

Sources: OECD (1998); Fornero, (1998).
*post-1995 legislation

Mobility of Workers and Transferability of Pension Rights

We already argued that final salary Occupational Pension schemes (DB-plans) may provide a disincentive to mobility (within the country and across countries), due to the back-loaded nature of benefit accruals. Though this is not an explicit obstacle to mobility which we can relate to tax rules or regulation, it certainly affects workers' labour supply decisions in a substantial way. In this respect DC-plans are preferable to DB-plans in that they are fully portable. A related issue is the variability across EU countries in the length of vesting periods and indexation rules. I.e. in the minimum length of time required to workers in order to become eligible for claiming pension benefits and in the way accrued benefits are protected against inflation. Sometimes vesting periods are also related to an age requirement and not simply to the time spent in employment.

In order to remove obstacles to mobility, and in particular to mobility across States, a simple solution is to require minimum vesting periods and to permit transfers with full allowance for benefits accrued. Again this is mainly a problem emerging with DB-plans, which calls for some agreement on the actuarial valuation of accrued benefits for early leavers taking account of inflation. This does not imply harmonisation of accounting rules throughout the EU, the promotion of bilateral agreements between States could be a profitable approach to the problem.

Glossary

Benefit calculation

The old age benefit (but also benefits to survivors) could be of many varieties, but there are essentially two main types: (1) a defined benefit (DB) formula, which promises a given benefit, usually earnings-related; (2) a defined contribution (DC) formula where there is certainty about the contribution but not about the future benefit, benefits are usually linked to the present value (at retirement) of contributions. There could also be hybrid schemes, such as "cash balance plans".

Financing method

The way in which benefits are paid out should be clearly distinguished from the financing method. A pension system is funded if contributions accrue to a fund. This is a mechanism akin to private savings. It is unfunded or Pay-As-You-Go (PAYG) if contributions of current workers pay for the pension benefits of current retirees. In some European countries a "virtual" funding method has been adopted which computes benefits according to the value of contributions (notional defined contributions). However, it should be made clear that in these "virtual DC" schemes the value of contributions is used only to compute benefits, there is no actual accumulation of funds.

Pillars

Pillar-1 is the public components of pension systems, Pillar-2 is usually occupational pension schemes and Pillar-3 refers to Individual (Personal) Accounts (e.g. Personal Pensions in the UK). Pillar-2 mostly contains schemes offered within a firm or an industry – these are often compulsory schemes within the firm if they are offered. Pillar-3 is typically voluntary pension coverage. However, in some countries there are important overlaps between Pillar-2 and Pillar-3,

Social security

This term might have different meanings across the Atlantic. By Social Security we mean a public programme collecting contributions from the working population (payroll social security taxes) and paying out old age benefits to retirees, plus survivor benefits to survivors and disability benefits.

Replacement rate

This is the ratio of first social security benefit received by a retiree over his last wage while working. There could be substantial differences between the average replacement rate obtained at national level, (this is computed as the average benefit over the average wage – or average final wage) and the replacement rate of an individual (which is computed according to the definition given above).

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