POPULATION AGEING AND RETIREMENT INCOME PROVISION IN THE EUROPEAN UNION[1]

E Philip Davis

---

[1] An earlier version of this paper was presented at the conference on the 'Economics of Ageing', Institut Français des Relations Internationales, Paris, 10-11 October 1996.

The author is a senior economist at the Bank of England, Research Associate of the LSE Financial Markets Group, Associate Fellow of the Royal Institute of International Affairs and Research Fellow of the Pensions Institute at Birkbeck College, London, who is currently seconded to the European Monetary Institute.

Views expressed are those of the author and not necessarily those of the institutions to which he is affiliated. The article draws on the author's book "Pension Funds, Retirement Income Security and Capital Markets", published in 1995 by Oxford University Press. The author thanks C. Daykin, K. de Ryck, D. Roseveare, D. Franco and participants in the seminar at the IFRI for assistance. The errors remain his own responsibility.

1 Introduction

This paper seeks to provide an overview of the key economic and policy issues raised by population ageing in the European Union, given the demographic projections for EU countries, and the differing systems of retirement income provision which are employed. The conclusion is that EU countries face broadly similar patterns of population ageing, but differ widely in terms of the difficulties likely to be posed by it, owing largely to the features of the system of retirement income provision. In particular, a number of countries may face major difficulties with their generous social security systems, while others which have sizeable private pension systems are better placed to face the demographic difficulties of the twenty-first century. Nonetheless, the latter are not without problems, such as the poor returns often obtained on funds which are invested and lack of international diversification, which often in turn result from the effects of portfolio regulations. Policy action is hence warranted in a number of fields.

The paper is structured as follows; in the next chapter we comment on data for demographic developments and projections which illustrate the phenomenon of ageing for EU countries. Chapter 3 summarises extant data on income sources for the elderly. Chapter 4 introduces features of social security pension systems in EU countries; Chapter 5 looks at the growing burden these systems are imposing on public finance and the economy (notably given the interaction with labour markets); Chapter 6 outlines projections and other indicators of future difficulties, and Chapter 7 examines reforms to date. The eighth and ninth Chapters look at funded pension provision, examining respectively the general issue of the reason for differing development of private pensions and the specific topic of portfolio restrictions. In Chapter 10 we note some recent policy developments at EU level. This is followed by an overall summary and conclusions, which outline inter alia the 'country groupings' indicated by the analysis and the policy issues raised. An appendix reviews the main pension reforms in the UK, the EU country which has gone furthest in removing the pension burden from the state.

Whereas the themes covered in the article are analysed extensively elsewhere (see, for example, World Bank (1994), Davis (1995), OECD (1995)), the focus of the paper on the European Union and the extent of cross-country comparison within the EU lend it a degree of originality. In taking this approach, the paper utilises the main common data sources for the EU, in particular Eurostat. However, it should be noted at the outset that coverage of the fifteen current EU countries is not always complete; in many cases data are only available for a subset of EU countries.

2 Demographic trends

This chapter provides information on demographic patterns and trends for EU countries relevant to a judgement of the gravity of population ageing. In general, there is a marked degree of similarity across the fifteen member countries in the past patterns shown, namely a decline in the birth rate, an increase in life expectancy and rather limited migration. These in turn give rise to projections of an ageing population, with an increasing burden of dependants relative to the population of working age. In many cases this is expected to be accompanied by a decline in the overall population.

The historical developments underlying the ongoing ageing of the population in the EU are illustrated in Tables 2.1-2.4. Most crucially, there has been a decline in birth rates, with the EU-15 average fertility rate falling from over 2.5 in 1960 to 1.4 in 1993. The decline was particularly rapid in the 1970s, but was also marked in all of the other sub-periods shown. As regards individual countries, particularly sharp declines have been seen since 1960 in Spain, Ireland, the Netherlands and Portugal, each of which had relatively high birth rates in 1960. In contrast, the Swedish birth-rate has declined rather little, having already been barely above replacement in 1960. In 1993 no EU country had a birth rate of over 2.0 (where replacement is around 2.1). There were exceptionally low birth rates (of below 1.5) in Germany, Greece, Spain and Italy, while 1.8 or more was maintained in Denmark, Ireland, Finland and the UK as well as Sweden.

Underlying the decline in fertility is the emerging pattern of later marriage and greater activity of women in the labour market, which has increased the opportunity cost of having children, as well as more general social and attitudinal changes. It is notable that the highest birth rates in the EU countries today are in Scandinavian countries that provide comprehensive and subsidised child care facilities, thus spreading the burden of child care from the family to the economy as a whole, and facilitating high levels of female labour market participation.

Reflecting the decline in fertility, the generation born in the 1970s is 17% smaller than that of the 1960s, and the 1980s generation is 25% smaller (Table 2.2). The main exception to the overall pattern is Ireland, where the generations born in the 1970s and 1980s were larger than those of the 1960s. Also apparent from the table is the fact that the 1960s generation was historically large; indeed it exceeded any born earlier in the twentieth century (obviously the size of generations depends not only on fertility but also on the size of the existing population). This is the case not only for the EU as a whole but also for the individual countries.

Greater longevity and generally low levels of immigration are also important features of demographic developments in the EU, and have played a role in the overall pattern of ageing. As shown in Table 2.3, the life expectancy at birth of men in the EU has increased from around 67.5 years in 1960 to 73 in 1993, while that for women has risen from 72.8 to 79.4. Underlying these patterns are better health

care, medical advances and improved overall living standards. As regards immigration, the benchmark years shown in Table 2.4 show a rather low amplitude, particularly in comparison with countries such as the US, Canada and Australia. Accordingly, the effect of migration on demographic patterns is rather limited, compared to domestic developments illustrated in Tables 2.1-2.3. Nonetheless, some patterns are apparent, such as net immigration to countries such as Germany, France and the UK in the 1960s (both from within and outside the Union), when most other EU countries showed outflows. Large inflows in the early 1990s to countries such as Germany, Greece, Austria and Sweden link to the opening up of Eastern Europe and consequent flows of workers and refugees.

These patterns provide the basis for demographic projections for the EU. Highlights of one of the most recent demographic projections for EU countries - by the World Bank - are provided in Tables 2.5-2.7.[2] The tables assume that fertility rates converge gradually from current levels to replacement in 2030; that life expectancy tends gradually towards peaks of 83.3 and 90 for men and women respectively; and that migration remains around current levels - generally zero.

Clearly, the fertility assumption could be too high. Nevertheless, for at least the next 50 years, such projections can be made with reasonable precision, given the fact that many of the individuals concerned are already born, while birth rates and life expectancy change rather slowly. The dominance of the first of these factors is shown by the fact that demographic projections are similar for some time in the future whether fertility rates are fixed at 2.5 or 1.7, and if one abstracts from migration.

Table 2.5 shows that the demographic shift will be particularly marked from 2010 onwards. Whereas in 1990 the average EU elderly dependency ratio[3] was around 21%, it is expected to rise to over 25% in 2010 and 40% in 2030. In the Netherlands, Germany and Italy the elderly dependency ratio will be over 45% in 2030. The lowest increase, of 7 percentage points, is expected to be in Ireland, while the highest, in Germany, is forecast to be no less than 27.5 percentage points. There is also expected to be an increasing proportion of very old individuals, who may need additional, and costly, health care as well as pensions.

Assuming immigration remains low, ageing is expected to be accompanied by falls in the total population of the EU between 2010 and 2030, at which point it reverts to the levels of the 1990s (Table 2.6). This decline is forecast to be particularly marked in Germany and Italy, whereas in countries such as France and the UK the population is expected to rise until 2030 before stabilising.

---

[2] Source: Bos (1994).

[3] The elderly dependency ratio is defined as the population aged 65 and over as a proportion of those aged 15-64.

The share of young dependants is expected to remain constant remain constant (Table 2.7) - but they tend to be less costly than the old,[4] and potential savings on education are rather small (perhaps 0.3% of GDP between 2000 and 2030, according to Leibfritz et al (1996)). Note that the recovery in this ratio after 2010 is a consequence of the assumption that fertility gradually recovers in the twenty-first century, and hence may not be realised. The total dependency ratio (including those under 15 and over 65 in the numerator) will be over 70% in 2030 in Germany, the Netherlands, Italy, Luxembourg, Austria, Finland and Sweden.

[4] Heller et al. (1986) accordingly estimate that social expenditures will rise in the major industrial countries even if savings in education and family benefits are taken into account.

3 Patterns of retirement income in EU countries

The pattern of retirement income for existing retirees in the EU illustrates the dominance of pay-as-you-go pensions as a source of benefits, and also as a source of retirement income more generally. Comparable harmonised data for retirement income in EU countries are available from Eurostat, but the data rely on rather outdated surveys (from 1988), and hence their relevance to today's elderly is less than is desirable. Nevertheless some interesting cross-country comparisons can be made, which largely spring from the varying nature of public and private retirement income provision in individual EU countries, as described in the following chapters.

Table 3.1 shows the sources of old-age benefits for the EU-12 in 1988. The dominance of the pay-as-you-go pension as a source of income for elderly persons is apparent. In the EU on average they accounted for 83% of benefits, ranging from 50-70% in Ireland, the Netherlands and the UK to over 95% in Spain, Italy and Luxembourg. If one adds supplementary compulsory pay-as-you-go schemes, the average rises to 90% in the EU-12, with this source being important in France, Greece, Denmark and the UK. Funded schemes accounted for only around 4% of retirement income, although their importance in the Netherlands, Ireland and to a lesser extent the UK is also apparent from the table. German book-reserve-based company schemes provided 8% of retirement income in that country. Finally, means-tested benefits to alleviate poverty were a key source of retirement income in Ireland (26%), albeit much less elsewhere in the EU.

EFRP (1996) have attempted to update the table to 1994; their estimates suggest that 89% of pensions are still provided by pay-as-you-go, while 8% is provided by funded and book-reserve schemes and 3% by means-tested benefits. In other words, there has been little fundamental change in the overall pattern.

As regards the overall sources of income for retired persons, a set of surveys have been assembled by Eurostat (see Table 3.2), but the overall picture is not always clear. It seems unlikely, for example, that 66% of income of Danish retired persons comes from wages and salaries and only 13% from pensions and social transfers (it may be that some types of pension have been classified as wages). Nevertheless, some patterns of interest can be discerned. One is the rather high level of property income in Greece, and to a lesser extent Denmark, Germany and Ireland. Another is that in 1988, in Spain, Luxembourg and the Netherlands, pensioners already, had mean incomes well in excess of the national average. They were just above the national average in Germany and Portugal. In contrast, in France and the UK incomes of pensioners in that year fell slightly short, while in Greece they were less than half average earnings. These observations underline the fact that age alone is no longer an accurate proxy for poverty in most countries.

4 Social security pension systems in EU countries

We now go on to focus on social-security old-age[5] pension provisions in EU countries. This chapter outlines the features of public pensions as they stand at present; Chapter 5 considers the growing difficulties that these systems pose for public finances, Chapter 6 looks at projections and other estimates of future difficulties and Chapter 7 outlines reforms to date.

Social-security systems in EU countries tend to offer a compulsory, defined-benefit,[6] public old-age pension scheme. It is generally also unfunded or pay-as-you-go, usually with wage taxes being levied on employees each year sufficient to pay (price or wage) indexed obligations of the system to current pensioners. The back-up for the benefit promise is hence the government's power to raise taxes. This back-up facilitates the protection of the elderly from risk of longevity and risks arising from the performance of the economy. Two types of system can be distinguished; 'universal basic' systems, which usually offer flat-rate pensions, and seek to provide a minimum standard of living for all pensioners, sometimes financed by general taxes; and 'insurance based' systems offering earnings-related[7] pensions which aim to provide a standard of living similar to that during working life, invariably financed by earnings-based contributions. In practice, pension systems in many EU countries are often 'mixed' hybrids involving both basic and insurance-related elements (Table 4.1).

Pension expenditures have grown much faster than GDP in Europe in recent decades. The average ratio of old-age pension expenditures to GDP for the EU-12 countries rose from below 5% in 1960 to 8% in 1980 and 10% in 1993. A broader definition (including survivors' and disability benefits) accounts for 14.7% now, compared with 12.2% in 1980. In the period up to the first oil shock, in the context of rapid output growth,[8] generous benefits promises and announcements of increases in coverage were often made[9]. If not reversed these had an increasing effect over time, notably in insurance-based schemes. In effect, pension expenditure as a proportion of GDP tended to grow at rates well in excess of the elderly dependency ratio. Rises in the ratio to GDP were even more marked

---

5 The issues raised by disability and survivors' pensions differ in some respects from old-age pensions, which are the main focus of this paper.

6 In Sweden 'defined contribution' elements are being introduced to pay-as-you-go social security, whereby benefits are tailored to precisely match the contribution record of the individual concerned. This is aimed to minimise distortionary effects of pay-as-you-go financing on labour and financial markets. However, Holzmann (1997) suggests that such schemes may require reserves to be accumulated i.e. they cannot be run on a pay-as-you-go basis from year to year.

7 The usual methods of calculating benefits are either the pensionable wage base times an accrual factor, or average lifetime earnings revalued to allow for inflation.

8 In 1961-1974, growth in the EU averaged 4.5%; over 1975-1995 it was only 2.3%. Over the same periods unemployment averaged 2.3% and 8.0%, respectively.

9 World Bank (1994) suggests that a 'political economy' rationale is the best explanation for the (ultimately unsustainable) form they have taken, namely that large benefits could be offered to few initial retirees who had contributed little, while the costs were diffused and borne by many in the context of rapid population growth and a low dependency ratio. Distrust of capital markets in the light of historical experience also played a role in countries such as France.

in the wake of the first oil shock, reflecting larger numbers of beneficiaries owing to growing maturity of the schemes, increasing early retirement,[10] lower economic growth and higher unemployment. Policy-induced increases in coverage were also important, however (including extension to the self-employed and part-time workers, and the trend towards equal treatment for women).[11] Growth in pension expenditures was responsible for a quarter of the overall growth of public expenditure over 1960-93, although since 1980 they has grown at a similar pace to total spending. Because social-security pensions are usually unfunded,[12] growth has been accompanied by rising revenues from taxes or contributions - with associated distortionary effects on labour markets - and in cases where revenues are insufficient, by higher public deficits and indebtedness.

Recent data on types of social-security pensions in EU countries, indexation, the generosity of the benefits and the total social-security contribution rate, are shown in Table 4.1. One point to note is that Ireland and the Netherlands have basic pension systems (as defined above), and elements of this are also present in Denmark, Finland, Sweden and the UK. Elsewhere, pensions are provided on the insurance principle. Indexation is based on gross or net wage growth in Austria, Germany, Denmark, Greece, Luxembourg and the Netherlands. In Finland there is a mixed system of price and net wage indexation. Elsewhere price indexation prevails. This is of importance in the sense that the more generous wage indexation ensures that pensioners' living standards are maintained relative to wage earners (net wage indexation implies that pensioners' incomes will keep pace with workers' precisely; indexation to gross wages implies a 'wedge' depending on the change in the tax burden on workers). Price indexation implies that pensions will fall behind wages during periods of economic growth, unless discretionary increases in excess of inflation are made from time to time. The other side of the coin is that wage indexation is costlier to contributors. Although contribution rates must rise in each case broadly in line with the dependency ratio when the population ages, with price indexation rates they may be at a lower level as long as real wages are rising.[13]

Replacement ratios (ratios of pensions to pre-retirement salaries) are indicated by data from Eurostat for 1993 to have been comparable for those on average incomes in most countries, with outliers being exceptionally high ratios in Greece, Spain and Portugal, and relatively low ratios in the United Kingdom and Ireland. Three groups of countries can be distinguished for upper-middle-income earners on twice average earnings; replacement ratios are below 50% in Denmark, Ireland, the Netherlands and the UK (which are countries with basic schemes, as well as having the largest funded

---

[10] The aim of enabling older workers to retire early was to release jobs for the young, in the context of high unemployment, or facilitate structural adjustment in declining industries.

[11] Elasticities of pension expenditures in relation to GDP over 1965-85 were 1.3 (i.e. a 1% rise in GDP entailed a 1.3% rise in pension expenditure), see OECD (1988).

[12] Often the original idea was to have partial funding, but this was eroded with increased expenditures. See, for example, Franco and Frasca (1992) on Italy, and Schlesinger (1985) on Germany.

[13] When there is a switch from wage to price indexation, which has not yet produced its full effect on replacement ratios, there may be lower growth of contribution rates than the dependency ratio.

sectors, see Chapter 8); they are 50-75% in Belgium, Germany, France and Luxembourg, and over 90% in Greece, Spain, Italy and Portugal. In considering these data it is important to note that reforms have reduced such ratios in many countries since 1993.

Complementary estimates by the consultants Wyatt Data Services (1993) are also shown in Table 4.1, based on benchmarks of absolute income. Obviously, the relationship of these benchmarks to average earnings varies between countries, but the overall patterns in the Eurostat data are borne out. Results for Austria, Finland and Sweden, which were not included in the Eurostat sample, suggest that these countries belong to the same group as France and Germany in terms of benefit generosity. Finally, overall social-security contribution rates (for employers and employees) are extremely high in most EU countries. Exceptions are Denmark (where pensions are financed by general taxation), the UK and Ireland. Total contribution rates of over 35% are payable in Belgium, Germany, France, Italy and Portugal. It is notable from the table that such contributions are usually levied in a regressive manner, being proportionately higher for lower-income individuals.[14]

The overall burden of these provisions for public finances at present is indicated in Table 4.2, which shows pensions as a proportion of GDP and of public expenditure in 1993. Notable features include the high old-age pensions/GDP ratio for Italy, Sweden and Denmark, followed by France and the UK. Old-age pensions took over 20% of government expenditure in 1993 in Italy, Luxembourg and the United Kingdom. Similar patterns emerge for a broader definition including survivors' and disablement pensions. These figures, however, need to be interpreted in the light of current demographic structures, which show that the UK and Sweden already have relatively elderly populations (see Table 2.5) and long-established public pension schemes. Conversely, the rather low ratios to GDP in Ireland, Spain and Portugal are explicable, particularly for the last two, in terms of a relatively young population and immature public schemes.

---

[14] This reflects the insurance principle; if benefit replacement ratios are to be higher for lower-income workers, contributions must be too. But such actuarial fairness is often overridden, distorting the labour market.

5 The growing burden of social security pensions

Turning to the broader difficulties which social-security pension systems pose to public finance and the wider economy, one may distinguish difficulties that social-security pension systems already face, discussed in this chapter, from those foreseeable in the future (Chapter 6). Current difficulties are apparent in indicators such as deficits in social-security systems and high contribution rates (Table 4.1).

One point is that changes in the structure of society, such as increased divorce and single-parent families, are calling into question the assumptions underlying social security (e.g. that the nuclear family unit is the building-block of society). Also, as shown in Chapter 3, income levels of pensioners (from social security, private pensions and saving) are relatively high and have also increased significantly,[15] particularly compared with those of families with children. Thus, issues of intergenerational equity are raised (especially as the elderly typically pay zero, or lower, social-security contributions and in some countries face lower burdens of income tax than younger age groups). These problems are aggravated by increased individualism, which calls into question 'intergenerational solidarity' more generally.

More crucially, as noted by OECD (1988), current problems for social security in the EU arise from factors such as poor economic performance, which impinge on the labour market and interact with the distortions that social security induces. For example, growing rates of unemployment have been a salient feature of EU economies since the early 1970s (Table 5.1). Besides the direct costs of benefits to the unemployed, which raise the costs of social security to the economy, high unemployment raises the contribution rate required to pay for pensions for the remainder of the labour force still in work. A partly offsetting factor is that in several EU countries, overall participation rates have increased to offset the effects of rising *unemployment* on overall *employment*, notably as married women entered the labour force. This is partly a corollary of lower fertility but also improved education and child care. The degree to which such an adjustment in labour-force participation can continue is, however, open to doubt.

In this context, as shown in Table 5.1, there are marked differences in activity rates for adults of prime working age in EU countries, largely reflecting different activity rates of women. Participation rates are over 60% in Denmark and the UK,[16] and 55-60% in France, Germany, the Netherlands and Portugal, but are below 50% in Spain, Italy and Greece. Depending on unemployment rates, these

---

[15] For example, in the United Kingdom in 1979, 31% of the poorest 10% of the population were pensioners, while in 1991 the figure was 11%. The mean income of pensioners from all sources rose 52% in real terms from 1979 to 1993, while real average earnings grew by 38% (Davis (1997)).

[16] Sweden and Finland are also considered to belong in this group.

figures show a marked difference in the proportion of the population of working age which is paying contributions to finance current pensioners on a pay-as-you-go basis.

High contributions combined with high unemployment draw attention to adverse side-effects of social-security contributions on labour markets and international competitiveness.[17] Clearly, employers' and employees' social security contributions increase the gap between labour costs, which determine labour demand decisions, and net wages, which influence labour supply decisions. This may have various deleterious effects. For example, high non-wage labour costs arising from increased pension contributions, if they affect total labour costs (as is likely in a competitive market), harm competitiveness of EU economies vis-à-vis countries with a younger population and/or less generous social security, and hence reduce *labour demand*, giving an incentive to substitute capital for labour.[18] Industries are 'voting with their feet' to shift to other countries with lower contributions, accentuating the existing trend. The implicit rate of return[19] on workers' contributions is falling,[20] thus increasing the disincentive effects of social security on *labour supply,* which arise if schemes are perceived not to be actuarially fair. These in turn (e.g. by reducing hours of work) further reduce labour-force participation and hence compound the fiscal difficulties.

Most directly, early retirement policies promising generous pay-offs to employees leaving the labour force are available in a number of EU countries, notably Belgium, France, Italy, Germany and the Netherlands.[21] Motivations for such schemes are to enable the long-term unemployed to retire, facilitate adjustment in declining industries and alleviate youth unemployment. Often such schemes are so generous that there are few financial incentives to work beyond the age of 60. This in turn facilitates the use of 'early retirement programmes' in firms wishing to shed labour during restructuring, who in effect pass the burden on to the economy as a whole. Note that the 'backloading' feature of final-salary defined-benefit private funded pensions also gives a strong motivation to shed older workers, as the cost of their pension accruals increases with age (see Davis (1995)).

The impact of such early retirement provisions is apparent from the data (see Table 5.2). Less than 20% of those aged over 60 remain in the labour force (i.e. are either employed or unemployed but

---

[17] Concerns about the non-wage labour costs are apparent in countries such as Germany, where they are considered to encourage firms to shift production to other countries with lower social costs.

[18] Indeed, there is evidence that the level of wage and non-wage costs together do have a direct link to the level of unemployment (Balassa (1984)). Such effects may be aggravated if dismissal of workers is difficult, as in Germany (Schlesinger (1985)).

[19] For example, Keyfitz (1985) shows that with current rates of fertility, rates of return to pay-as-you-go for generations born in 2000-5 in the US will be negative; similar effects are likely in the EU..

[20] Note that in a steady state, with a constant demographic structure, the rate of return to pay-as-you-go equals the rate of growth of real wages plus population growth. But it will fall sharply as the age structure changes.

[21] Reforms of these policies are currently under-way in a number of countries, see Chapter 7, but it is not yet clear that such reforms have had a major impact on average retirement ages. Moreover, there are social pressures for extension of early retirement, as shown by the success of French lorry drivers in gaining a reduction in their retirement age from 60 to 55, following a strike in November 1996.

seeking work) in the Netherlands, France, Belgium and Luxembourg, and under 25% in Germany and Italy. In contrast, activity rates for 60-65s are over 30% in the United Kingdom, Ireland, Portugal and Denmark; early retirement options are absent or less generous in these countries. These patterns are reflected in the difference between actual and statutory retirement ages. Activity rates in all age groups over 55 fell further between 1990 and 1993 in the EU as a whole, implying a further decline in actual retirement rates.

The development shown in Table 5.2 is quite long-standing. In the EU as a whole, the actual average retirement age has fallen from 64.3 in 1950 to 61.3 in 1990, while life expectancy at retirement age has risen sharply (an indicator of the latter is that life expectancy at birth has risen from 67 to 74, (Besseling and Zeeuw (1993)).

Turning to social security pension systems per se, maturation of schemes is posing increasing difficulties, especially where reform to date has been absent or marginal.[22] Benefits per beneficiary will tend to rise in real terms where they are linked to wages.[23] This is so to some extent even when pension increases are indexed to prices, since the base pension is usually still related to career earnings. Where the average retiree has not yet made a lifetime of contributions to the scheme, and where the ratio of workers to pensioners has not reached the average for the population as a whole, so-called "maturation" in terms of benefit levels and beneficiary ratios will itself increase the obligations of schemes and the benefits to GDP ratio. The consequences over time of past increases in eligibility and coverage will compound this problem.

However, the age structure of the population, which was outlined in Chapter 2, is the key determinant of likely future strains on EU social security pension systems (as well as impinging on other government expenditures such as those on health care). Populations in EU countries are already ageing,[24] and as noted, this has had an impact on social security expenditures. But future developments are likely to be yet more dramatic, as outlined in the next chapter.

---

[22] In several countries reform is inducing a reversed form of maturation, with falling transfers and eligibility ratios.

[23] This of course assumes positive real wage growth, which has not been the case recently in some east European countries.

[24] These trends towards a growing proportion of the elderly are common to all OECD countries, including the US and Japan, and are beginning to arise also in newly industrialising countries (including China).

6 Indicators of future difficulties

In seeking quantitative indicators of future burdens on social security pensions, one may distinguish between projections of future profiles of expenditures and contributions on the one hand, and summary measures of future liabilities such as the net present value of accrued and projected benefits on the other. While the former is less easy to summarise, the latter may hide important features of future benefit and contribution patterns. Nevertheless, their message is clear: in a large number of EU countries, pension reform is needed.

A detailed survey of the projections of pension costs made by national authorities or experts has been carried out by Franco and Munzi (1996). In each case, they have sought long-term projections for social security pension costs which are consistent with the most recent reforms. They highlight as a benchmark the most optimistic scenarios in terms of growth, etc., so as to provide a 'best case' scenario in each country, while also noting the projections with the least favourable assumptions, and noting that expenditure projections are usually revised upwards. The difference between best and worst cases may be substantial. Over the periods 1995-2000, 2000-2010 and 2010-2030, EU-average expenditure-to-GDP ratios rise by 0.1%, 0.5% and 2% respectively, under the most favourable assumptions and 0.4%, 1.2% and 2.3% respectively under the most unfavourable assumptions. These results for the most favourable assumptions are summarised in Table 6.1. For some countries, the indicator highlighted in the national projections is the expenditure/GDP ratio, and for others it is the equilibrium contribution rate needed to maintain pay-as-you-go.

The table shows that even in the 'best case', i.e. even on the most optimistic assumptions, there are forecast to be rises in the pension/GDP ratio in the period up to 2030 for Belgium, Denmark and Finland. In contrast, Spain and Italy forecast broadly flat expenditure/GDP ratios after their most recent reforms. Note, however, that the Italian projection excludes civil servants, whose pensions accounted for a further 3.5% of GDP in 1995. Meanwhile, there are forecast to be increases of 10 percentage points or more in contributions as a proportion of earnings in Germany and Ireland, and over 20% in France. Portugal and Luxembourg anticipate smaller increases while the Netherlands, Sweden and the UK anticipate virtually no increase.

Roseveare et al. (1996) have estimated future pension expenditures for EU countries on a comparable basis. They construct detailed simulation models for each country based on known features of the pension schemes (retirement age, indexation provisions etc.) as well as utilising demographic projections (which were those illustrated in Tables 2.5-2.7, from Bos, (1994)). Estimates cover a broad range of welfare benefits and complementary pension plans as well as basic social security pensions. The projection horizon is 2070. The calculations assume a discount rate of 5%, and productivity growth is assumed to be 1.5%. Naturally, such estimates omit some of the more detailed

aspects of national economies and institutional features of social security schemes, but they do have the advantage of a uniform methodology and assumptions.

As shown in Table 6.2, the estimates suggest that pension expenditure will rise by 7% or more of GDP over 1990-2040 in Italy, Germany, Finland and Portugal. Peak ratios of old-age pension payments to GDP in 2040, with unchanged policies, would be over 15% of GDP in Belgium, Italy, Germany, Spain, Finland and Portugal. At the same point, they would be 5% or less in the UK[25] and Ireland. Assuming unchanged policies on benefits and maintenance of pay-as-you-go financing, contributions would have to increase sharply. With unchanged contribution rates,[26] social security pension contributions would fall far short in most EU countries, implying sizeable public-sector deficits.

Using the same methods, Roseveare et al. (1996) have also estimated the current and future discounted liabilities of social security pension systems for most EU countries. These indicate the capitalised value of identified flows over the period up to 2070. The results are shown in Table 6.3. Estimates of gross liabilities range from 142-401% of 1994 GDP, that is at least three times conventional government debt. Note that in the gross calculation the OECD allow no offset for future contributions in calculating net liabilities, and since (apart from Finland and Sweden) these EU countries do not partially fund social security, there are no financial or real assets to offset gross liabilities either. An attempt is also made to assess projected contributions and hence net liabilities, assuming current contribution rates are maintained. In general, future contributions were found to be well below present and future obligations, to an extent varying from 18% to 153% of 1994 GDP. There are net liabilities of over 100% of GDP in France, Belgium, Spain, Portugal and Sweden. But as the net liabilities are the difference between two large and offsetting numbers, the calculations *are* sensitive to the choice of discount rate.

Table 6.4 (from OECD (1995)) shows the level of pension liabilities for France, Germany, Italy and the UK with alternative policy adjustments, respectively 3 percentage points higher contributions, a 10 percentage point lower replacement ratio and retirement 5 years later. In each case, except the UK, the retirement age adjustment is shown to have the largest effect. Meanwhile, it is shown that in the 'baseline', even on favourable assumptions, projected public debt/GDP ratios for Germany, France and Italy[27] on unchanged benefit policies and fixed contribution rates would be over 100% in 2030.

---

[25] Details of the UK reforms which have led to this situation are provided in the Appendix.

[26] This would of course be contrary to the principle of pay-as-you-go, according to which contribution rates should be amended regularly so as to equalise expenditure and revenues.

[27] The OECD simulation includes a decline in Italy's debt ratio below 100% in the early twenty-first century, after which it rises again.

An alternative set of calculations of gross unfunded liabilities for EU countries has been prepared by Kuné (1996) of the Dutch public pension fund ABP, shown in Table 6.5. The calculations differ from those of the OECD in some ways. In particular, the discount rate is assumed to be 4% throughout and no projections for inflation indexation are made; projected benefits are assumed to remain at current levels, with the difference between the actual interest rate and 4% assumed to be available for indexation. The profile of the dependency ratio also differs, since retirement is assumed to be at 65 in all cases, rather than varying between countries. Illustrating the sensitivity of the outturns to the assumptions, the results suggest that gross liabilities for the UK, Germany, Italy and France are lower than the OECD would suggest. Meanwhile, other EU countries have estimated gross liabilities (including projected as well as accrued benefits) ranging from 117% for Denmark to 144% for the Netherlands and 219% for Luxembourg. Corresponding figures of accrued benefits only are 87%, 103% and 156%. Unfortunately, no attempt is made to assess the present value of future contributions, which limits the usefulness of the calculation, since net liabilities cannot be calculated.

A further set of calculations have been prepared by the IMF, as presented in their World Economic Outlook for May 1996. These are presented in Table 6.6. The real interest rate is assumed to be 3.5%, and productivity growth 1.5%, the projection horizon is 2050 and again the demographic projections are those of Bos (1994). The results differ from those of the OECD as the situation of Sweden is better. The UK is always in the best position. The IMF also calculate the 'contribution gap' i.e. the difference between the sustainable and actual rate of contributions, as a proportion of GDP. In each case the difficulties of the systems in Germany, France and Italy are highlighted.

In examining simulations, which provide estimates of the discounted present value of future liabilities less future contributions, it is important to be clear what is being shown. Franco (1995), for example, argues that it is not legitimate to assimilate the unfunded liabilities to government debt, for the following reasons: the calculations are subject to great uncertainty; they have no direct effect on financial markets (for example, the 1992 Italian reform wiped out implicit debt equal to the national debt, but had little effect on markets); implicit liabilities can be reduced by reforms (Chapter 7) without default; the effect on consumption and saving differs from conventional debt; a combined figure would give a false reading of the effects of interest payments on total debt (as implicit liabilities fall as interest rates rise); and the calculations would blur international comparisons. Rather, the estimates should be seen as a summary measure of the scale of adjustment which is required of individual countries in order to ensure that their schemes remain solvent.

To summarise, the different studies and measures come up with rather different numerical results, as a consequence of differing assumptions, model specifications etc. But it is notable that in all cases the scale of the difficulty arising for EU countries with generous social security pension systems is illustrated. On balance, difficulties arising from the budgetary costs of social security pension provisions seem likely to be particularly acute, according to these estimates, in Belgium, Spain,

Greece, France, Italy, Finland, Germany Luxembourg, Austria and Portugal. In contrast, the UK, Ireland, Denmark and the Netherlands are in a relatively favourable situation. Sweden is in an intermediate position.

Ageing will also probably raise demand for health care and other social services, thus imposing a further burden on public finances. In Oxley and MacFarlan (1994) for example, it is noted that average health spending on the age group over 65 is typically four times that of the under-65s. Viewed in the light of the data in Table 2.5, it is evident that ageing will have a major effect on budgets, where health care is publicly provided, and reform may consequently be warranted in this area also. Indeed, OECD calculations (Leibfritz et al (1996)) suggest that health care expenditures could rise by 1.4%, 1.6%, 1.7% and 1.2% as a proportion of GDP over the period 2000-2030 in Germany, France, Italy and the UK, respectively. The burden of ageing is thus compounded.

These burdens will be compounded or alleviated for public finance more generally by other aspects of public finances, notably the initial state in which these enter the period when population ageing begins to take its effect. A country with a high deficit and high existing debt would clearly run a much greater risk of a financing crisis than one with a more favourable fiscal position. For example, OECD (1995) shows that a permanently 1% better primary balance from 2000 would give a reduction in net debt positions of 40-55% of GDP by 2030. This underlines the importance of early steps to fiscal consolidation, preferably by reducing government outlays. Consolidation also 'buys time', allowing pension reform to be introduced gradually or with some delay (to allow individuals to adjust their plans appropriately) and defers the time when adverse debt dynamics emerge. The current fiscal positions of EU countries are relevant in this context; they illustrate particular difficulties for countries with high indebtedness and deficits (for a summary, see EMI (1996)).

A further note of caution in relation to the estimates above is that such studies typically do not endogenise the response of the labour force or of private saving to the public pension arrangements and to ageing itself, which may affect the actual outturns. This brings in a broader issue, namely that the degree to which these burdens will impinge depends also on broader macroeconomic factors which may themselves be influenced by population ageing, such as the rate of capital formation, economic growth and associated increases in productivity[28] in the future, labour force participation and, of particular importance, the resolution of structural unemployment highlighted in Chapter 5, see also Auerbach *et al*. (1989) and OECD (1995). Detailed assessment of this subject is beyond the scope of the current paper. However, given the likely effect of these factors on the outcomes for retirement income provision, it is relevant to note some recent estimates of effects of ageing on labour markets and saving, with particular emphasis on the EU.

---

[28] However, note that an increase in the productivity of the young will have a more rapid effect on the burden of ageing if pensions are wage-indexed than if they are price-indexed and new pensions are related to wage levels.

As regards effects of ageing on labour markets, it is often suggested that economic performance may deteriorate as the average age of the labour force increases, owing, inter alia, to inflexibility of older workers with reduced labour mobility and reduced ability to adapt to new techniques. Johnson and Zimmerman (1993) provide a range of papers which address this issue in an EU context. In particular, the papers in their volume consider whether ageing may have an impact on economic efficiency via labour costs and productivity, training, skills and labour mobility. On balance, on the basis of observed behaviour of existing age groups, it is suggested that ageing of the EU labour force will not have much effect on labour market outturns. For example, it is expected only slightly to reduce average labour mobility, and the degree to which such labour force characteristics as productivity, innovation and career progression vary with the age of workers suggests that ageing will have little impact on overall outcomes. The principal note of caution seems to be that if seniority-age profiles are not flexible, and older workers are paid above their marginal product, then as the proportion of old workers increases, firms will be encouraged to push older workers into early retirement, to the extent the state bears the burden - as is indeed already happening (Chapter 5).

Of course, these results should not be taken to mean that performance of EU labour markets is in any way optimal - indeed, the conclusion may be that younger workers are just as inflexible as old. Labour market reform and deregulation would be needed to change this picture. Equally, one should not disregard the possibility that the decline in the labour supply accompanying ageing may affect production and output (which puts an emphasis on raising participation and raising the effective retirement age, see Chapter 7). But the results are of interest in suggesting, in the words of Ermisch (1995), that 'the economics literature has been correct to focus on the impact of ageing on pension systems and private saving'.

Turning to the latter, conclusions of studies regarding the likely path for saving as ageing proceeds vary sharply. Roseveare et al. (1996) assess two scenarios, which differ in the size of the assumed negative effect of the dependency ratio on saving, and on the question as to whether there is Ricardian equivalence. They see private saving as a proportion of GDP across all industrial countries falling 3-6 percentage points between 2000 to 2030, depending on the scenario, and national saving declining by 8 to 16 percentage points, given unchanged pension policies and assuming a partial response of private saving to government dissaving. In France, Austria, Denmark and Finland, net national saving is forecast to be negative in 2030 in both scenarios. Cutler et al. (1990) and Heller and Sidgwick (1987) reach similar conclusions.

Masson and Tryon (1990) use the IMFs global econometric model MULTIMOD to assess the combined effect of ageing on private saving, public deficits and overall production (where production is assumed to link to the labour supply, i.e. the size of population of working age times the participation ratio). Their model generates large falls in national saving in Germany (and Japan) from

2000 onwards, as both private and public sectors reduce their saving, while in France, Italy and the UK the net effect is positive, with increased private saving more than compensating for a rise in the fiscal deficit. The difference in private saving links to the differences in demographic profiles. (Note that the model includes endogenous tax rises rather than assuming fixed contribution rates as per the pension simulations in Tables 6.1-6.6).

As regards private saving, a strong effect of demographics on saving is found by many studies, with for example Masson et al (1995) finding the total dependency ratio (Table 2.7) to have a significant negative effect on private saving in a panel of both advanced and developing countries. Focusing on Europe, Miles and Patel (1996) suggests that as long as the 'baby boom generation' remains in the labour force an increase in private saving should be expected in the EU, building to a maximum of 2.5% in 2020, after which saving declines as individuals retire. The rise in private saving would in the view of Miles and Patel be more than enough to offset changes in government saving.[29] This projection is based on a 'life cycle' view of saving, whereby assets are accumulated over the working life and run down during retirement[30].

Börsch-Supan (1996) comes to a similar conclusion to Miles and Patel for major OECD countries regarding the profile of private saving, taking into account different saving propensities of cohorts and population growth. However, he concludes that increases in governments' demand for funds arising from population ageing would outstrip the rise in private saving after 2005.

Balance-of-payments effects of ageing depend heavily on the conclusion drawn from studies of saving. They may be positive as long as national saving is boosted by ageing, which seems possible as long as the 'baby boom' generation remains at work (Bikker (1996)). But once people in this generation retire and begin to dissave, there could be potential balance-of-payments problems as countries with low saving seek to expand their capital stock to compensate for a higher dependency ratio (Auerbach *et al* (1989)).

---

[29] Our main focus in this section is on implications of ageing for saving and labour markets; however, it may be noted that the ageing of the population may have an important impact on financial markets, especially in the case where pensions are largely funded. Whereas during the transition phase as the working population ages, there may be excess demand for financial assets, as retirement assets are built up, the opposite may be the case when the population becomes aged and begins to live on the accumulated assets. This could plausibly entail an excess supply situation, which in turn could depress asset returns significantly compared to those in the earlier period. This of course depends on the degree to which other countries, e.g. in the Far East, experience slower demographic ageing and thus provide a countervailing factor in the context of globalised financial markets.

[30] In a separate paper, Miles (1996) notes that cross-sectional evidence of individual households appears to be inconsistent with the life cycle, as saving is rarely negative after retirement. But he considers that this is largely a measurement error problem, as the decline in value of pension assets is rarely allowed for in cross section data. Hence the predictions based on the life cycle - of falls in aggregate saving as the population ages - remain robust.

It is important to emphasise that the form of pension arrangement may itself play a key role in determining the response of saving to population ageing, and this factor is difficult to incorporate in the form of simulation set out above. In particular, there is some evidence for the US and in international cross-section (Feldstein (1974, 1977, 1995a)) that unfunded social security pensions reduce aggregate saving and hence capital accumulation and growth. This can be justified theoretically by a life-cycle framework, where individuals structure their lifetime saving and asset accumulation to maintain steady state consumption. If social security provides a guarantee of income to maintain consumption after retirement, then there is a form of implicit wealth accumulation, and the need to save during the working life is lessened.[31] Underlying this approach is a view that workers see contributions by themselves as a form of saving and not as a tax. As the population ages and the size of unfunded liabilities increases, the negative effect on saving could increase sharply (unless the effect is offset by increasing uncertainty over whether pension promises will be kept).

Feldstein's results have been disputed (for a review, see Munnell (1987)), and other evidence suggests that the effect, even if negative, may be small, for example because social security induces early retirement, which gives incentives to save more to cover the longer retirement period, or because changes in intra-family transfers (e.g. bequests) may have offset the increase in public-sector transfers, thus leaving the need for old-age saving identical (Barro (1974)). What is less disputed than Feldstein's results is that if a social security system is structured so as to provide benefits to a generation in excess of its contributions, then there will clearly be a reduction in saving thanks to the wealth transfer. The ‘free pensions’ provided to first generations in social security schemes which have not contributed are examples of this, so long as the public sector did not run an offsetting surplus. This may account for clearer results on the negative effect of social security on saving for certain other countries with generous social security pensions, such as Sweden, Italy and Japan (noted in Hagemann and Nicoletti (1989)) than Feldstein obtained for the US. Moreover, as noted by World Bank (1994), the conditions under which funding will have a positive effect on saving - namely, myopia, limited access to credit, and lack of credibility of the pensions scheme - are precisely those whose absence will lead pay-as-you-go to reduce saving. So a switch from pay-as-you-go to funding - as discussed in Chapter 8 - is unambiguously likely to raise saving in an economic[32] sense.

Finally, one may note that technical progress could help to maintain living standards, regardless of the effects of ageing on saving and investment, depending on the effect of ageing on innovation. Wattenburg (1987) suggests that ageing slows technical progress as innovation becomes less profitable with a shrinking market for capital goods and owing to the lesser dynamism of an ageing population. In contrast, Cutler et al. (1990) suggest that innovation increases as labour gets scarce.

---

[31] A further mechanism inducing lower saving under pay-as-you-go social security is that those who are myopic and would otherwise have continued working till they die are now able to retire.

[32] In national accounts, the capital market returns on funds are counted as savings of households; this must therefore have a positive effect on savings.

7 Reforms of social security in the EU

The message of Chapter 6 is clear; if policies were to remain unchanged, social security pension systems would give rise to an increasing degree of inter-generational redistribution[33] (and not merely transfers), with workers (and their employers) paying higher contributions for the same pension. Various economic difficulties may arise as a consequence, not least a marked aggravation of the disincentive effects on labour demand and supply noted in Chapter 5. Note that taking the strain via increased public deficits instead of taxation will only postpone the problem until the bonds need to be repaid - in effect, the burden is transferred to future generations.[34] In the meantime, real interest rates could increase, together with adverse debt dynamics and the risk of a 'snowball' effect of rising debts and interest payments. Ultimately, governments could face a financing crisis as markets lose confidence in their ability to repay their debts.

EU governments are already seeking to limit social security pension commitments directly in the light of the current and potential burdens set out in Chapters 5 and 6. The main policy options within the pay-as-you-go framework are changes in the ratio of beneficiaries to contributors,[35] such as an increased retirement age, decreasing benefit levels and increasing revenue. A switch to funding of social security and to encourage private pensions are further options, which may have a more favourable impact on labour markets and allocation. All of these policies would have far-reaching effects on individuals, and hence have often been introduced gradually. In effect, they are an indication of the 'political risk' to which intergenerational contracts such as social security pensions are subject. A summary of the type of recent reforms is shown in Table 7.1. Details of programmes in the UK which have gone furthest in reducing social security obligations, are provided in the Appendix.[36]

Cuts in the number of beneficiaries can be achieved by increases in the retirement age. The rise in life expectancy gives ample scope for this. Steps in this direction have been taken in a number of EU countries, such as in the 1992 reforms in Italy, which aimed to raise the statutory retirement age for private-sector employees by 2001 from 60 for men and 55 for women to 65 and 60, respectively (in 1995 a further reform in Italy introduced a flexible retirement age range of 57-65 with an actuarially discounted pension, over a long period). Germany, Greece, Portugal and the UK have also raised statutory retirement ages. A higher retirement age has a double benefit of increasing contributions - and possibly GDP itself - and reducing both the number of beneficiaries and the time span over which

---

[33] These problems could be conceptualised as 'cohort risk' whereby the advantage is to members of large cohorts, as long as schemes remain unchanged (Frijns and Petersen (1992)).

[34] A rational private sector in the sense of Barro (1974), which perfectly anticipates the future taxes to pay off bonds and immediately adjusts its expenditure accordingly, would not even differentiate the two cases.

[35] Related policies could include those to permit immigration, to promote fertility and to increase labour force activity for younger age groups,

[36] See also Davis (1997).

they receive pensions.[37] It is particularly necessary in the light of the increase in life expectancy since schemes were set up.

Note, however, that changing the statutory retirement age alone may not be sufficient; an attack on early retirement schemes is an essential complement in order to increase actual retirement ages. Ideally this should eliminate any excessive generosity in an actuarial sense, for example by ensuring a strict relationship of pension to service (Germany, Greece and Italy), and 'defined-contribution' social security (as planned in Sweden). Such reforms should also reduce the ability of firms to shift the burdens of their policies of 'downsizing' to the state. A higher minimum retirement age may also be needed (as planned in Germany and the Netherlands), and more generally better retraining for old workers (investment in human capital so workers are productive for longer) and reconsideration of hiring, firing and automatic age-related pay practices. In the case of private pensions, governments could also promote higher activity among 60-65 year olds by granting tax allowances only to defined-benefit schemes covering lifetime earnings rather than 'final salaries'. This is currently proposed in the Netherlands.

Provisions allowing individuals to opt out from earnings-related social security pensions were extended in the mid-1980s in the UK (opting out could thenceforth be for a personal pension, and not just an occupational one), see the Appendix. But experience suggests also that beyond a certain point the fiscal incentives required to induce a large-scale voluntary switch away from social security may need to be so costly as to outweigh any savings made (this seems to have been the case for incentives to take personal pensions in the UK[38]). Even in the UK, the basic pension remains universal; a concern is that a marked shift away from universality might undermine political support for social security pensions; it may also lead to adverse selection, whereby any individuals who consider they may be at a disadvantage in terms of redistribution will leave the social security system.

It was noted above that ageing together with a stagnant or falling population will lead to a relatively smaller labour force (see Tables 2.5-2.7), unless this is offset by higher participation.[39] A higher labour-force participation ratio for younger age groups could hence be a further aim to pursue in alleviating the burden of pensions by raising the number of contributors, although obviously this is linked to the resolution of the more general problem of unemployment. Higher participation might be achieved by improving both employment incentives and prospects for those of working age who are not currently active, in order to offset this. As noted, social security contributions are typically a disincentive to participation even for those to whom jobs are available; accordingly, countries such as

---

[37] The possibility of work after retirement should not be disregarded. In Japan this is encouraged by allowing pensions to continue to accrue even after the statutory retirement age.

[38] It was estimated by the National Audit Office that between 1988 and 1994, £9.3 billion in National Insurance revenue was forgone, while the gains were estimated at £3.4 billion.

[39] In the EU, the size of the 25-65 age group will decline in the 21st century by 5% a decade, whereas since World War Two it has grown by 6% per decade.

the Netherlands are reducing contribution rates for the low-paid. Child care facilities (as in Scandinavia) and investment in the human capital of all of the young[40] are also helpful in this regard. The sharp variation in participation shown in Table 5.1 above shows ample scope for the extension of participation in many EU countries. However, as noted above, an increase in the effective retirement age may be the most effective way of raising participation.

Policies may also seek to redress the demographic balance by encouraging fertility and immigration. But historical experience with the former is not encouraging, while the latter would need to be on an extremely large scale to make a significant difference to future projections.[41] For example, immigration needed to offset projected falls in population of working age up to 2050 in Germany and Italy would amount to 13-15 million each.

On the benefit side, and retaining the current structure of social security, there is a choice between reduction of replacement ratios and curtailment of indexation. Changes in replacement ratios need to be announced well in advance to enable workers to plan ahead. Replacement ratios may be reduced, inter alia, by policies returning schemes which are over-generous in an insurance sense to actuarial principles; extending the assessment period for pensions to cover lifetime earnings instead of final salaries; extending the number of years of earnings taken into account in assessing pension levels (as in France, Italy, Austria, Portugal, Finland and the UK); or reducing the accrual factor (as in France, Austria, Portugal and the UK). Such reforms are often easier in immature schemes, as in Southern Europe. In Denmark, pensions have been made taxable and rules regarding income received by pensioners tightened. In the Netherlands, income rules were also tightened and eligibility for so-called higher rate basic pensions reduced.

Temporary suspension of indexation (as occurred in the US in 1984), or a link to prices and not wages (instituted in a number of EU countries) is less politically visible and has major short-term financial effects. However, reduced indexation, if sustained, may hurt the most vulnerable groups. An alternative adjustment to indexation may be to link pensions to net and not gross wages, as was recently instituted in Germany, Austria, Finland and the Netherlands, thus sharing the burden of ageing between the generations.

Attacks have also been made on special privileges such as special pension benefits for public employees (Finland, Greece, Portugal and Italy) and 'free' credits for years in higher education (Austria, Germany).

---

[40] The German system of training, whose success is shown by the relatively low level of youth unemployment in that country, is worthy of attention.

[41] Also historical experience shows that immigrants over time adopt the low fertility levels of the home population.

A more radical alternative is to reduce the scope of state provision to a universal flat-rate pension, which will ensure poverty alleviation but will be insufficient to provide maintenance of standards of living for those on higher incomes. The pension systems of the UK, Ireland, the Netherlands, Finland, Sweden and Denmark are closer to this position than those elsewhere in the EU (Table 4.1); in the UK case there has been a decisive downgrading of the State Earnings-Related Pension Scheme (see Davis (1997)); further details of UK pension reform are provided in the Appendix.

As regards the structure of contributions, a general increase in contribution rates would seem to be undesirable, not least on grounds of adverse incentives, although it is more desirable than running fiscal deficits. There may be a clearer distinction between equity and social welfare components in terms of use of contributions relative to general taxation. As in Denmark, there may be switches to general taxation, particularly for the redistributive element, to minimise the adverse labour market effects of redistributive social security financing.[42] Meanwhile, for the insurance element a close link of benefits to contributions is essential to avoid labour market distortion (ideally via funding, see Chapter 8). Contribution periods required for eligibility may be increased (Greece), or more generally a closer link of contributions to pensions may be instituted, rather than a wage basis (Sweden,[43] Italy). Public servants may be obliged to pay standard-rate social security contributions. Introduction of social security (pension) contributions for old-age pensioners' incomes is another possibility. This is attractive as it shows pensioners sharing the burden of ageing, and is also appropriate as age is no longer a good indicator for poverty.[44]

Outside the pay-as-you-go framework, a wholesale or partial switch to funding may be an alternative way to alleviate the difficulties of the demographic transition as well as increasing welfare in itself, as discussed in Chapter 8. Except in the UK and to a lesser extent Denmark, no radical shifts in this direction have recently been undertaken in the EU. Nevertheless, funded sectors are of markedly different size, owing to longer-term trends.

EU countries have thus already started to address the old-age crisis and its effects on social security. Summarising the effect of the reforms outlined above, Franco and Munzi (1996) note that in most cases they have succeeded in reducing the future growth of expenditure ratios below that of the

---

[42] A more radical approach that has been advocated by some analysts is to levy contributions on capital directly rather than labour, thus compensating for the bias of employment-based contributions towards substitution of capital for labour. However, such an approach could not only lead to misallocation of resources, but also reduce technical progress, competitiveness and hence long-term growth (Schlesinger (1985)).

[43] Indeed, a form of defined-contribution social security scheme is currently planned in that country.

[44] In the UK, in 1979 31% of the poorest 10% of the population were pensioners, and in 1991 it was only 11%. For the poorest 20% of the population the figures are 38% and 24%. Again, whereas in 1979 46% of pensioners were in the lowest 20% of the income distribution, in 1991 it was 29%. The unemployed, the increase in the number of whom has made a major contribution to the increase in general inequality, predominate to a greater extent at the bottom of the income distribution than was the case in the past (Davis (1997)).

dependency ratio, whereas before the reforms expenditures were often set to grow in excess of it. Ireland, France and Luxembourg are the main exceptions. Nevertheless, the degree to which reforms to date fall short may be gauged from various projections of the future costs of social security pensions shown in Chapter 6. These suggest that potential difficulties remain severe and further reform essential.

A message of the demographic projections noted in Chapter 2 is that demographic problems become particularly adverse after 2010. This suggests that until then there is a window of opportunity for reform, in countries facing future difficulties. Not that reform should be delayed until then. Delay could be dangerous, as vested interests in favour of the status quo will strengthen as the proportion of the population approaching or above retirement age - and hence their weight in the electorate - increases. Rather, the window of opportunity should be seen as facilitating early introduction of decisive but gradual reform, which gives individuals time to adjust their plans and pre-empt opposition that would otherwise be likely to form.

Given the historical development of systems of retirement income provision, such reform may justifiably take different shapes in different areas of the EU. For example, where pay-as-you-go is not yet fully mature, as in Southern Europe, it may be easier to cut back on benefit promises than in countries such as France and Germany where schemes are mature and pay-as-you-go is a long-established feature. Again in Scandinavia, several countries have established elements of funding of their social security pensions, which provides a base for further expansion of such schemes. Finally, those countries with mature privately-funded schemes such as Ireland, the Netherlands and the UK may not require such major reforms as those needed elsewhere.

In the context of the discussion above, the issue arises as to how funded pensions could be encouraged, to further alleviate the burden of ageing on pay-as-you-go public pensions. This is discussed in the next chapter.

8 Funding of pensions in EU countries

Conceptually, funding has a number of advantages. It increases the actuarial fairness of the system, given a tighter link of benefits to contributions than for pay-as-you-go, and thus contributions are more likely to be seen as saving than taxation. Hence funding is likely to reduce distortions to labour and financial markets and to saving and may in itself reduce the overall economic impact of ageing, by boosting labour force participation, and also by potentially raising aggregate saving[45], thus increasing the stock of fixed capital and the output out of which future pensions are to be paid. Even if saving remains rather stable, its structure is likely to shift towards longer term instruments such as equities, which may be favourable to productive investment, as well as enhancing the development of capital markets and hence efficient resource allocation (Davis (1996a, 1996c)). By raising growth 'endogenously', such effects could help to provide the resources necessary to cater for the remaining liabilities of pay-as-you-go, and/or for those elements of pay-as-you-go that for social reasons it is considered necessary to retain (see Holzmann (1997))[46].

Funding may also increase overall economic efficiency and flexibility by reducing the conflict between labour and capital, as with funding workers do not only focus their interest on high wages and safe employment. This may, for example, help wage moderation and reduce demand for job security provisions, as they would be seen as benefiting future incomes from capital in retirement. Funding allows for risk diversification via international investment of accumulated funds, thus reducing the vulnerability of the retired to the overall performance of the domestic economy, which may deteriorate as population ageing becomes more severe. And assets accumulated under funding, since they are a form of private property, may be more secure against future political developments in the light of population ageing than are promises made under pay-as-you-go.

Funding can also be seen as a form of burden transfer in the light of ageing, and more generally as a buffer against the need to raise contribution rates at a potentially undesirable time in the face of deteriorating economic performance or demographic shocks. The OECD (1993) calculates that the maximum rise in contribution ratios required under pay-as-you-go to eliminate unfunded pension liabilities in the EU-4 is 4.4-11.9% of GDP, whereas for funding it suggests that a sustained increase of 1.1-5.3% would suffice.

Linking to the general discussion above, Holzmann (1997) notes three particular benefits that funding could offer to the EU per se. First, labour mobility between member states would be enhanced, thus allowing gains from specialisation to be fully realised, if there were a co-ordinated and funded pension scheme in the EU on a defined-contribution basis (although as noted below, efforts of the

---

[45] See Feldstein (1977), (1995a).

[46] Further investigation of these potential 'endogenous growth' effects would be a major contribution to debate, showing that pension reform need not always be a 'zero sum game'.

Commission to ensure that such a scheme could be introduced have not come to fruition). Second, workers may be more willing to accept the adjustments to labour market conditions required to cope with globalisation if they also have a stake in capital market gains at an EU and global level. Third, partial funding of pensions could help protect the EU against the symmetric demographic shock to which it will be subject, if on the one hand the growth effects identified above are realised, or on the other a significant share of funds are invested internationally, thus allowing risk diversification.

Despite these arguments, a wholesale switch to funding would be unlikely to be desirable or even feasible, particularly because funding is unable to redistribute to retired persons facing poverty in the way societies typically prefer[47]; and more generally funded pensions are often ill-suited to low income workers or those with broken career patterns. Also it may be optimal to provide both forms of retirement income provision as a means of risk diversification. This is because pay-as-you-go and funding are subject to different risks (respectively the political risk that obligations will be reneged upon by governments and market risks of low returns on investments) which are to some degree independent of one another (see Davis (1995) for an account of the relative advantages of pay-as-you-go as opposed to funding). Finally, as discussed below, a wholesale shift would probably be extremely costly, given the scope of existing commitments under pay-as-you-go that would still have to be honoured.

Note, however, that these arguments for a partial shift do not imply a need for comprehensive pay-as-you-go schemes providing high replacement ratios regardless of income and individual preferences. Rather, they may justify a basic level of social security to alleviate poverty, allowing pensions over and above this level to be funded. Such a form of specialisation for the two systems, with the unfunded element specialising in redistribution and the funded element in the provision of annuities, may help reduce the distortions to labour and financial markets induced by the unfunded element (World Bank (1994)).

One objection to funding, taking a 'closed economy' view, is that extra saving generated by a switch to funding may reduce the interest rate, thus reducing the benefit of funding relative to pay-as-you-go,[48] although in practice this seems less likely as long as international investment is permitted. Indeed, there are strong arguments that investment from funding should flow to countries with younger populations, whose investment needs exceed national saving.[49] Conceptually, this allows a

---

[47] Even in Chile, where funding and privatisation of retirement income provision have been most prominent, there remains a 'safety net' of social-security pension provision.

[48] Note that in a steady state, with a constant demographic structure, the rate of return to pay-as-you-go equals the rate of growth of real wages plus population growth. But it will fall sharply as the age structure changes (Aaron 1966).

[49] Note that if international investment is not permitted, and abstracting from increases in saving and beneficial incentive effects, funding and pay-as-you-go are in some ways equivalent, as pensions in each case need to be paid from the same national income. Only the source differs; capital income for funding, labour income (via taxation) for pay-as-you-go.

form of burden-sharing at a global level. This will be particularly attractive if, as has recently been the case, these developing countries grow faster than OECD countries.

A more general problem that arises in policy discussion of funding in countries currently dependent on pay-as-you-go is that there may be major fiscal problems, which can spill over to political resistance. In effect, funded pensions do not relieve pressure on public finances in the short run, as existing pension promises need to be met and, usually, tax relief granted on contribution and asset returns, with little tax revenue from the initially low amounts of funded pension payments to offset these costs. Hence the need for a rather contractionary fiscal stance, and the likelihood of political resistance to generations in the transition being thereby forced to "pay twice" for pensions, once for the previous generation via pay-as-you-go, and once for its own via funding. These points raise an important public policy issue of how a transition is to be financed and the burden distributed between generations. Pay-as-you-go as it stands clearly imposes too great a burden on future generations; but how much redistribution of such burdens is appropriate?

As noted in Holzmann (1997), rather than forcing the current generation to pay twice by budget financing of the transition, the polar opposite is to recognise the implicit government debt which is represented by the accumulated benefit obligation of pay-as-you-go, and convert it immediately to explicit debt. In this case the transition is financed largely by future generations. In this context, Feldstein (1995b) suggests such bond financing of the transition can help redistribute the burden between generations[50], so the future generations who will benefit from the efficiency gains of a more flexible labour market and financial market development, as stimulated by funding, will also pay some of the costs.

However, given the scope of current accrued obligations under pay-as-you-go, typically well over 100% of GDP, this would seem not to be feasible without severe effects on financial markets and on confidence in the domestic economy. For EU countries, this solution would seem also to be ruled out by the current state of public finances in the EU and the likely threat to the Maastricht ceilings.

Accordingly, as spelt out above, EU governments have preferred in current circumstances to focus largely on scaling back their benefit promises to current and future generations, implicitly “defaulting” on part of their pension obligations. As noted by Holzmann (1997), such a process of reform, by reducing the benefit obligation of pay-as-you-go, may facilitate a partial switch to funding - whether financed by borrowing or taxation - at a later stage. It typifies the process undertaken

---

[50] In this context Feldstein (1995b) shows that the conditions for funding to improve welfare even abstracting from demographics and distortions to labour markets are quite likely to hold. These conditions are: that the return on capital exceeds economic growth (so the return to funding exceeds that to pay as you go); that the return on capital exceeds the rate of time preference (the capital intensity of the economy is below the welfare-maximising level); and the rate of growth of the economy is positive (so there is a gain in extra retirement income which more than offsets the (given) costs of the transition).

successfully by some Latin American countries, notably Chile, and which is under active consideration in Eastern Europe.

Turning to types of funding, one may distinguish partial funding of social security from private funding. The former was adopted at an early stage in Sweden, such that assets valued at around 33% of GDP have been accumulated. Similar schemes exist in Finland and Denmark. An advantage of a public scheme is that the labour mobility problems typical of voluntary occupational schemes can be avoided by such a compulsory funded social security scheme. Difficulties are that particularly if there is a degree of redistribution, contributions to a trust fund may be seen as taxes, thus engendering distortions to labour markets and other welfare losses. Moreover, a social security trust fund may face problems in investment (Thompson (1992)). A large trust fund may induce higher government consumption or even fiscal deficits, thus actually reducing national saving, and its management could be subject to political interference. Investment in government bonds, which is typical of such funds,[51] has ambiguous consequences.[52] It is likely to eliminate any benefit to national saving as a consequence of funding. Even if used to fund investment, finance may be diverted to unprofitable projects for political reasons. Also lack of international investment, which is typical of social security trust funds, leaves them dependent on the performance of the domestic economy. As shown below, such problems seem to typify the Swedish system.

Funding through occupational pension funds or individual arrangements avoids some of these difficulties. Benefits to saving arising from a switch from social security are more likely, as workers will perceive contributions as saving invested at market rates of return. Fund managers may focus on maximisation of return for a given risk, which will ensure efficient allocation of funds in the capital market.[53] By being more able to invest internationally,[54] they may avoid being constrained by limited investment opportunities in the home economy and reduce risk. Private pensions, notably defined contribution plans, are more capable of meeting individual preferences, while defined-benefit plans may provide intergenerational risk-sharing similar to pay-as-you-go. It should, however, be noted that private pensions have some disadvantages, notably cost of regulation, administrative costs,[55]

---

[51] The Swedish ATP fund is an exception, being invested largely in private-sector debt instruments.

[52] As pointed out by Bodie and Merton (1992), it is not clear that governments' willingness to repay bonds should be any more reliable than the promise to pay pensions, unless the funds are used for productive capital investment, with revenues hypothecated to pay pensions.

[53] The impact of institutional investors such as pension funds on the capital market is discussed in Davis (1996c).

[54] There are numerous barriers to international investment of private pension funds in the EU, usually imposed for 'prudential' reasons (see Davis (1995)). Lannoo (1996) discusses recent action by the European Union in this field. At present the Commission is questioning the validity of restrictions under the Capital Movements Directive, see also Chapter 10.

[55] In the Netherlands, for example, administrative costs of state pensions are 1% of contributions; company pensions 7% and personal pensions 24% (Besseling and Zeeuw (1993)). Diamond (1993) notes that US social security costs are between 3 and 12 times less than private pensions, partly owing to the natural monopoly in collection of social security contributions.

vulnerability to market risks (notably for defined-contribution funds), inability to redistribute and, for defined-benefit funds, obstacles to labour mobility and the need for compulsion at the level of the firm[56] to make them viable. Final-salary defined-benefit funds may increase incentives of employers to lay off older workers, as the rate of their pension accruals increases as retirement age approaches.[57] Also private pensions do not relieve pressure on public finances in the short run, as existing pension promises need to be met and tax relief granted on contribution and asset returns, with little tax revenue from the initially low amounts of private pension payments to offset these costs.[58]

There are major differences between EU countries in the degree to which funding has developed as a complement to the social security systems discussed above. In particular, as shown in Table 8.1, in the Netherlands[59], Denmark, Sweden and the UK[60], coverage of the labour force is 75% or more, while in Spain, France, Italy and Portugal it is marginal. Germany, Belgium and Ireland are intermediate. Note that the table omits the French compulsory unfunded supplementary schemes (ARRCO and AGIRC), which cover 90% of the labour force, as well as the funded social security schemes in Denmark, Sweden and Finland. The table shows that in most EU countries coverage is voluntary (for the employer or the employee), except in Denmark and for the civil servants' scheme (ABP) in the Netherlands. The UK is exceptional in the size of its personal pension sector. Most EU private pensions are provided on a defined-benefit basis, the main exceptions being Denmark and the UK (for personal pensions). Funding is typically external to the firm in a diversified portfolio of assets; internal funding on a book-reserve basis is common in Germany, Austria and to some degree in Sweden.

The data in Table 8.2 show pension fund assets in the EU countries for which data are readily available (excluding funds managed by life insurance companies). Consistent with Table 8.1, for each measure, a contrast is apparent between the role of pension funds in the United Kingdom, Sweden, Ireland, the Netherlands and Denmark, where they account for a sizeable part of personal sector wealth and GDP, and those in Belgium, Germany, Spain, France, Italy and Portugal. Greece, Austria and Luxembourg also have vestigial private-funded schemes. The low level of external funding in Germany is, however, an inaccurate indicator of the overall size of private pensions since assets equivalent to around 9% of GDP[61] are held as reserves on the sponsoring firm's balance sheet.

---

[56] The future of defined-benefit funds in the UK, where membership has been made voluntary, will be a test of this hypothesis (see Davis 1997).

[57] Inter alia to combat this, the Netherlands is now introducing a reform to make average-salary based calculations standard for defined-benefit funds in that country. With an average-salary base (upgraded in line with inflation), pensions accrue smoothly over the working life of the individual.

[58] On related issues, see Franco (1996).

[59] For a further discussion of issues related to funded schemes in the Netherlands, see Davis (1996b).

[60] See Davis (1997) and the Appendix.

[61] 1994 estimate.

Various influences can be traced that could account for the differences in the importance of funded sectors in the provision of pensions. The most crucial point is that privately funded plans cannot usefully be viewed in isolation; the principal alternative to a private pension fund is the state social security pension system. Not surprisingly, the growth of private plans can be related to the scale of social security pension provision, which imposes limits on private-sector plans, particularly if there is generous provision for individuals at higher income levels.

As regards social security, replacement ratios were shown in Table 4.1 to be comparable for those on low incomes in most EU countries. It is the shape of the replacement ratio/final earnings relation that is a crucial determinant of the scope of private funds; if social security provides high replacement ratios to high earners as well, there will be little incentive to develop private funded plans at all. In line with this suggestion, the replacement ratio declines rapidly with earnings in Denmark, Ireland, the Netherlands and the United Kingdom - countries with large funded sectors. Germany, Greece, Spain, France, Italy and Portugal, by contrast, are notable for comparable replacement ratios to those retiring on higher earnings. Their private funded sectors are much less important.

Second, where provision is voluntary, taxation provisions make it more or less attractive for the firm to offer a pension fund (Table 8.3). For example, exemption of contributions and asset returns from taxation will increase funds' attractiveness. However, in some countries these factors may be overridden by the imposition of compulsory pension plans on employers. Consistent with this argument, the Netherlands, Ireland and the United Kingdom offer generous treatment (exemption of contributions and asset returns from tax, while pensions in payment are taxed, denoted EET in the table). ‘Booking’ is discouraged in these countries by withholding of tax privileges from book-reserve funded plans. By contrast, in Germany, tax incentives to 'booking' of corporate pension liabilities and some tax disadvantages to pension funds have accompanied smaller externally funded plans. Recent imposition of taxes on contributions in Belgium may stunt growth, according to some commentators.

Compulsion ensures funds will grow and coverage will remain high regardless of fiscal incentives, although it may have adverse effects on labour supply and raise wage costs for low-income workers. In Denmark membership of funds is now compulsory for blue-collar workers, once collective agreements with unions are concluded.[62] There, fiscal treatment is less generous (a tax is imposed on real asset returns to pension funds above a certain level). But even before compulsion was introduced, funds proved attractive in the context of high income tax rates of up to 68 per cent. The French supplementary plans are also compulsory, but pay-as-you-go financing is enforced.

---

[62] More comprehensive compulsory funded schemes outside the EU include Australia, Switzerland, Chile and Singapore.

Funded sectors differ in terms of maturity,[63] which also influences the current and prospective asset/GDP ratio. In the UK, Ireland, Sweden and the Netherlands, defined-benefit plans are largely mature and hence the asset/GDP ratio is near a peak, although personal and defined-contribution funds could spur further growth in the United Kingdom. In Belgium, Denmark and Germany, immaturity of funded plans indicates further growth is likely.

A simple regression analysis (using the broader group of OECD countries covered in Davis (1995)) was carried out to test the main influences on the 'broad' pension asset/GDP ratio, using as independent variables the key factors identified above, namely the scope of social security, the tax regime, whether the scheme is mandatory and maturity of the scheme. Of course, such a regression cannot prove causality. Subject to this caveat, the equation does indicate the importance of these factors in discriminating between countries with small and large private funded sectors. It suggests that every one percentage point increase in the difference between social security replacement ratios at $20,000 and $50,000 is associated with a 1.2% higher asset/GDP ratio; a deviation from favourable 'expenditure tax' treatment of pensions is related to 21% lower funding; countries where there is compulsion have a 23% higher ratio, all other things being equal, and those with mature systems a 27% higher asset/GDP ratio. All variables were significant at the 95% level.

Detailed study of national funded sectors (Davis (1995)) suggests that other important factors in the development of occupational pension funds are the ability of employees to opt out of earnings-related social security for an equivalent private pension (as in the United Kingdom), funding of civil service pensions (Netherlands), and widening of coverage via encouragement of personal pensions (United Kingdom).[64] On the other hand development can be stopped by simply discouraging company-based externally funded plans, as has historically been the case in France.[65] And funding of social security in Sweden limits growth of private funds.

A striking feature of this analysis of the determinants of private funding is that development of funding (Table 8.1) appears to be only tenuously related to the underlying fundamentals. There is little correlation to the future ageing of the population in the different countries (Tables 2.5-2.7) and difficulties of social security (Chapter 6). These should predispose countries such as France, Italy, and Germany to extend the scope of funding. Costs of allowing tax exemption of contributions (particularly in the context of high current expenditures on pay-as-you-go),

---

63 That is, the degree to which they have existed for long enough to have a steady-state distribution of workers and pensioners.

64 As well as encouragement of supplementary defined contribution plans, as in the United States

65 Source; Wyatt Data Services (1993). France is currently in the process of introducing measures to encourage funded pensions (Jack (1997)); the reform would enable private sector companies to set up pension funds, providing a top-up to social security pensions for all of their employees. Contributions could be made, on a voluntary basis, by both employers and employees. Exemption from social security charges above a certain level would be the incentive to contribute. Note, however, that the draft bill had not yet completed its parliamentary procedure at the time of writing.

difficulties of transition, as well as preference for the ‘social solidarity’ of comprehensive pay-as-you-go, are among the reasons.

But it is widely suggested that owing to future demographic difficulties, a major shift to funded schemes in these countries is essential; see, for example, EFRP (1996). Davis (1995) offers some illustrative calculations of the potential size of pension funds in EU countries currently dependent on pay-as-you-go. An update of his figures based on 1994 data shows that, for example, if French pension funds were to reach the size of their UK counterparts in terms of shares of personal-sector assets, they would total $648 bn. Similar calculations for Germany give $707 bn in assets, which compares with the $965 bn market capitalisation of the German stock market In practice, personal-sector financial wealth would probably be boosted by a switch from pay-as-you-go to funding, so the increase in value of funds - and consequent stimulus to capital markets - would probably be significantly greater. It is notable that in the UK, where social security is less comprehensive, the ratio of personal financial wealth to GDP is more than 2, whereas in France and Germany it is below 1.5. In effect, capital gains have more than offset the relatively lower saving ratio in the UK. If French financial wealth reached the same level as that of the UK in relation to GDP, and pension funds attained the same share of personal wealth, the stock of pension assets would be over $990 bn.

9 Portfolios and performance of EU pension funds

An important policy issue is the influence of portfolio regulations on asset holdings of pension funds in a number of EU countries, and their impact on performance. These are widely held to diminish the efficiency with which funding may provide pensions, as a corollary reducing the overall attractiveness of funded schemes to sponsoring companies and to individuals.

Table 9.1 shows the patterns of portfolio distributions of pension funds for 1994 in a range of EU countries. There are marked differences, for example equity holdings varied from 4% in Spain to 80% in the United Kingdom, and foreign assets from 5% in France to 37% in Ireland. As background, estimates of real total returns and their standard deviations for 1967-90 are shown in Table 9.2.

Detailed analysis suggests that, as might be anticipated, liabilities, asset returns, taxation and risk reduction can be traced as important influences on pension funds' portfolios (Davis (1995, 1996a)). But portfolio restrictions (See Table 8.3) also play an important role. Such regulations have the ostensible aim of protecting pension fund beneficiaries, or benefit insurers, although motives such as ensuring a steady demand for government bonds may also play a part.[66] Limits are often imposed on holdings of assets with relatively volatile returns, such as equities and property, as well as foreign assets, even if their mean return is relatively high. There are also often limits on self-investment,[67] to protect against the associated concentration of risk regarding insolvency of the sponsor. Pension funds are naturally also subject to exchange controls, but all EU countries have abolished theirs.

Apart from the control of self-investment, which is clearly necessary to ensure funds are not vulnerable to bankruptcy of the sponsor, the degree to which such regulations actually contribute to benefit security is open to doubt, since pension funds, unlike insurance companies, face the risk of increasing liabilities as well as the risk of holding assets, and hence need to trade volatility with return.[68] Moreover, appropriate diversification of assets can eliminate any idiosyncratic risk from holding an individual security (such as an equity), thus minimising the increase in risk - and if national cycles and markets are imperfectly correlated, international investment will actually reduce otherwise undiversifiable or 'systematic' risk. At a macroeconomic level, international investment restrictions limit the possibility of burden-sharing between OECD and non-OECD countries.

Such limits may be particularly inappropriate for defined-benefit pensions, given the additional 'buffer' of the guarantee on the part of the company to the worker. Clearly, in such cases, portfolio regulations may affect the attractiveness to companies of funding pensions - and the generosity of

---

66 For example, in France, *caisses de retraite* must invest at least 50% of their assets in state bonds.

67 These limits do not, of course, apply to reserve funding systems such as those common in Germany, Austria and Sweden.

68 In practice, life insurers are more strictly regulated; see Davis (1990).

provision - if they constrain managers in their choice of risk and return, forcing them to hold low yielding assets and increasing their risks by limiting their possibilities of diversification.[69] They will also restrict the benefits to the capital markets from the development of pension funds; in particular, in the case of restrictions which explicitly or implicitly[70] oblige pension funds to invest in government bonds, which must themselves be repaid from taxation, there may be no benefit to capital formation and at a macroeconomic level the "funded" schemes may be equivalent to pay-as-you-go.

As shown, such limits apply in Germany, Sweden, Denmark, France, Portugal and Belgium. Less severe limits apply in Italy and Spain. Such limits are not, however, imposed in all the countries studied. Pension funds in the UK, Ireland and the Netherlands are subject to explicit or implicit 'prudent man rules' as in the US,[71] which requires managers to carry out sensible portfolio diversification; there are no limits to portfolio distributions other than a limit on self-investment.

Among the influences of such regulations that are apparent in portfolios is the fact that bonds constitute over two thirds of pension fund assets in Sweden and Denmark. In Denmark, bonds held by pension funds are subject to a tax on real returns, but equities are exempt. Thus, portfolio regulations force funds to hold tax-disadvantaged assets, as funds must hold 60% fixed-interest assets, despite the tax disadvantage to such assets. Investment of a fifth of the Swedish quasi-public funds' assets in government bonds casts some doubt on their efficacy as a means to protect against future risks to social security, given that the bonds are to be repaid by the taxpayer in the same way as they would to finance future social security burdens via pay-as-you-go. Similar comments can be made about the Dutch civil servants' pension fund (ABP), which was subject (until 1996) to severe portfolio restrictions, such that at end-1994 it held 80% of its assets in the form of public-sector bonds and loans. Funds in Belgium and France[72] are forced to hold a certain proportion of government bonds, although their actual holdings tend to exceed these ceilings, suggesting that other influences are at work. As regards equities, it was noted above that German funds are limited to a maximum of 36% by regulation - hence at 11% in 1994, the German ceiling was not binding.[73] Foreign-asset holdings are extremely low in such countries, despite the potential benefit in terms of risk diversification.

As suggested in Davis (1996a), funding rules, accounting standards, the structure of fund management and risk aversion of trustees may also play a role in inducing funds to hold large proportions of domestic debt instruments. A useful means of judging the cost of these regulations and market

---

69 Estimates of portfolio and asset returns are given in Table 9.2.

70 For example, by closing down all alternative investment strategies such as international diversification.

71 In the US, the precise wording is that fund money must be invested 'for the sole benefit of the beneficiaries' and investments must be made with 'the care, skill, prudence and diligence under the circumstances then prevailing that a prudent man acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character and with like aims'.

72 Similar restrictions held in Portugal until recently.

73 A non-binding ceiling need not mean that the limits have no effect, as funds may aim for an average holding well below the ceiling to avoid overshooting when asset prices are volatile.

imperfections - and hence the potential benefit to funds of liberalisation - is to assess pension funds' performance both relative to that in other countries without portfolio restrictions and to that of artificial portfolios. The patterns of portfolio distributions (Table 9.1) and risks and returns on assets can be used to derive estimates of the returns and risks on portfolios (Table 9.2[74]), and hence the cost to the firm of providing a given level of pension benefits (for a defined-benefit fund), or the return to the member (for a defined-contribution fund).

The most crucial test is ability of a fund to outperform real average earnings. Liabilities of defined-benefit plans are basically indexed to average earnings, while the replacement ratio a defined-contribution fund can offer will depend on asset returns relative to earnings growth.[75] The margin is sizeable (over 3% p.a.) in the United Kingdom and Ireland, and between 1% and 2% in Germany and the Netherlands. Except for Germany, these countries have 'prudent man' rules. The margin remains positive in Denmark, albeit only 0.8%. But in Sweden (for the government ATP fund) it is actually negative, implying that the returns on assets need to be constantly topped up to meet their target. This may relate to inefficient asset allocations, arising from portfolio restrictions. Taking the results at face value, and disregarding demographic issues, pay-as-you-go would have offered a higher rate of return than funding in this manner over this time period in Sweden.

In order to estimate the benefits/contributions trade-off, in the context of these portfolio choices, Table 9.3 shows the results of illustrative calculations on the relation between costs of providing pensions, average earnings and real returns (provided in Vittas (1992)). This gives an alternative expression of the cost of equity restrictions. The table shows the replacement rate that would be attainable given the real returns attained by funds in each country and the corresponding growth rates of wages shown in Table 9.2, assuming indexed pensions, a 10% 'defined' contribution rate, 40 years of contributions and 20 years of retirement. Abstracting from risk, the table illustrates clearly the benefits of a higher return relative to real earnings; assuming pensions are indexed to prices, UK funds can obtain a replacement ratio of 60% and Swedish funds only 14%. Conversely, to obtain a pension equal to 40% of average earnings, UK funds need a contribution rate of 6.7%, and Swedish funds of 29%.

As a further experiment, Table 9.4 shows the returns on artificial diversified portfolios holding 50% equity and 50% bonds between 1967 and 1990, implicitly assuming quantitative portfolio restrictions are replaced by prudent man rules. As noted, equity holdings for EU pension funds are generally below 50% (Table 9.1); in fact, these portfolios approximate closely those of pension funds in the

---

[74] Annual holding period returns on marketable fixed-rate instruments are used instead of redemption yields. In our view, the holding period returns are the more relevant measure for an ongoing portfolio, since they take full account of losses or gains due to interest-rate changes (although other assumptions regarding holding periods could also be made).

[75] It also indicates whether in practice the return to funding (the asset return) exceeds that on pay-as-you-go in a steady state (the growth rate of average earnings).

United States, where a prudent man rule is in operation. Compared with Table 9.2, the results confirm that returns may be boosted by raising the share of equity, at some cost in terms of risk, although the estimates suggest that risk is mitigated by international diversification.[76] Only for the United Kingdom and Ireland are returns consistently below those actually obtained. Several of the countries which fell below a satisfactory return on assets relative to average earnings (such as Denmark and Sweden) would have found provision of funded pensions less costly - of itself and relative to pay-as-you-go - if they had followed such a rule. German funds would also have boosted their headroom considerably.

Broadly speaking, this Chapter recommends the institution of prudent man rules to ensure pension funds may reach their risk/return optimum (see also EFRP (1996)). To a degree, depending on liabilities and the investment climate, this should in turn boost demand for equities. If funded sectors developed in France and Germany on a par with those in the UK, and equity proportions were around 50%, similar to US funds, the increase in demand for equities (for 1994) would be $324 bn and $354 bn, respectively.

---

[76] The table only shows international diversification up to 20% of the portfolio, holding bonds and equities for the 'rest of the world' in proportion to global portfolio weights in the 1980s. A full 'global portfolio', where domestic holdings are reduced to their weight in the global index, would imply over 95% international investment for the small countries, and over 80% even for the UK and Germany. Similar calculations for such a strategy (not shown in detail), with again 50% bonds and 50% equities, again shows lower risk in domestic currency, although the change in return may be in either direction.

10 Policy action at an EU level

The discussion of public and private pensions in this paper has focused so far on issues and policy initiatives at a national level. The issue arises as to whether action at the level of the Union may also have a role to play. For social security there are no proposals for pan-EU measures or initiatives to resolve the problem directly. In common with most other details of public finance, these remain subject to subsidiarity and hence are of purely national responsibility (although limited liberalisation of social security pensions permitting cross-border membership of social security schemes has been agreed). Details of national responses to current and future burdens of social security pensions were provided in Chapter 7. One point that may be made, however, is that the fiscal convergence criteria of the Maastricht Treaty, which provide for limits on deficits and debts as a precondition for entering EMU, have put a much greater focus on public finance issues than hitherto. In particular, attention is being paid to the influence of social security imbalances in contributing to current deficits. Equally, it is widely recognised that the need to correct public finance positions before the ageing of the population sets in gives a powerful additional justification to adhere to the Maastricht targets.

There has been more activity in the area of private funded pensions (Lannoo (1996)). Until mid-1994, the EU proposed 'Single Market' legislation to liberalise funded retirement provision in the form of a Pension Funds Directive. A draft Directive on funded pension schemes addressed, first, the freedom to offer services across borders (in other words, conduct of administration and fund management in another member state); and second, the liberalisation of investment throughout the Community (although some commentators noted that this freedom should already exist under the Capital Movements Directive). Freedom to offer services cross-border is of course an integral part of the EU Single Market; it has already been introduced for banking (see Davis (1993)), for insurance and for investment services. Proposed liberalisation of investment restrictions in the Directive aimed to eliminate unwarranted limits on certain investments; there was to be no privileged government access to finance by pension funds by means of minimum holdings of government bonds, no requirements to localise assets in individual member states, and no currency matching requirements that could not be justified on "prudential grounds". The Directive also set out principles of investment which would provide the context for these rules. These broad guidelines stressed security (necessitating consistent asset/liability matching, diversification and limited self-investment), liquidity and profitability. These are clearly in line with the concept of a prudent man rule (Chapter 9), although they were deliberately not set out in detail. They could nonetheless provide a basis for challenge of limits to domestic equity investment.

Under the draft Directive, countries were to be permitted to require matching of domestic liabilities with domestic assets of up to a certain percentage - itself a minimum requirement and hence inconsistent with the above. This was the point on which the Directive foundered (although there were also concerns about ability to freeze assets managed by a foreign fund manager). The

UK, Ireland and the Netherlands considered 60% (i.e. a 40% limit on foreign investment) to be a maximum acceptable degree of matching, and preferred no limits at all, while other countries wanted 80%, which is the same as in the Insurance Directives. A proposal by the Belgian EU presidency for a compromise on 70% was not acceptable.

The current approach of the Commission seems to be one of applying the Capital Movements Directive to the problem of international investment, and attacking the existing regimes in the more restrictive member states for not constituting 'reasonable prudential restrictions' as defined in the Directive. To this end, it issued a communication in which it sought to clarify the Rome Treaty rules on the free movement of capital, which member states were asked to obey (Cohen and Tucker (1995)), with a threat of action in the European Court if they did not. These guidelines suggest that imposition of both minima and maxima for asset classes, as well as more than 60% currency matching, is contrary to the Treaty. At the time of writing France and Spain have challenged this communication as going beyond the rights of the Commission. Nevertheless, Commissioner Monti declared in June 1996 that further action would be undertaken by the Commission. He planned to write to member states with restrictions considered unjustifiable on prudential grounds, asking them to remove them. Failure to act could lead to action in the European Court.

Meanwhile, discussions continue on a third proposal contained in a recent consultative paper, namely the freedom for pension schemes to operate across national boundaries on the basis of home state authorisation and for individuals to join schemes in other member states. This is seen as a very difficult issue, particularly owing to the need for countries to agree on funding standards, as well as fiscal differences; but it is also the most important for labour mobility and the completion of the single market, where labour mobility within the EC is much lower than in the US, for example. A first step is to cover only migrant and 'frontier' workers, i.e. those living in one state and working in another, and to provide for mutual recognition of pension funds based in other member states. The existing provision for cross-border membership of social security schemes for a limited period is hoped to provide the basis for such an agreement.

Finally, Commissioner Monti announced in June 1996 that it is proposed to widen Commission action on pension funds via a report on their regulation to cover points such as whether pension funds and life insurers should not share the same regulation; the need for optimising investment opportunities; the need for efficient capital markets; the issue of cross-border labour mobility; the impact of taxation on pension funds; the need for a global view and co-ordination at an EU level; and the issue of pension mobility.

11 Conclusions

The issues posed to EU countries by future demographic trends are particularly acute. They are facing a rapid ageing of the population, owing to a decline in fertility combined with greater longevity and a decline in migration flows. This process is already under way, and in many countries is interacting in an adverse manner with features of national social security pension systems, including not only their generous benefit promises but also the early retirement facilities that are on offer. Poor economic performance, including the high level of structural unemployment and adverse fiscal positions, are generating further difficulties for these systems. Moreover, generous social security provisions, notably when there is no perceived link between contributions and benefits, are likely to induce major distortions to both labour and financial markets.

Social security reforms are already under way in many EU countries; in most cases they have succeeded in reducing the future growth of pension expenditure/GDP ratios below that of the elderly dependency ratio, whereas previously reforms expenditures were often set to grow in excess of it. Nevertheless, projections suggest that difficulties will worsen significantly in the next century in a number of countries unless further action is taken. One indicator is that expenditure/GDP ratios are set to rise sharply; another is that estimates of the discounted present value of future pension expenditures net of contributions are well in excess of conventional government debt for many EU countries. The interaction of ageing with overall economic performance may increase the future difficulties for social security, by reducing saving and labour market efficiency, although not all authors are agreed on this point. Ageing will also probably raise demand for health care and other social services.

The various estimates differ, but on balance difficulties arising from the budgetary costs of social security pension provisions seem likely to be particularly acute in Belgium, Spain, Greece, France, Italy, Finland, Germany Luxembourg, Austria and Portugal. In contrast, the UK, Ireland, Denmark and the Netherlands are in a relatively favourable situation. Sweden is in an intermediate position.

The fact that ageing becomes particularly rapid after 2010 suggests that until then there is a window of opportunity for reform, in countries facing future difficulties. Not that reform should be delayed until then. Delay could be dangerous, inter alia as vested interests in favour of the status quo will strengthen as the proportion of the population approaching or above retirement age will increase. Rather, the window of opportunity should be seen as facilitating early introduction of decisive but gradual reform, which gives individuals time to adjust their plans and pre-empt opposition that would otherwise be likely to form.

Experience of reform in EU countries, as well as the theoretical literature, suggest a wide range of potential future reforms which could help to make the system of retirement income provision viable during the demographic shift.

In the context of current pay-as-you-go schemes, increases in the retirement age - and even encouragement of work beyond retirement - would seem particularly warranted. The rise in life expectancy gives ample scope for raising retirement ages. This needs to be complemented by curtailment of early retirement provisions and reduction of incentives to early retirement. This requires elimination of any excessive generosity in an actuarial sense, which might otherwise reward those retiring early. A strict relation of pension to contributions is one example. Private pension schemes should also be tailored to avoid an incentive for firms to lay off workers approaching retirement as their pension accruals increase. Adopting an average-salary defined-benefit scheme or a defined-contribution scheme rather than a final-salary defined-benefit scheme is helpful in this respect. A higher minimum retirement age may also be needed, as well as better retraining for old workers ('investment in human capital' so that workers are productive for longer) and reconsideration of hiring, firing and automatic age-related pay practices. Policy-makers need to avoid the fallacy that it is only by encouraging early retirement that jobs can be 'released' for the young. Given the relatively high activity rates of the 55-65s in the UK, Portugal, Denmark and Ireland, these countries may offer lessons to others regarding policies against early retirement.

Raising the number of contributors through a higher labour-force participation ratio for younger age groups could be a complementary further aim to pursue in alleviating the burden of pensions, although obviously this is linked to the resolution of the more general problem of unemployment. Higher participation might be achieved by improving both employment incentives and prospects for those of working age who are not currently active. Labour market deregulation is an important line to pursue. Child care facilities (as in Scandinavia) and investment in the human capital of the young are also helpful in this regard. It is notable that the Scandinavian countries (and the UK) show the highest rates of labour force participation - and high fertility rates.

Among other reforms of social security pensions, price indexation instead of wage indexation of pension benefits, reductions in replacement ratios and, where feasible, a switch from an insurance-based scheme to a basic scheme offering flat-rate pensions would seem to be appropriate. Such a switch would take care of the poorest individuals for whom funding is inappropriate, while inducing the better-off members of society to save for their retirement. Other options include cutting credits for periods of higher education, reducing privileges to public employees and tightening controls on eligibility for disablement pensions. Taxation of the elderly in line with those of working age can also help to spread the burden of ageing. More generally, it is widely recognised that the need to correct public finance positions before the significant ageing of the population sets in gives a powerful justification for fiscal consolidation.

In the context of overall reforms, it is suggested that funding of private pensions could provide considerable assistance to social security, although given the advantage of pay-as-you-go in poverty alleviation, as well as the costs of refinancing the accrued liabilities of social security, it may not entirely supplant it. Funded schemes have the advantage of being actuarially fair by nature, and hence they minimise distortion to incentives in labour markets and financial markets, thus helping increase economic efficiency and growth. Funding also provides the domestic economy with a source of long-term saving; it may raise saving per se and hence long term growth potential. It offers the possibility of burden-sharing on a global scale via international investment of residents of 'older' countries in 'younger' ones. Funding helps the elderly by diversifying risk across the 'pillars' of retirement income and potentially offers a source of greater security in terms of their claims for retirement income (property rights as opposed to the 'contract between the generations'). They also have some disadvantages (such as investment risk in the case of defined-contribution funds, and hindrance of labour mobility for defined-benefit funds[77]).

The degree to which private pensions have developed varies considerably between EU countries. 'Crowding-out' by social security as well as fiscal and regulatory difficulties stunt the growth of private pensions in many EU countries. It is no coincidence that the countries facing the greatest difficulties as set out above are those with generous social security and rather small funded sectors, while those in a favourable situation, such as the UK, Ireland and the Netherlands, are countries which have developed funded sectors.

Study of the policies adopted in such countries is hence warranted. Curtailment of social security promises for higher-income earners, tax deductibility of pension contributions and asset returns and 'prudent man rules' for asset management (which enable funds to find an appropriate risk/return trade-off) are among the key policies to pursue. Compulsory provision of private pensions is another option.[78] National experience suggests that funding may also be increased by introducing provisions for employees to opt out of earnings-related social security for an equivalent private pension, funding of civil service pensions, and widening of coverage via encouragement of personal pensions. A broader description of the types of regulation warranted for funded pensions is provided in Davis (1995).

---

[77] Hindrance of labour mobility is reduced or eliminated when 'transfer circuits' are in operation, and/or benefits are based on average salaries (indexed appropriately to inflation).

[78] Outside the EU, such a policy is adopted in Australia and Switzerland, and in the EU there is compulsion for some sectors in Denmark and the Netherlands. It protects those who would otherwise not save for retirement, takes a greater proportion of employees out of social security than would voluntary provision, and may reduce biases in coverage under voluntary schemes, such as a focus on male, white-collar, unionised workers. Lower tax benefits may be offered, improving the fiscal situation. On the other hand, there may be labour market distortions and the unavoidable increase in employers' contributions may affect competitiveness.

Nevertheless, a difficulty that has to be faced by countries with generous social security is to finance the transition towards a relative increase in reliance on funding. There may be resistance to one generation 'paying twice', for their parents' pay-as-you-go pension and for their own funded pensions. A prior reduction in benefit promises of pay-as-you-go, a gradual shift to funding, and an equitable imposition of taxation on the elderly (including social security contributions), may be helpful in this respect.

Action at an EU level may also prove helpful to the future development of private pensions. Certainly, the objectives of the failed Pension Funds Directive - the freedom to offer services across borders (i.e. conduct of administration and fund management in another member state); the liberalisation of investment throughout the Union; and the freedom for pension schemes to operate across national boundaries on the basis of home state authorisation and for individuals to join schemes in other member states - would all have entailed positive steps. Although the Directive failed, the objectives are still being pursued by the Commission in other fora.

Bibliography

Aaron, H. J. (1966), 'The social insurance paradox', Canadian Journal of Economic and Political Science, 32, 371-77.

Atkinson, A. B. (1991), 'The development of state pensions in the United Kingdom', Discussion Paper No. WPS/58, STICERD, London School of Economics.

Auerbach, A. J., Kotlikoff, L. J., Hagemann, R. P. and Nicoletti, G. (1989), 'The economic dynamics of an ageing population: the case of four OECD countries', Department of Economics and Statistics Working Paper No. 62, OECD, Paris.

Balassa, B. (1984), 'The economic consequences of social policies in the industrial countries', Weltwirtschaftliches Archiv, 2/84.

Barro, R. J. (1974), 'Are Government Bonds Net Wealth?', Journal of Political Economy, 82, 1095-1117.

Besseling, P. J. and Zeeuw, R. F. (1993) 'The financing of pensions in Europe: Challenges and opportunities', Research Memorandum, No. 111, Central Planning Bureau, The Netherlands.

Bikker, J. A. (1996), 'National savings, the current account and ageing populations, a pension fund model', Economic and Financial Modelling, Summer 1996, 1-20.

Bodie, Z. and Merton, R. C. (1992), 'Pension benefit guarantees in the United States; a functional analysis', in ed. R. Schmitt, 'The future of pensions in the United States', University of Pennsylvania Press.

Börsch-Supan, A. (1996) 'The impact of population ageing on savings, investment and growth in the OECD area', in 'Future global capital shortages - real threat or pure fiction?', OECD, Paris

Bos, E. (1994), 'World Population Projections 1994-95', The World Bank, Washington DC.

Cohen, N. and Tucker, E. (1995), 'Fund investment rules 'a matter of sovereignty'', Financial Times, 10th May.

Cutler, D., Poterba, J., Sheiner, L. and Summers, L. (1990), 'An ageing society, opportunity or challenge?', Brookings Papers on Economic Activity, 1.

Davis, E. P. (1990), 'International investment of life insurance companies', European Affairs, Special Edition on the European Financial Symposium, 240-259.

Davis, E. P. (1993), 'Problems of banking regulation, an EC perspective', LSE Financial Markets Group Special Paper.

Davis, E. P. (1995), 'Pension Funds, Retirement-Income Security and Capital Markets, an International Perspective', Oxford University Press.

Davis, E. P. (1996a), 'Pension fund investments' in ed. B. Steil, 'The European Equity Markets', Royal Institute of International Affairs

Davis, E. P. (1996b), 'International Experience of Pension Fund Reform and its Applicability to the Netherlands', Working Paper No. 96-11, Pensions Institute, Birkbeck College, London.

Davis, E. P. (1996c), 'The role of institutional investors in the evolution of financial structure and behaviour', in ed. M. Edey 'The Future of the Financial System; Proceedings of a Conference', Reserve Bank of Australia, Sydney, Australia.

Davis, E. P. (1997), 'Private Pensions in OECD Countries; the United Kingdom', Organisation for Economic Co-operation and Development, Paris.

Diamond, P. A. (1993), 'Privatisation of social security; lessons from Chile', Working Paper No. 4510, National Bureau of Economic Research.

Dilnot, A., Disney, R., Johnson, P. and Whitehouse, E. (1994), 'Pensions Policy in the UK, an Economic Analysis', Institute for Fiscal Studies, London.

Disney, R. and Johnson, P. (1995), 'The strange death of a pension scheme', Financial Times, 3rd February.

EFRP (1996), 'European Pension Funds, their Impact on Capital Markets and Competitiveness', European Federation for Retirement Provision, Brussels.

EMI (1996), 'Progress towards convergence 1996', European Monetary Institute, Frankfurt

Ermisch, J., (1995), 'Demographic developments and European labour markets', Scottish Journal of Political Economy, 42, 331-46.

Eurostat (1992), 'Digest of statistics on social protection in Europe, Volume 1, Old Age', Eurostat, Luxembourg

Eurostat (1993a), 'Old age replacement ratios Volume 1', Eurostat, Luxembourg

Eurostat (1993b), 'Family budgets, comparative tables 1988, old person or couple', Eurostat, Luxembourg

Eurostat (1995a), 'Labour force survey results 1993', Eurostat, Luxembourg

Eurostat (1995b), 'Social protection expenditure and receipts 1980-93', Eurostat, Luxembourg

Eurostat (1995c), 'Demographic statistics 1995', Eurostat, Luxembourg

Falkingham, J. and Johnson, P. (1993), 'The life cycle distributional consequences of pay-as-you-go and funded pension systems: a microsimulation modelling analysis', paper prepared for World Bank study 'Income Security for Old Age'.

Feldstein, M. (1974), 'Social security, induced retirement and aggregate capital formation', Journal of Political Economy, 82, 905-6.

Feldstein, M. (1977), 'Social security and private saving; international evidence in an extended life cycle model', in ed M. Feldstein and R. Inman 'The economics of public services', International Economic Association.

Feldstein, M. (1995a), 'Social security and saving, new time series evidence', NBER Working Paper No. 5054.

Feldstein, M. (1995b), 'Would privatising social security raise economic welfare?', NBER Working Paper No. 5281.

Franco, D. (1995), 'Pension liabilities, their use and misuse in the assessment of fiscal policies', European Commission Economic Paper No. 110.

Franco, D. (1996), 'The taxation of funded pension schemes and budgetary policy', European Commission Economic Paper No. 117.

Franco, D. and Frasca, F. (1992), 'Public pensions in an ageing society - the case of Italy', in ed. Mortensen, J., 'The Future of Pensions in the European Community', published by Brassey's, London, for the Centre for European Policy Studies, Brussels.

Franco, D. and Munzi, T. (1996), 'Pension expenditure prospects in the European Union; a survey of national projections', European Economy, 3/1996, 1-126.

Frijns, J. and Petersen, C. (1992), 'Financing, administration and portfolio management; how secure is the pension promise?', in 'Private Pensions and Public Policy', Organisation for Economic Co-operation and Development, Paris.

Hagemann, R. P. and Nicoletti, G. (1989), 'Ageing populations; economic effects and implications for public finance', Department of Economics and Statistics Working paper No 61, OECD, Paris.

Heller, P. and Sidgwick, E. (1987), 'Ageing, savings and the sustainability of the fiscal burden in the G-7 countries', mimeo.

Heller, P., Hemming, R. and Kohnert, P. W. (1986), 'Aging and social expenditures in major industrial countries 1980-2025', Occasional Paper No. 47, International Monetary Fund, Washington DC.

Holzmann, R. (1997), 'On economic benefits and fiscal requirements of moving from unfunded to funded pensions', Forschungsbericht 9702, University of Saarland

IMF (1996), 'World Economic Outlook, May 1996', International Monetary Fund, Washington DC

Jack, A. (1997), 'France prepares to top-up its private sector pensions', Financial Times, 6th January.

Johnson, P. and Zimmerman, K. F. (1993), 'Labour markets in an ageing Europe', Cambridge University Press

Keyfitz, N. (1985), 'The demography of unfunded pensions', European Journal of Population, 1, 5-30.

Kuné, J. B. (1996), 'The hidden liabilities; meaning and consequences ', Paper presented at the CPB seminar series, November 26th 1996, the Hague

Lannoo, K. (1996), 'The draft Pension Funds Directive and the financing of pensions in the EU', The Geneva Papers, 78, 114-26.

Leibfritz, W., Roseveare, D., Fore, D. and Wurzel, E. (1996) 'Ageing populations, pension systems and government budgets - how do they affect saving?', in 'Future global capital shortages - real threat or pure fiction?', OECD, Paris

Masson, P. and Tryon, R. W. (1990), 'Macroeconomic effects of projected population ageing in industrial countries', IMF Staff Papers, 37, 453-485.

Masson, P., Bayoumi, T. and Samiei, H. (1995), 'International evidence on the determinants of private saving', IMF Working Paper No. W95/51

Miles, D. (1996), 'Demographics and saving; can we reconcile the evidence?', mimeo, Imperial College, London.

Miles, D. and Patel, B. (1996), 'Saving and wealth accumulation in Europe, the outlook into the next century', Merrill Lynch, Financial Research, 3 June 1996

Munnell, A. H. (1987), 'The impact of public and private saving schemes on saving and capital formation', in 'Conjugating public and private, the case of pensions', International Social Security Association, Studies and Research, 24, 219-36.

OECD (1988), 'Reforming public pensions', Organisation for Economic Co-operation and Development, Paris.

OECD (1993), 'Pension liabilities in the seven major industrial countries', Organisation for Economic Co-operation and Development, Paris.

OECD (1995), 'Economic Outlook', Organisation for Economic Co-operation and Development, Paris

Oxley, H. and MacFarlan, M. (1994), 'Health care reform; controlling spending and increasing efficiency', Economic Department Working Paper No. 149, OECD, Paris.

Roseveare, D., Leibfritz, W., Fore, D. and Wurzel, E. (1996), 'Ageing populations, pension systems and government budgets: simulation for 20 OECD countries', Economics Department Working Paper No. 168, OECD, Paris.

Schlesinger, H. (1985), 'Die Finanzierung der sozialen Sicherheitssysteme bei geringerem wirtschaftlichem Wachstum und schrumpfender Bevölkerung', from Band XXVIII 'Veränderungen in der Arbeitswelt und soziale Sicherung', Verlag Chmielorz, Wiesbaden.

Thompson, L. H. (1992), 'Social security surpluses', New Palgrave Dictionary of Money and Finance, MacMillan, London.

Vittas, D. (1992), 'The simple(r) algebra of pension plans', Mimeo, The World Bank.

World Bank (1994), 'Averting the old age crisis; policies to protect the old and promote growth', The World Bank, Washington DC.

Wattenburg, B. (1987), 'The Birth Dearth', Pharos Books, New York

Wyatt Data Services (1993), '1993 Benefits Report Europe USA', The Wyatt Company, Brussels.

Appendix: Pension reform in the UK

In the paper, it was noted that the United Kingdom shows rather few of the difficulties in social security that beset other EU countries, and has a well-developed private pension sector. This Appendix seeks to provide some further details of the social security reforms which have brought about this situation.[79]

Since the introduction of the compulsory social insurance scheme, after the Beveridge Report in the 1940s, the UK has offered a *basic pension*, intended to provide a means of subsistence, i.e. largely intended as a form of poverty alleviation. The level of the basic pension has varied over time in relation to average earnings. Until 1970 it was typically raised in an ad hoc manner and did not always keep pace with inflation. During the 1970s it was raised in line with earnings or prices, whichever was the greater, thus leading to a marked boost. Since the early 1980s indexation has been only to prices. As a consequence of these changing policies, between 1948 and 1973 the pension rose twice as fast as prices, and the level in relation to average earnings peaked in 1977 at 20% of average earnings. Since then it has fallen relative to average earnings, such that by 1994 the ratio was only 18%.

The basic pension is not seen as adequate alone to provide income for retirement; and indeed minimum income levels prescribed for social security purposes typically exceed the basic pension. This is illustrated by the fact that a third of pensioners - around 3.1 million individuals - receive additional means-tested benefits. These means-tested benefits have the major drawback for economic efficiency that they discourage saving, since there are strict minimum limits on assets held before payment can be considered. On the other hand, given the growing inequality among pensioners, means-tested benefits do have the advantage of going only to those who really need them.

This basic scheme is supplemented by a *state earnings-related pension scheme (SERPS)*. It was introduced in 1978, following the 1975 Social Security Act, as a replacement for the more modest 'graduated pension' introduced in 1961. It was from the start intended as a form of back-up for the minority of the working population not in occupational pension funds. Entitlements are calculated as 1.25% of average revalued earnings for each year of membership of SERPS up to 20 years. The best 20 years of earnings are revalued to the retirement date using the annual increase in average earnings. SERPS hence currently offers a maximum replacement ratio of 25% of revalued earnings. Consequently, in combination with the basic pension, a worker on average earnings with full contributions may currently obtain a replacement ratio of just over 40%. As discussed below, however, SERPS is due to be cut back in the future.

Contributions to SERPS are payable on income between about 0.2 and 1.3 times average earnings - the lower and upper earnings limits as defined above, respectively. Employee contributions for those contracted in to SERPS (including basic pension entitlements) in 1995 are 2% of earnings at the lower earnings limit rising to a maximum

---

[79] For further detail see Davis (1997).

of 10% of earnings at the upper earnings limit. Employer contributions are 3% at the lower earnings limit, and 10.2% on income at and above half the upper earnings limit. Those below the lower earnings limit are not entitled to SERPS and must rely on the basic pension (which is approximately equal to the lower earnings limit).

Neither the basic pension nor SERPS is funded; both are provided on a pay-as-you-go basis. The Government Actuary periodically assesses whether contribution rates need to be adjusted to keep the schemes solvent.

Concerned with the potential burden on future generations, the UK government in the 1986 Social Security Act reduced the maximum benefits from SERPS as and from April 1999 from 25% to 20% of earnings. This was done by reducing the credit for years of contributions from 1.25% to 1%, and changing the wage base from the best 20 years to a lifetime average. Atkinson (1991) has calculated that this could cut the pension of someone earning 120% of average earnings for the best 20 years of his career from 42% to 33% of final salary. This casts doubt on whether social security, even including SERPS, can provide adequate retirement income for those retiring after 2000 and dependent solely on social security.

Three further developments may be highlighted which reinforce this point. First, in the future the replacement ratio may decline further if the basic pension continues to be indexed to prices. Moreover, as regards the likely evolution of SERPS in the future, since the upper earnings limit is indexed to the basic pension, it is falling as a proportion of average earnings. It has already fallen from 140% to 120%. If the rules are not changed, the upper earnings limit will be only 60% of average earnings in 2030, and the maximum SERPS entitlement could be as little as 10% of average earnings. Third, the 1995 Pensions Act had the effect of reducing SERPS entitlements further, by changing the method of calculating the proportion of earnings on which SERPS is paid. As a result of changes in indexation procedures, the amount of earnings from earlier years which count towards SERPS will fall, reducing the amount of the pension (Disney and Johnson (1995)). By 2040 this measure may cut the cost of SERPS in half, in real terms.

A key element of the social security regulations which has underpinned the growth of occupational pension schemes is the ability of employees to opt out of SERPS. This emphasises the point noted above that SERPS is a back-up for individuals unable or unwilling to use private pensions. Indeed, ability to opt out of earnings-related social security is one explanation for the high pension asset/GDP ratio in the UK. The only other OECD country with such a system of opting out of part of social security is Japan.

When employees with company pensions 'contract out' in this way from all but the most basic state scheme, there are corresponding reductions in employers' social security contributions equivalent to the estimated cost of providing the liability of the earnings-related pension via funding. This so-called contracted-out contribution rebate was initially 7% of the difference in earnings between the upper and lower earnings limits; in 1995 it was 4.8% (1.8% for the employee and 3% for the employer). Not all pension funds take advantage of this system; some occupational funds are 'contracted in' and thus only provide benefits over and above SERPS, but the majority are contracted out. In 1991, 9.7 million pension scheme members were contracted out (representing

68% of employees) and 1 million are contracted in. The latter represented 5% of employees; of these, 3% have SERPS plus a defined-benefit scheme and 2% SERPS plus a defined-contribution scheme; 12% of employees were wholly dependent on SERPS.[80]

The majority of those opting out of SERPS still take an occupational defined-benefit plan. This must at the time of writing[81] offer a pension at least as good as the 'Guaranteed Minimum Pension' (GMP). Before retirement the GMP is indexed up to 7.5% or average earnings, whichever is the lower, for early leavers; it is indexed after retirement at up to 3%. The GMP is roughly equivalent to the difference between the basic state pension and the SERPS earnings-related benefit. Since there is often a shortfall between the 3% guaranteed indexation from the firm and actual inflation, to which SERPS is indexed, a pensioner receiving the GMP would usually receive some social security pension to take him up to the SERPS level.[82] A contracted-out fund must also provide a widow's or widower's pension at a rate of half the member's pension. Pensions may not normally commence before age 50 and not after age 75.

Since 1988 there has also been the possibility to opt for an occupational or personal defined-contribution plan. This may involve either contributions at least as large as those required for the GMP, or contributions at least equal to the contracted-out contribution rebate (as for defined-benefit funds). For a personal pension, a minimum contribution, equal to the contracted-out contribution rebate, is paid by the government - although an individual may also make further voluntary contributions to such personal pensions.[83] Social security regulations require the division of such personal pensions into two parts; first, the national insurance rebate which is used to buy a so-called 'protected rights pension' equivalent to SERPS, and the remainder, the so-called 'personal fund' including employees' and employers' contributions. Regulations state that the so-called 'protected rights' element of UK personal pensions must be taken at the earliest at age 60 and indexed up to a 3% inflation rate. The disposition of the remainder is more flexible in terms of timing and type of annuity; 25% of the value of the fund at retirement (excluding the protected rights) can be obtained as a tax-free lump sum.

In both defined-benefit and defined-contribution cases there is a form of safety net; an individual who is contracted out may still receive some earnings-related pension, if the guaranteed minimum pension[84] payable from a pension fund falls short of the amount of social security to which the employee would have been entitled if not contracted out. Equally, the protected rights element of a personal or defined-contribution fund is guaranteed.

---

[80] The remaining 15% of employees either earned too little to reach the lower earnings limit (12%) and hence had no right to a supplementary pension, or paid the married woman's reduced contribution (3%).

[81] The 1995 Pensions Act foreshadows abolition of the GMP as from April 1997 and replacement by a 'Requisite Benefits Test'. The minimum pension will be based on that of a 'reference scheme' accruing 1/80th per year of service applied to an earnings definition based on 90% of the member's earnings which would qualify for SERPS averaged over the last three years of service.

[82] The 1995 Pensions Act proposes to remove this additional layer of protection, so that existing rights to the GMP would only be indexed up to 3%.

[83] Since individuals often do not make further contributions, there is a risk of extremely low replacement ratios for a significant proportion of personal pension holders.

[84] Henceforth, the cover will only be for the more modest 'Requisite Benefits Test'.

Besides providing the general ability to opt out, the government, from 1988 to 1993 also offered further special incentives to individuals without a company pension scheme and who were thus dependent on SERPS to take a personal (defined-contribution) pension instead of an earnings-related state pension. Inducements were rebates of past contributions to the earnings-related scheme and an option to re-enter, as well as an increase of 2% in the rebate. In 1993 the bonus was reduced to 1% only for the over-30s - in an attempt to discourage this age group from contracting back into SERPS.

One may conclude that social security in the UK has both proceeded from modest intentions and also has been reduced quite significantly in its scope and ambition in recent years. Dilnot et al. (1994) argue that this reflects 'political risk' resulting from conflicts over the cost of social security pensions and the burden of the scheme on successive generations. This pattern of political risk has resulted in pensioners receiving social security pensions, both now and in the future, which are quite unrelated to those they were promised when they entered the labour force. In effect, there would appear to be a risk of poverty for those retiring on social security pensions in the future. This has also provided a major spur to development of private pensions, and notably in recent years personal pensions.