Paying for pensions: how important is economic growth? *

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1. Introduction and summary

One of the major structural changes facing OECD economies is the adjustment to an older and slower-growing population. Ageing and lower fertility rates will result in a smaller proportion of the population being of working age, particularly in the years after 2010. OECD estimates for the area as a whole, based on constant participation rates, suggest that by 2030 there could be a marked increase in the share of elderly people relative to the number of people employed, with only two people in employment for every elderly person, compared with the current proportion of 3, and about 5 in 1960. One consequence of a contracting or slower growing labour force will be reduced improvement in living standards. A few years ago, OECD estimates based on a dynamic general equilibrium macroeconomic model suggested that the cumulative effect by mid-century could be to reduce Japan's living standards – measured by GNP per capita adjusted for terms of trade effects – by 23%, the European Union's by 18% and the United States' by 10% below the level they might have reached extrapolating current productivity trends with unchanged dependency ratios.[1]

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[1] For details on the model, the underlying assumptions used and the simulated scenarios, see Turner *et al.* (1998).

Even if these estimates should be revised to take account of recent budgetary changes, pension reforms and projections as well as likely trend productivity changes, the orders of magnitude are indicative of the problems ahead. Not only will the ageing of population significantly affect living standards, but it also creates critical problems for fiscal policies. Fewer workers supporting more retirees who live longer will put fiscal positions in OECD countries under increasing pressure, as public pension payments rise and absorb a growing share of total social outlays. With a rising share of the elderly, health care spending is also likely to increase, particularly as the share of the very old (80 years old and above) is expected to rise from less than 3% to more than 8% of the OECD population over the next 50 years, and this age group is one of the biggest users of health care services.

How will these pensions and health care obligations be paid for? The OECD has extensively analysed the forces behind ageing populations and the factors driving the trend towards early retirement, the likely impacts on living standards and the policy challenges invoked by these structural shifts. The conclusion has been that maintaining the *status quo* is not an option, as in no circumstances would it ensure an adequate retirement income for the aged and at the same time limit the taxation burden for the active population. It should be stressed that the OECD perspective emphasises the need for action on many fronts, cutting across traditional boundaries of economic, financial and social disciplines.[2]

The analysis is currently being extended, with particular attention to the specific pension system frameworks in individual countries, and through increased efforts to improve cross-country comparisons of ageing pressures. Part of this work is conducted in parallel with a similar effort by the European Commission. After considering, in the following section, the possible budgetary impacts of ageing populations, this paper will focus on one, albeit wide-ranging response to the problems posed by ageing in OECD economies: that is, the scope for a higher level of output and faster productivity growth to ease expected future fiscal pressures. More specifically, the third

[2] For further details, see OECD (1998a and 2000a). See also Visco (2000a). The OECD has also examined, or will do so over the next few months, the issue of ageing populations in nine countries as part of its economic surveys of member economies. These countries are Australia, Finland, Iceland, Italy, Korea, Norway, Spain, Switzerland and the United States. A summary paper will appear in the spring of 2002.

section will consider the effects on pension expenditures, relative to output, from higher output levels associated with an enhanced employability of the population, and from increased rates of productivity growth. The final section will put these effects into a wider perspective, considering whether they may reduce the urgency of needed reforms.

The main conclusions of this paper may be summarised as follows:

– The scale of the problem is confirmed to be significant. Ongoing work at the OECD, in parallel with work at the European Commission, suggests that pressures on government spending linked to ageing populations will peak for most European countries between 2030 and 2050. Pension expenditures to GDP in the European Union countries could rise on average by about 3 percentage points between now and 2050. While health expenditures are more difficult to project, recent estimates for an important subset of OECD member countries suggest that just the outlays on long-term care relative to GDP could increase in the order of half a per cent of GDP by 2020. This is in line with estimates of a few years ago, which pointed to a gradual rise of total government health expenditures by more than 2 percentage points relative to GDP over the next 50 years.

– No single policy initiative can redress these fiscal pressures. Responses need to focus on achieving an increase in the average number of years individuals spend actively in the labour force and in the level (as well as a widening of the sources) of individual provision of retirement income. Reforms require advance notice and gradual implementation, and this leaves no room for complacency. This is a major challenge for policy makers, as they need to anticipate problems and build support for reforms even though the impacts are only likely to be seen one or two decades down the road. Nevertheless, some progress has been made, for instance towards encouraging an increase in the average number of years worked. Improvements are, however, uneven across countries and in many cases more reforms are required.

– In this respect, increasing output and its rate of growth may offer a complementary response. A higher level of per capita output directly limits the negative impact of ageing on living standards and provides additional revenue resources to help finance higher government pension and health care expenditures. But raising the

level of output is not *per se* a solution to the fiscal pressures that result from ageing populations in OECD countries. The extent to which it helps to ease budgetary pressures depends on how higher output per capita is achieved and how the transfer of resources between the young productive population and the elderly occurs.

– If output is increased through higher utilisation of labour, for example via higher female or elderly workers' participation rates, it could lower the level of pension spending relative to GDP compared to its path otherwise. In Europe, over the next 50 years, this might lead to a lower rise of this ratio by around half a percentage point, or slightly more, compared to the central tendency increase of about 3 percentage points. It should also be pointed out that increased labour utilisation would also lead to a build-up in implicit government pension liabilities, which the state will have to honour in the future, while providing for higher government revenues from today.

– If, instead, growth performance is improved through gains in productivity, the effect on the ratio of pension spending to GDP might not be significant for those countries where pension benefits are directly linked to wages. Even in countries where the link is not institutionalised, calls to maintain some element of parity with wages might be, based on past experience, difficult to counter. If, however, pension benefits were not indexed to productivity, the gains may be of significance and perhaps larger than those obtained by increased labour force participation. In any case, higher growth rates, without lessening the urgency for significant pension reforms, would certainly extend their scope while limiting the burden for the population at large.

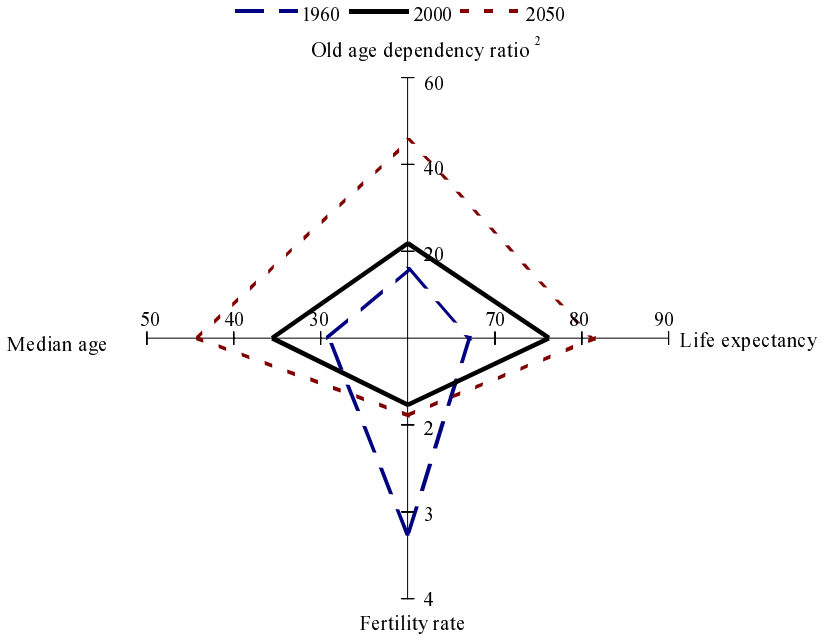
2. The budgetary impacts of ageing populations

The increasing number of elderly people is largely due to the post-war 'baby boom' generation moving through the age structure, but also to the fact that people are living longer and fertility rates have fallen (Figure 1). As a consequence of these demographic trends, the old-age dependency ratio is projected to show a marked increase over the coming decades in virtually all OECD economies. For the OECD area

as a whole, the number of people aged 65 years and over relative to the number aged between 20 and 64 years is expected to double in the next five decades to reach almost 50%. Considerably sharper increases are expected among some of the major continental European countries and Japan (Figure 2).

FIGURE 1

DEMOGRAPHIC PRESSURES IN THE OECD AREA[1]



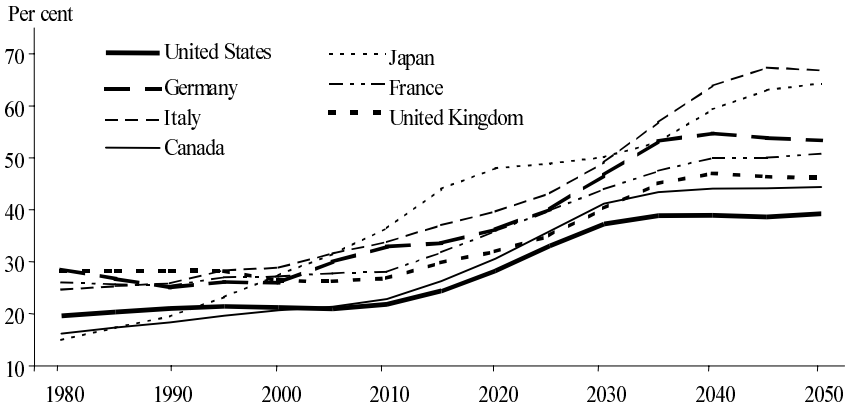
[1] Weighted average of OECD countries, based on total population shares in each period.
[2] Population aged 65 and over as a percentage of the population aged 20-64.
Source: United Nations Population Division, *World Population Prospects: The 1998 Revision*, New York, 1999.

These demographic trends will put severe strains on government budgets and living standards.[3] Moreover, budgetary pressures will be amplified in those economies with social and labour market policies and institutions that favour early retirement and contribute to low employment/participation rates (see below). To assess current policy and the need for further reform, it is essential to have credible estimates of the potential impact of ageing on the sustainability of public

[3] While population ageing implies a relatively lower number of youth, this does not typically result in lower spending on youth, since pressures remain to maintain or raise per capita spending and the length of time spent in education has trended up.

FIGURE 2

OLD-AGE DEPENDENCY RATIOS IN G7 COUNTRIES
Population aged 65 and over as a percentage of the working-age population (aged 20-64)



Source: Eurostat; United Nations Population Division, *World Population Prospects: The 1998 Revision*, New York, 1999.

finances. It is difficult, however, to evaluate with much precision the extent to which budgets will come under pressure. Budgetary impacts are linked to long-term projections in the old-age dependency ratio, but such projections are particularly hazardous. They depend on demographic assumptions about future birth rates, life expectancy and migration flows, and alternative assumptions can produce significant differences to the long-run outlook.

To illustrate, it is insightful to evaluate earlier demographic projections. The OECD collated population projections in the mid-1980s and the World Bank conducted a similar exercise in the early 1990s. The United Nations and national administrations also regularly update their projections and recently virtually all the OECD countries produced, in collaboration with Eurostat and the OECD secretariat, new demographic profiles. These projections all indicate a rising share of the elderly population, a key feature of the ageing phenomenon. But the extent of the changes differs substantially across the four sets of projections in the long run (Table 1). In nearly all countries, old-age dependency ratios are higher the more recent the projection, and in some cases by a considerable amount. In Japan and in the major European countries, for example, the most recent projections of the old-age dependency ratios are considerably higher than anticipated in

TABLE 1

COMPARISONS OF POPULATION PROJECTIONS FOR 2040
(Index 2000 = 100)

	OECD mid 1980s	World Bank early 1990s	UN 1998 revision late 1990s	Eurostat/National projections late 1990s
	Total population			
Australia	132.5	119.6	131.6	131.6
Belgium	92.4	94.4	92.3	101.7
Canada	121.6	117.5	131.0	131.0
Denmark	80.1	97.5	94.3	105.6
France	98.4	104.7	103.2	107.2
Germany	76.0	86.1	93.1	97.7
Italy	85.5	87.4	79.7	90.0
Japan	94.1	93.3	88.1	89.0
Netherlands	91.2	97.9	94.9	115.7
Sweden	95.3	105.0	99.3	104.5
United Kingdom	100.9	102.1	99.1	107.5
United States	116.6	120.6	123.1	128.3
	Working age population			
Australia	121.5	105.4	119.0	119.9
Belgium	83.9	82.0	80.4	89.7
Canada	106.8	101.5	114.3	116.4
Denmark	67.7	85.2	82.6	92.3
France	88.9	93.1	92.0	96.5
Germany	64.5	69.0	79.3	82.7
Italy	74.4	70.0	63.1	73.4
Japan	83.9	77.4	72.1	72.3
Netherlands	78.7	81.3	78.3	96.0
Sweden	86.7	96.9	88.5	95.8
United Kingdom	95.8	91.4	89.8	95.8
United States	107.1	108.1	114.3	115.3
	Old-age dependency ratio			
Australia	184.2	226.6	212.1	199.2
Belgium	133.4	176.9	200.3	182.8
Canada	199.1	228.9	237.8	214.4
Denmark	196.2	187.0	190.1	184.8
France	164.5	178.7	192.3	184.1
Germany	189.8	231.0	219.9	210.7
Italy	181.1	215.2	259.4	221.5
Japan	167.3	202.0	256.7	216.4
Netherlands	212.6	233.0	269.9	219.5
Sweden	148.8	149.4	175.7	157.8
United Kingdom	148.5	171.9	175.0	178.4
United States	177.5	202.7	192.7	183.5

Sources: Oxley (2001).

the mid-1980s. These comparisons of demographic projections illustrate their uncertain nature over long periods of time and thus estimates of the fiscal impacts of ageing could span a wide range, since they depend closely on assumptions regarding the size and changes in the composition of the aged population.

The main difficulties in assessing the budgetary impacts of ageing populations are, however, those associated with projecting the factors that influence per capita old-age benefits. Comparing OECD projections on pension spending from the 1980s (OECD 1988a and 1988b) with the actual outcomes in the mid-1990s provides an illustration of the pitfalls of projecting old-age pension outlays based on a simple extrapolation of key parameters (Table 2).[4] The approach adopted was to project public pension expenditures by broad age cohort to 2040 and assume that per capita benefits remained constant in real terms, so as to capture the impact of shifts in the demographic profile of a country. While projections of old-age dependency ratios proved, in the majority of countries shown, to be broadly accurate over the 15 year period (with the relevant exceptions of Italy and Japan), actual spending on pensions has risen much faster than originally conjectured (Table 2 and Figure 3). The main factors that explain the larger than projected increases in pension spending are the failure to account for the maturation of pay-as-you go pension systems, the fall in labour force participation rates among older male workers and, most importantly, the assumption of benefits being constant in real terms, while in most countries they actually tended to grow in line with real incomes (Oxley 2001).

Studies assessing the likely macroeconomic impacts of ageing populations have typically used sensitivity analysis to assess the importance of different demographic profiles. The models are necessarily simplified and cannot capture the full complexity of individual country social systems in general – and pension systems in particular – and projections are usually based on the assumption of unchanged policies.

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[4] The comparison with actual outcomes, however, needs to be interpreted with some care as the 1988 study aimed to isolate only the impact of demographic trends on pension spending. Furthermore, it is difficult to know whether like is being compared with like, since data for 1980 used by the OECD (1988a) were drawn in large part from national sources while the actual outcomes for 1980 to 1995 come from the OECD Social Expenditure Database, which is based on common definitions across countries.

TABLE 2

COMPARISONS OF PENSION SPENDING PROJECTIONS AND OUTCOMES, 1980 TO 1995
(Percentage change)

	Increase in pension spending		Increase in old-age dependency ratio	
	Projected [a]	Actual [b]	Projected [a]	Actual [c]
Australia	36.1	121.7	15.7	23.1
Belgium	2.6	29.0	0.2	9.4
Canada	42.1	117.4	27.0	28.2
Denmark	-0.5	62.4	-1.6	2.2
France	19.7	59.4	1.1	4.6
Germany [d]	7.4	13.4	1.9	-4.2
Italy	13.5	112.1	2.5	20.4
Japan	59.5	142.4	43.7	56.2
Netherlands	20.9	30.4	9.4	11.3
Sweden	0.6	53.8	3.6	8.4
United Kingdom	0.1	81.2	-2.6	4.0
United States	16.4	60.6	7.6	13.7

[a] OECD (1988a).
[b] OECD Social Expenditure Database.
[c] United Nations Population Division, *World Population Prospects*: *The 1998 Revision*, New York, 1999.
[d] Germany refers to western Germany for spending and population projections. Spending data compares the period 1980 to 1990.

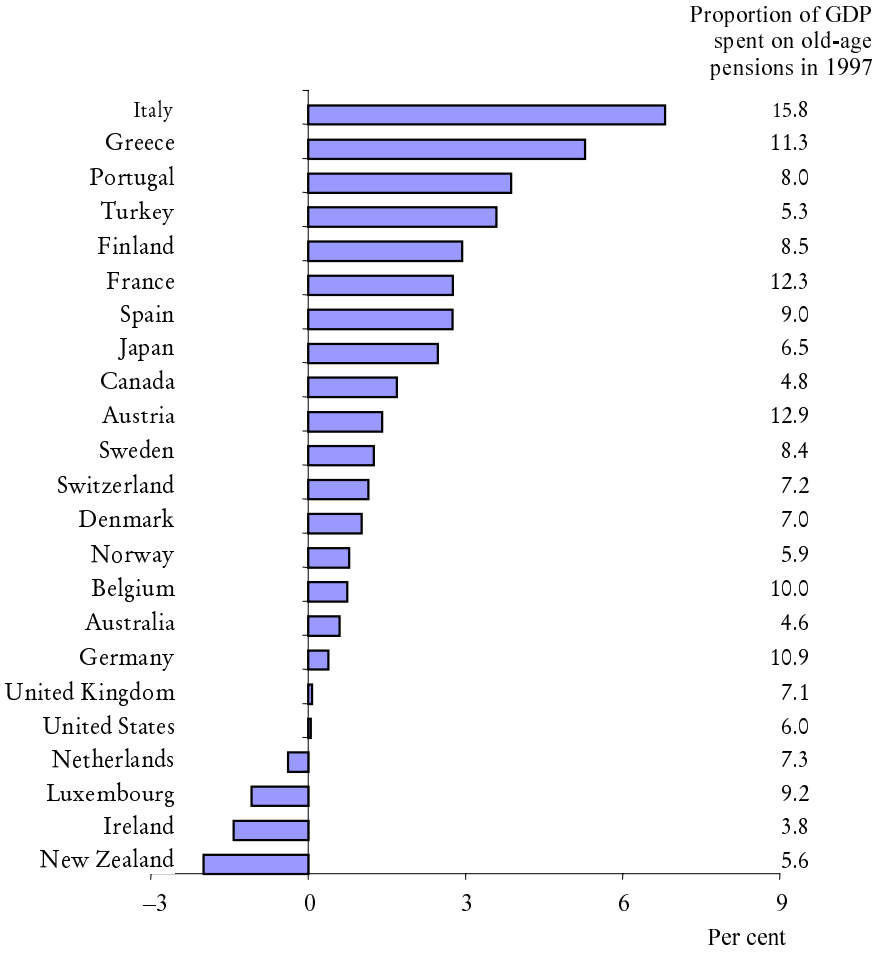
Furthermore, assumptions have to be made about retirement age, wage trends, productivity improvements and tax receipts several decades into the future. As with demographic projections, small differences in these assumptions can produce very different results. Such models, however, are a helpful tool to identify those countries which are likely to face substantial social spending pressures, to quantify the impact of ageing trends on living standards and to evaluate options which may mitigate such impacts.

Bearing in mind the caveats associated with this kind of exercise, relatively recent OECD research on the fiscal impacts of ageing concluded that unless reforms are implemented, projected pension benefit levels will greatly exceed projected pension contributions in the majority of OECD countries, resulting in large increases in deficits in the pension accounts, and in public finances in general.[5]

[5] See Leibfritz *et al.* (1995), Roseveare *et al.* (1996) and Turner *et al.* (1998). The results from simulations conducted in these papers broadly reflect the structure of public pension systems as they stood in the mid-1990s. In countries where reforms had been announced, these were to the extent possible incorporated in the simulation

FIGURE 3

CHANGE IN THE PROPORTION OF GDP SPENT ON OLD-AGE PENSIONS OVER THE PERIOD 1980 TO 1997 IN SELECTED OECD COUNTRIES*



* Refers to old-age cash benefits plus survivors' benefits.
Source: OECD Social Expenditure Database.

model. However, important complex and subsequent reforms, such as those introduced in Italy, were not fully reflected in the results. As discussed in OECD (2000d), in the case of Italy reforms may have reduced the projected peak level of pension spending by 7 to 8 per cent of GDP. At over 14%, this ratio is still, however, one of the highest in the OECD area. Furthermore, as the phasing-in of the reforms is rather slow, according to official projections pension expenditures will likely continue to increase by 1 to 2 percentage points over the next three decades, before returning to current levels by around 2050.

The calculations suggested that fiscal balances could deteriorate by about 5% of GDP over the next fifty years and the ratio of public debt to GDP would start to rise rapidly in 20 year time in Europe and the United States and straight away in Japan. (In addition, government health expenditures relative to GDP could gradually rise to a level 2 to 3 percentage points higher than current levels of around 6%. Moreover, without sustained improvements in total factor productivity or employment growth (which would also reflect increases in labour force participation rates), output growth in the OECD would be likely to slow over coming decades. And in the absence of specific policy adjustments, ageing populations would also tend to reduce the growth of living standards as the output from any given number of workers is divided by a greater total population.

The results of these studies and the subsequent debate have raised a number of important issues. First, there are large bounds of uncertainty and the findings are sensitive to the projection methodology and system parameters used. Second, the results of simulation exercises probably exaggerate the likely fiscal outcomes, since they are typically based on a no-change scenario, while reforms are more likely in countries where the projected fiscal burden of ageing is most serious. Nonetheless, increased pension spending appears inevitable and the negative budgetary impact will worsen if the increase is accompanied by slower economic growth. Thirdly, in assessing the magnitude of the necessary policy adjustments, more detailed modelling of pension system rules is needed, including allowance for other pressures on spending, such as feedback effects from rising living standards. This needs to be accompanied with greater transparency about the underlying assumptions used. Efforts to meet these objectives are being made in a current OECD/EC exercise, which relies on more detailed country models of pension expenditure maintained by national authorities, and imposes common assumptions across countries for the macroeconomic environment. In addition, extensive sensitivity analysis is being conducted.

This work has not yet been completed. But the European Commission has published a progress report covering European Union countries.[6] These preliminary results suggest that the budgetary

[6] See European Commission (2000). The progress report also includes detailed information on the main characteristics of pension systems in individual EU coun-

pressures of ageing populations might be somewhat less than in earlier OECD estimates. This, in part, reflects the inclusion of recent reforms in the baseline, which itself depends on relatively optimistic demographic[7] and macroeconomic assumptions. In particular: *i*) fertility rates are assumed to converge from the current low levels of 1.2 in Italy and Spain and 1.4 in Germany to 1.5 by the year 2040, while stabilising at around 1.8 in most other countries; *ii*) life expectancy at birth is projected to increase on average by about 5 years for men and 4 years for women; *iii*) female participation rates are assumed to rise progressively over the next fifty years to reach levels 5 to 10 percentage points below those of men (with the exception of Denmark, Finland and Sweden, where they are highest and are assumed to remain very close to male participation rates); *iv*) unemployment rates are set to fall to their structural levels (as defined by the OECD) by 2005 and remain constant thereafter, although somewhat larger reductions are envisaged for countries where recent labour market reforms could lead to lower structural unemployment; *v*) labour productivity growth is generally assumed to converge to reach a rate of 1.75% per annum during the period 2020 to 2030 and real wages to rise in line with productivity; and *vi*) real interest rates are arbitrarily set at 4%, and government revenues and non-age related expenditures rise in line with GDP.[8]

Government expenditures on public pensions will peak for most European countries between 2030 and 2050 and, on average, overall pension expenditure to GDP could rise by about 3 percentage points between now and 2050 (Table 3). There is, however, wide variation among European Union countries. The share of public pension expenditures in GDP is expected to increase sharply in Finland, France, Germany, Ireland, the Netherlands, Portugal and Spain. In It-

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tries. The OECD project will extend coverage to non-EU OECD countries, include a wider range of old-age related public expenditures, such as health and long-term care, assess the implications of ageing populations on debt dynamics and analyse policy options. A report will be available in the summer of 2001.

[7] As a consequence of these demographic assumptions, the average EU old-age participation ratio (defined as the ratio of people 65 and over to the working age population, aged 20 to 64) would double in the next fifty years to reach a level around one half (with Italy and Spain reaching levels of about two thirds from the current ones of slightly more than one fourth). For a less 'optimistic' view on the 'demographic risk', see Schieber and Hewitt (2000).

[8] For further details, see European Commission (2000).

aly, reflecting recent pension reforms and especially the shift to indexing to prices rather than wages for those in retirement, the pension spending ratio will remain broadly steady and start to decline from about 2040 onwards, albeit from a high level, whereas in the United Kingdom it is projected to decline immediately.[9]

TABLE 3

PROJECTED EXPENDITURE ON PUBLIC PENSIONS IN EU COUNTRIES

	Projected public pension expenditures in 2050 at 2000 prices, Index 2000 = 100	Average annual percentage change in pension spending, 2000-50	Average annual percentage change in GDP, 2000-50	Share of public pension expenditure in GDP, 2000	Share of public pension expenditure in GDP, 2050	Average annual additional GDP growth required to maintain public pension expenditure share constant through 2050
Austria	245	1.8	1.7	14.5	15.1	0.1
Belgium	316	2.3	1.7	9.3	12.6	0.6
Denmark	258	1.9	1.4	10.2	13.2	0.5
Finland	328	2.4	1.7	11.3	16.0	0.7
France [a]	258	2.4	1.7	12.1	15.8	0.7
Germany	284	2.1	1.4	10.3	14.6	0.7
Ireland	736	4.1	2.7	4.6	9.0	1.4
Italy	204	1.4	1.5	14.2	13.9	0.0
Netherland	414	2.9	1.8	7.9	13.6	1.1
Portugal	643	3.8	3.0	9.8	14.2	0.7
Spain	480	3.2	1.9	9.4	17.7	1.3
Sweden	271	2.0	1.8	9.0	10.0	0.2
UK	192	1.3	1.9	5.1	3.9	–0.5

[a] To 2040.
Source: European Commission (2000).

An alternative case, named the Lisbon scenario, was also examined by the European Commission. The macroeconomic assumptions were set to reflect the objectives in the March 2000 Lisbon European

[9] The decline in UK pension spending to output is mostly due to the interaction between the smaller increase in the dependency rate and the predominance of a flat-rate benefit system, with real benefits assumed constant over the fifty years of the simulation exercise (so that pensions decline relative to wages at the rate of productivity growth). In most other countries pension benefits are mainly paid out of earnings-related schemes. Since benefits on retirement are based on past earnings, in the steady state, for a constant rate of productivity growth, average pension benefits will rise at the same rate as average earnings even if pensions are not indexed to wages for those in retirement.

Council conclusions[10] and demographic assumptions were modified, with higher fertility rates, increased life expectancy at birth and bigger net migration flows. On the basis of these assumptions, public pension expenditures as a per cent of GDP still continue to rise (except in the United Kingdom, where they continue to fall), but on average by about half as much as in the baseline. In some countries, such as Germany and the Netherlands, the combination of faster growth and indexation of pensions to wages limits the positive effect of the other assumptions, and hence projections of pension expenditure to GDP are only slightly lower than in the baseline scenario.

At the moment, the impacts of ageing on health expenditures are excluded from the analysis, but the next stage of the project will attempt to include them. This is a difficult exercise since, unlike pensions, there is no framework of existing rules that provides a basis for calculating future health liabilities. On the demand side, health spending depends on morbidity and disability and whether these decrease as lifetimes lengthen. Since there is little information in this area to guide the policymaker, projections are open to considerably wider margins of error than for pension expenditure. Since a large part of spending is made during the last months of life, a key question is whether spending patterns by age group are related to mortality. If so, longer life expectancy may delay increases in health spending. There is also likely to be increased demand for public services to support the elderly. In this regard, a recent OECD study for a number of member countries (Jacobzone, Cambois and Robine 2000) concluded that publicly financed long-term care costs relative to GDP were likely to increase in all countries considered, based on the assumption of unchanged institutionalisation and disability rates over the next two decades (Table 4). The extent of the increase varies among countries, but on average is in the order of 0.5% of GDP, equivalent to about a 50% increase. If recent downward trends in disability and institutionalisation rates are assumed to continue over the period, the extent of the rise is approximately halved.

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[10] Specifically, it is assumed that participation and unemployment rates gradually converge to the values achieved in the current EU best performer by 2050 (83% and 4% respectively) and productivity converges to the most competitive level in the world. To meet these assumptions, it is recognised that some reform of pension systems, in particular a change in the pension eligibility requirement, is needed. For further details, see European Commission (2000).

TABLE 4

PROJECTIONS OF PUBLICLY FINANCED LONG-TERM CARE AS A PER CENT OF GDP, 1996-2020

	Ratio of long-term care costs to GDP, 1996	Average annual percentage change in GDP growth needed to maintain a constant spending ratio to 2020, based on:		Change in ratio of total long-term care costs to GDP, 1996-2020	
		Past trends in disability and institutionalisation rates continuing into the future	No change in institutionalisation or disability rates in the coming years	Past trends in disability and institutionalisation rates continuing into the future	No change in institutionalisation or disability rates in the coming years
Australia	0.8	0.8	2.2	0.2	0.6
Canada	0.7	1.2	2.0	0.2	0.4
France	0.6	1.7	2.1	0.3	0.4
Germany	0.7	1.0	1.5	0.2	0.3
Japan	0.8	2.6	3.6	0.7	1.0
Sweden	2.9	0.0	1.0	0.0	0.8
United Kingdom	1.1	0.6	0.9	0.2	0.3
United States	0.7	-0.3	0.9	-0.1	0.2

Source: Calculations based on Jacobzone, Cambois and Rubine (2000).

3. Responses to ageing-related fiscal pressures: how important is economic growth?

The strategy suggested by the OECD in response to the structural changes and fiscal pressures associated with ageing populations stresses the need for action on many fronts. Reflecting this, the OECD proposes that frameworks be put in place at the national level in order to harmonise and sustain ageing reforms and to build up public understanding. Within such frameworks, the OECD has identified seven principles to guide reforms and stressed that policies should be based on all the principles, as effective reform requires a holistic response (OECD 1998a). This includes the need for continued fiscal consolidation early on to reduce debt ratios as soon as possible. With respect to pensions, the strategy then centres on achieving an increase in the average number of years individuals spend active in the labour force. A more diversified structure of retirement income is also needed, so that sources other than public pay-as-you-go pension systems play a growing role in provision for retirement. To achieve these ends there are many possible options and their relative merits will, of course, depend on the specific circumstances in each country.

A complementary approach, in the sense that it is not a direct response to the forces underlying ageing populations or the institutional features of pension systems that create fiscal pressures, are policies and institutional changes which would help to augment economic growth. To be sure, these are goals of economic policy in their own right as they help support improvements in living standards. But to the extent that the level of output and/or the pace at which it grows can be augmented, this also increases the scope to finance pension spending and may help to ease future fiscal pressures from ageing. This section of the paper will focus on such a complementary response. It is divided into two parts: the first on increasing the level of output, with the emphasis on raising employment rates, and the second on raising the productivity growth rate and hence that of output. This distinction is necessary, since even though both imply higher living standards, the implications for old-age public pension expenditures relative to GDP differ.

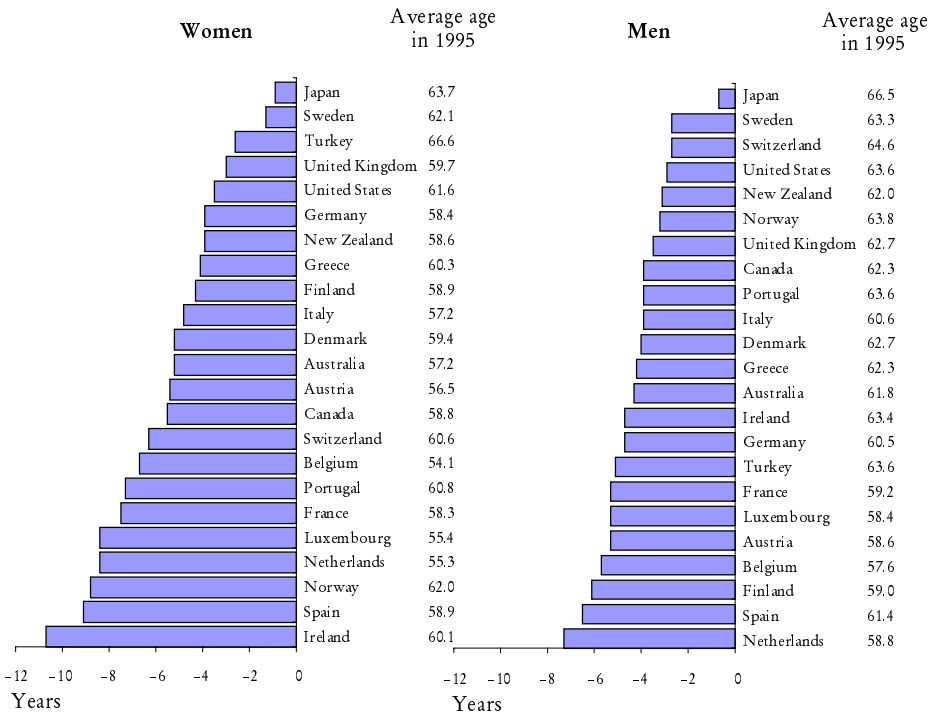
3.1. *Increasing the level of output by enhancing employability*

While the main force behind rising age-related spending is demographics, the fiscal burden is accentuated by the combination of slower growth in the working age population, the trend towards early withdrawal from the labour market and increased life expectancy. These trends result in lower tax contributions and raise claims on public expenditures from both an increased number of pensioners and pensions paid over longer periods of time. In 1960 the unweighted average age of entitlement to a public pension in the OECD area was around 65 years for both males and females. By 1995, the average age had declined to 62 years for males and 60 years for females. Among most of the major continental European economies the decline has been larger and often starting from a lower level, compared with other OECD economies (Figure 4). Over the same period, life expectancy in the OECD area of the population at retirement age has risen by around 4 years, from 79 to about 83 years. The combination of longer life expectancy and earlier retirement implies that the average duration of receipt of a public pension had risen since 1960 by some 7 years to around 20 years by the end of the century.

In line with the fall in retirement ages and the difficulties of older workers – those aged between 55 and 64 – in keeping or finding jobs, the employment rate of this age group has dropped in some OECD countries to reach very low levels. Today less than half the population aged between 55 and 64 in the OECD area is employed, and in a number of countries the figure is less than a third (Figure 5). On the other hand, the negative impact on the overall employment rate has been limited to some extent by the upward trend in female labour force participation rates in OECD countries.

FIGURE 4

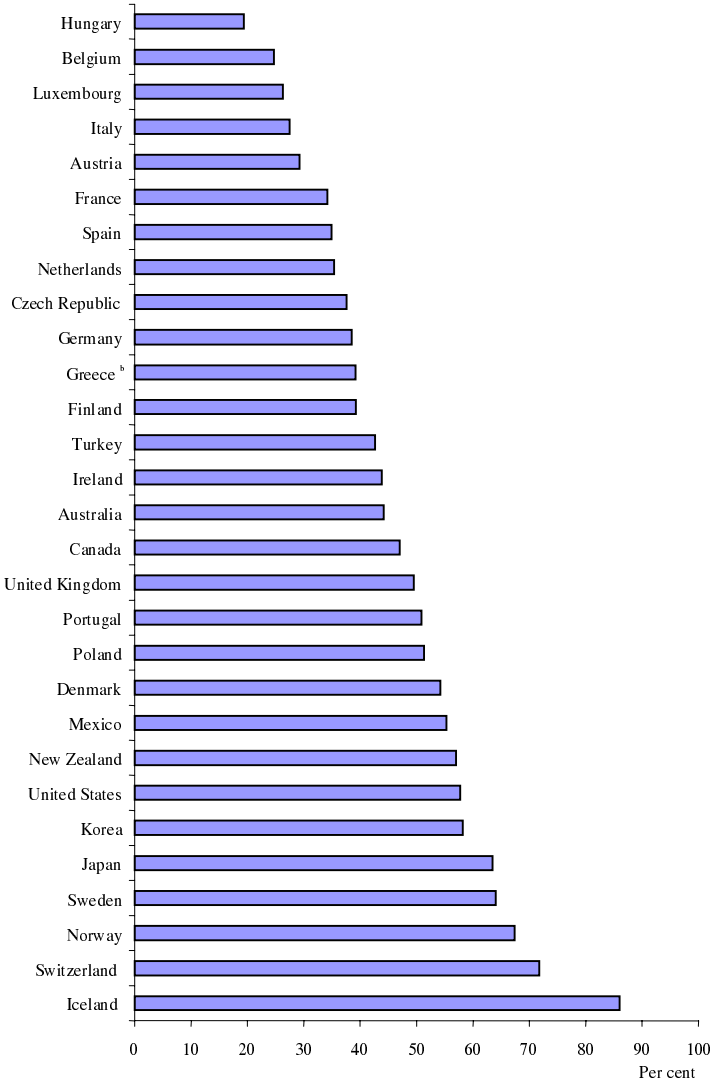
CHANGE IN THE AVERAGE AGE OF ENTITLEMENT
TO A PUBLIC PENSION OVER THE PERIOD 1960 TO 1995



Source: ILO, *Economically Active Population 1950-2010*, December 1996.

FIGURE 5

EMPLOYMENT RATE OF OLDER WORKERS IN OECD COUNTRIES[a]



[a] Employment of workers aged 55-64 as a percentage of the population aged 55-64.
[b] 1998 data.

Source: OECD, *Labour Force Statistics*, Paris, 2000.

In this context, two important issues are how to encourage higher employment rates among female and older workers. Through these channels the level of economic activity can be pushed up, although in both cases the scope for this varies widely across countries. This is because initial positions are themselves quite diverse. In some countries, such as Finland, France, Italy, the Netherlands and Portugal, the potential to raise labour force participation among elderly persons is quite large. For example, it has been estimated with respect to the situation in the early 1990s that measures which strengthen the incentive to remain in employment[11] could lead to an increase in the participation rate of older males by 8-9 percentage points or more in countries which had particularly large distortions in their pension systems (Finland, France, Italy, the Netherlands and Portugal), by 4 to 6 percentage points in most of the other European countries and by less than 4 percentage points in North America and Japan.[12] Similarly, policies that succeed in reducing the rate of structural unemployment to the levels recorded in the late 1960s or which raise the level of female labour force participation towards the 'best practice' levels achieved in Scandinavia could serve to boost the level of output.

To give a sense of the potential size of increase in the level of output and thus output growth from such hypothetical measures, three specific scenarios were simulated for the 2000-30 period using broadly the same analytical framework adopted by the OECD/EC study on ageing populations.[13] In particular, in these scenarios it has

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[11] Incentives to early retirement are linked to the size of the implicit tax on continued work, lax entitlement conditions for the receipts of unemployment-related and disability benefits, and laws which forbid combining work with the receipt of old-age pension. For an analysis of the incentives favouring early retirement in OECD countries around the mid-1990s, see Blöndal and Scarpetta (1999).

[12] See Blöndal and Scarpetta (1999) for details on the model used to calculate these effects on the male participation rate. These measures would need to include: increasing the length of the contribution period for full benefit and generally linking lifetime benefits and contributions; removing pension earnings rules and other penalties for working later; increasing the average age of entitlement to full pension and the lower age limit for early retirement; and phasing out programmes that encourage access to invalidity or open-ended unemployment benefits for labour market reasons. In some of the countries, especially Italy, where the potential impact on male participation rates is high, some of these measures have since been implemented.

[13] The framework uses demographic projections and a Cobb-Douglas production function to calculate the level of output, expressed in index form, based on assumptions for labour productivity, employment and unemployment disaggregated by sex and age cohort.

been assumed: *i*) to reduce unemployment rates from current levels to those prevailing in the 1960s; *ii*) to raise the participation rate of females to the average level prevailing in Scandinavian countries;[14] and *iii*) to set the participation rate for elderly workers to the same level as for prime-age individuals. The analysis suggests that the combined impact of the three scenarios *vis-à-vis* the baseline could be to raise output growth in most European Union countries by more than one percentage point per annum on average over the period (Table 5).

The biggest impacts are achieved through an increase in the employment rate of elderly workers and a rise in the female labour force participation rate. In countries where these rates are initially low, such as Austria, Belgium, Italy, Luxembourg, the Netherlands and Spain, both scenarios suggest that output growth could be raised by half a per cent or more per annum.[15] Reducing the level of unemployment to rates experienced in the second half of the 1960s could add up to a still sizeable one-third of a percentage point per annum to growth on average over the period, mainly in the large European economies where current unemployment rates are high. To the extent that such scenarios could be realised, they would considerably reduce the size of the old-age population relative to the level of employment. In Italy, for example, the increase in female participation rates might imply a reduction in the ratio of old-age persons to the number of people in employment by about 13 percentage points (Figure 6).

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[14] The baseline scenario already assumes some increase in prime-age (20 to 54 years old) female labour force participation rates. In countries where subsidised child care is widely available, the level is allowed to reach the levels for males in the same age group less 5 percentage points. In countries where child care is largely unsubsidised and where the tradition of one-earner households is more prevalent, the level is raised to meet the male rate less 10 percentage points. These baseline assumptions for female labour force participation imply a higher level of output compared with a situation of no future change in the female labour force participation rate. In Italy, for example, it was estimated to increase GDP growth by 0.5% per annum over a 30 year period. See OECD (2000d).

[15] The simple model underlying these simulations does not take into account the intensity of factor utilisation. It is likely that, if the labour force is increased through higher employment rates of elderly and prime-age female workers, some of the increase will be offset by a decline in the average number of hours worked per person, as women and older workers typically work shorter hours.

TABLE 5

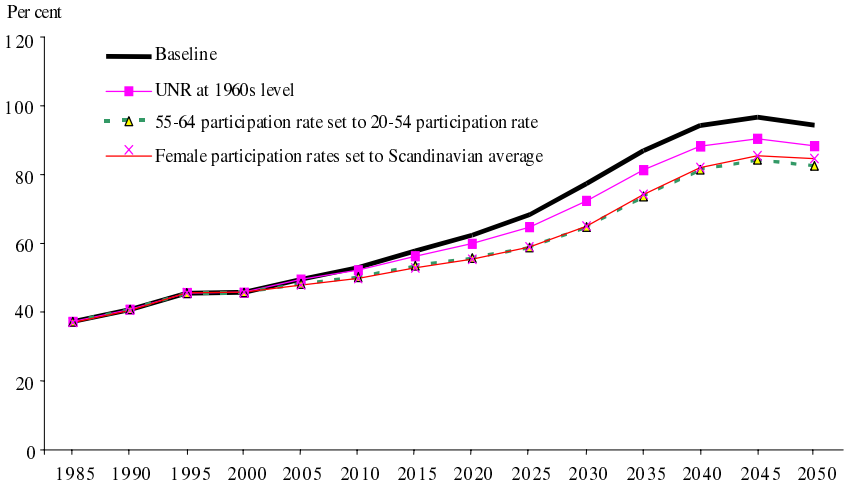
SCENARIOS OF GDP GROWTH*

	Baseline annual GDP growth	Impact on GDP growth *vis-à-vis* the baseline if: Unemployment rates return to 1960s levels	Elderly (55-64) participation rate raised to equal that of 20-54 age group	Female participation rates set to Scandinavian average
Australia	2.4	0.2	0.2	0.2
Austria	1.4	0.1	0.7	0.5
Belgium	1.5	0.3	0.7	0.6
Canada	1.9	0.1	0.3	0.1
Czech Republic	1.4	0.0	0.5	0.1
Denmark	1.6	0.2	0.3	0.0
Finland	1.9	0.2	0.4	0.2
France	1.7	0.3	0.5	0.4
Germany	1.5	0.3	0.4	0.3
Greece	2.2	0.1	0.4	0.5
Hungary	1.5	0.0	0.7	0.4
Iceland	2.3	0.1	0.0	-0.1
Ireland	3.1	0.0	0.3	0.5
Italy	1.4	0.2	0.6	0.5
Japan	1.2	0.1	0.2	0.1
Korea, Republic of	2.7	0.0	0.2	0.2
Luxembourg	2.0	0.0	0.6	0.6
Netherlands	1.6	0.1	0.5	0.5
New Zealand	2.3	0.2	0.3	0.2
Norway	1.7	0.1	0.2	0.0
Poland	2.3	0.0	0.3	0.1
Portugal	2.0	0.1	0.3	0.2
Spain	1.6	0.3	0.5	0.5
Sweden	1.6	0.1	0.2	0.0
United Kingdom	1.6	1.2	0.3	0.2
United States	2.2	0.0	0.2	0.1

* Average annual growth between 2000 and 2030.

FIGURE 6

OLD-AGE POPULATION TO EMPLOYMENT RATIO IN ITALY
Population 65 years and over, as a percentage of total employment



These increases in labour force utilisation would raise the standard of living and, *ceteris paribus*, would seem to be sufficient in most European Union countries, including the larger ones, to keep the share of spending on pensions to GDP, as projected by the European Commission, from rising above its level in 2000 and in some cases to induce a reduction (comparing Table 5 with the last column of Table 3). Such partial calculations, however, do not take into account the fact that pressures for public expenditure on the old-aged might also change over the period. The extent to which higher per capita output feeds into higher pension spending and its profile depends on the institutional features of pension systems in individual countries and how higher output is accomplished. In addition, the calculations do not take into account the impact of higher earnings on tax revenues and social security contributions, which would be expected to increase as output rises. To make these calculations and thus evaluate the contribution which increased labour force utilisation may make towards easing the fiscal pressures associated with ageing populations would require a general equilibrium model.

While not based on such a general equilibrium model, the European Commission progress report provides a more complete assessment of the impacts on public pension spending from changes in

assumptions regarding the participation and unemployment rates than the partial estimates noted above.[16] Compared to the baseline, a gradual 5 percentage point increase in the labour force participation rate (and employment) would on average imply a lower rise in the pension expenditure to GDP ratio between now and 2050 of about half a percentage point, from the approximate 3 percentage point increase in the baseline scenario. Assuming instead that the rate of structural unemployment gradually falls to the 3 to 5 per cent levels – depending on the country – experienced in the 1960s, pension spending relative to GDP would be only about ¼ of a percentage point lower than the baseline levels. This partly reflects the small scale – equivalent to about 2 percentage points – and the gradual reduction of the simulated drop in the rate of unemployment relative to the baseline. It should also be observed that, while these calculations do not allow for the impact of higher output levels on government revenues, they also do not attempt to take into account other pressures on government expenditures which may occur as a consequence of greater labour utilisation. For instance, higher female labour force participation would likely create added pressure on governments to expand publicly financed child care facilities; at the same time, it will also increase future pension liabilities.

In summary, lifting the rate of labour utilisation would help to raise living standards and offers some, even if limited, potential to ease future fiscal pressures linked to ageing populations. But, of course, it is not possible to indefinitely raise growth in output through this channel as there are limits to the mobilisation of labour resources into remunerated productive activities.

3.2. *Increasing productivity growth*

The other channel through which living standards can be raised is through a faster pace of productivity enhancement and hence growth in output. The OECD is currently engaged in a major series of studies to better understand the factors shaping the growth process and the

[16] The European Commission study, however, does not take into account the impact on tax revenues and social security contributions.

set of policies which favour a better growth performance.[17] The evidence suggests that the accumulation of various kinds of capital – physical and, especially, human – as well as research and development are important for growth. Also important are a broad set of policies extending to sound macroeconomic management, openness to international trade and competition, a tax system that encourages work effort and entrepreneurship, and government expenditure programmes that emphasise investment and capital accumulation. Appropriate conditions in financial markets and product market regulations also play a role in fostering innovation and productivity enhancement.

If productivity growth can be raised, this is in itself a positive achievement, as it implies higher living standards and provides additional scope to modify pension benefit levels and contribution rates, thereby addressing the fiscal challenges that ageing populations pose. It is not certain, however, that it would make a large and automatic contribution to directly ease the future fiscal pressures of ageing populations. The impact depends on the degree to which the linkages between higher productivity and wages feed through to higher per capita pension payments as well as the speed of pass through. Among the European Union countries, pensions in Austria, Denmark, Greece, Germany, the Netherlands, Portugal and Sweden are indexed to some measure of earnings and usually based on movements over the previous year, although the link is not automatic in all of these countries. In this situation, faster productivity growth would have only a minor impact on government pension spending relative to GDP. In Belgium, Finland and Ireland, pension indexation is based on a combination of price and wage movements, while in the remaining European Union countries, benefits currently only grow with previous year or projected price movements.

In the latter group of countries (Finland, France, Italy, Luxembourg, Spain and the United Kingdom) higher productivity growth is therefore important since there is no direct link, over the pension period between pension benefits and earnings of those in work. Taking their institutional features into account, the European Commission exercise has estimated that a 0.5% per annum higher productivity

[17] For a synthesis of the findings of this work to date, see the special chapters, "Recent growth trends in OECD countries" and "Links between policy and growth: cross-country evidence" in OECD (2000b and 2000c respectively).

growth – a relatively modest assumption when compared with the slowdown in European and US productivity growth in the 1970s and 1980s or with the pick-up achieved in the United States over the 1990s – could ease in these countries the level of public expenditures relative to GDP by about 1.25 percentage points on average compared with the level it would have otherwise reached (France and Luxembourg did not compute this simulation and are thus excluded from this calculation). Past experience shows, however, that higher living standards as a result of increased productivity have generally led to public pressures for increases in pension benefits, although the speed and timing of such changes varies over time and across countries.

4. Is there an enhanced urgency to implement reforms?

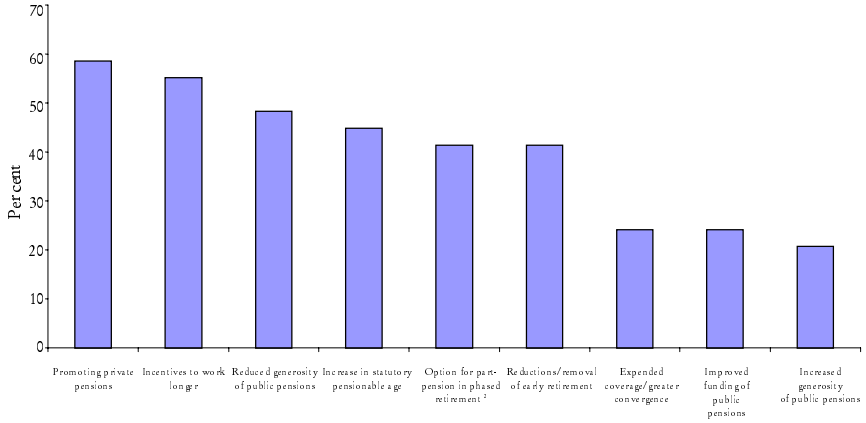
Because pension reform requires advance notice and gradual implementation, responses need to be put in place early. Indeed, most planned reforms are unlikely to affect existing retirees, or those close to retirement, because imposing a burden on those who have few means to adjust would undermine trust in the pension system. This is a major challenge for policy makers, as they need to anticipate problems and build support for reforms even though the impacts are only likely to arise one or two decades down the road. But progress is being made. By 1997, many countries had already taken steps to address the challenges posed by ageing populations (Figure 7). Since then further initiatives have been implemented.[18] In a number of countries the final benefit available after the usual number of years of work and/or contribution has been reduced. Changes which encourage a longer working life and greater flexibility in the work to retirement transition have been made or planned, via increases in the statutory retirement age, longer contribution periods or years of prior employment before individuals can exercise early retirement benefits and lowering benefit payments for those who retire early. Other changes have responded to the health and care needs of an elderly

[18] A detailed description and analysis of recent reforms can be found in OECD (2000a).

population and to improve the operation of financial markets in dealing with large increases in private pension savings.

FIGURE 7

COUNTRIES TAKING POLICY ACTION IN RETIREMENT INCOMES, AS A PROPORTION OF COUNTRIES SURVEYED[1]



[1] Excludes policies 'under consideration' at the time of data collection, and does not include policy changes from early 1998 onwards.
[2] Includes Italy which is moving to restrict this policy and Sweden which has plans to remove it.
Source: OECD (1998b).

Some changes, however, such as increases in pension contribution rates, may have weaker effects on fiscal positions if they raise the opportunity cost of remaining in work and increase incentives to retire early. Moreover, because some reforms to social expenditures designed to reduce incentives favouring early retirement have typically not involved flanking changes in other social benefits, such as disability allowances, important distortions remain. Nonetheless, it is clear that reform agendas have started to respond to the fiscal, economic and social implications of ageing through adjustment in OECD country pension systems. Indeed, the trend toward earlier retirement appears to have levelled off in the past few years in a number of countries and possibly reversed in a few, even if it is still too early to tell for certain, since increases in the portion of life spent in employment may be more related to buoyant cyclical positions.

Overall, as shown by the simulations produced in the ongoing OECD/EC exercise, the changes introduced so far have been successful in dampening the rising trends in public pensions that will con-

front almost all OECD countries in the years to come. In some cases, government pension expenditures might remain broadly steady relative to GDP even if, as in the case of Italy, at levels bound to constrain fiscal policy actions. On average, however, in the European Union the rise in the public pension expenditure to GDP ratio could amount to about 3 percentage points over the first half of the new century. To this the impact of ageing on government health expenditures should be added, which, even if difficult to estimate, might be at least another 2 percentage points. The need to continue responding as early as possible to the economic and fiscal pressures associated with ageing populations is, therefore, not reduced when the most recent reforms introduced in OECD countries are taken into account.

This response, as suggested in the strategy advanced by the OECD (1998a), requires action on many fronts, within well-balanced national frameworks. Financial incentives to early retirement or disincentives to later retirement should be removed and ways to enhance job opportunities for older workers and improve their skills and competencies should be looked for. Public pension benefits should be reduced, for given contributions, to ensure fiscal consolidation and lower the public debt burdens associated with the ageing of populations. At the same time risk diversification should be pursued and retirement income provided by a mix of tax-and-transfer systems, funded systems and private savings, with the development of advance-funding pension systems linked with the strengthening of financial market infrastructures. Finally, cost-effectiveness in health and long-term care should be pursued.

The issue examined in this paper is how helpful a complementary approach based on policies and institutional changes directed at augmenting economic and productivity growth, necessary to support improvements in living standards, would also be in easing future fiscal pressures from ageing. Considering the effects on the level of output associated with increases in participation rates and reductions in structural unemployment, it has been concluded that this channel might provide some potential, even if there are limits to the rise in output derived from enhanced employability. Overall, even if all the relevant feed-back is not taken into account, the most recent results suggest that in the European Union substantial improvements in labour utilisation, certainly possible even if not easy to achieve, might lead to a lower rise in pension expenditures relative to GDP between now and

2050 from 3 to about 2.5 percentage points. A somewhat larger impact may derive from higher productivity growth, say of half a per cent per year, provided that pension benefits were indexed only to prices and did not increase with earnings (which would incorporate productivity gains), an arrangement that currently prevails only in a relatively small group of countries and would mark a change from past experience.

One should therefore acknowledge that enhancing output levels and productivity growth offers some potential to ease the fiscal pressures of declining and ageing populations. But, as with the option for increased immigration into OECD countries, which is often advocated,[19] higher growth would only provide a rather partial offset. The need for continuing on the politically difficult road of substantial reforms should therefore be reaffirmed. However, insofar as higher growth will imply an improvement in living standards and additional government revenues, it will certainly help to increase the scope and provide a window of opportunity to implement major public pension reforms while reducing their burden on the people at large. Following the remarkable US performance of the last decade, opportunities for higher growth rates are certainly present in other OECD countries, though they will likely imply significant policy challenges and institutional changes. Thus, while possible higher output growth should not be seen as a reason for complacency about future pension obligations, it should still be pursued both on its own merits and to reduce the burden of necessary reforms.

To conclude, it is affirmed, at times, that the ageing of populations should not be viewed as much as a problem as an opportunity. This view has merits, so long as ageing is the consequence of a rise in life expectancy rather than just a fall, at times dramatic, in fertility rates. The associated view, however, that in the long run productivity increases will make for higher living standard and therefore one should not worry much about the likely negative fiscal effects of ageing cannot be shared. The estimates mentioned in this paper indicate that, in the next half century and relative to GDP, the increase in age-related expenditures could be rather large. Overall, a relatively optimistic evaluation puts this increase, on average in the EU countries, at

[19] See, on this issue, the chapter on "Trends in immigration and economic consequences" in OECD (2000c), Visco (2000b) and especially United Nations (2000).

no less than 5 percentage points. Direct intervention on pension and health systems may not be required provided higher productivity levels are used to finance this increase through a higher level of general taxation (and, possibly, a reduction in non-age related public expenditures). This might in turn have a negative effect on overall economic activity, which should also be considered. Such a response, however, does not appear to be superior to the one highlighted above: while fostering higher productivity growth and employment levels, taking important decisions at the public level – on retirement ages, benefit levels, risk diversification and cost effectiveness.

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