# VI. THE RETIREMENT DECISION

## Introduction

Declining birth rates and increasing longevity have produced a significant increase in the share of elderly in the population of most OECD countries over the past three decades. The trend is likely to accelerate sharply in the next decade, as the baby boom generation begins to reach retirement age. The OECD Secretariat has recently concluded a comprehensive study on the implications of ageing and on possible remedies to meet future challenges (Box VI.1). It shows that unless there are major changes in policy, the increase in the number of retirees relative to persons active in the labour force will reduce growth in material living standards and put public budgets under mounting pressure.

The OECD study highlights the importance of raising the average age at which people retire from the labour market as a crucial element in meeting the ageing challenges. The average age of retirement has declined markedly in the majority of the

Box VI.1. **Maintaining prosperity in an ageing society: principles for achieving reforms**

At the meeting of the OECD Council at Ministerial Level in May 1995, the Ministers invited the Secretary-General to initiate a comprehensive research effort on the implications of ageing populations and to examine how societies could best respond to any adverse effects. A preliminary report was presented in 1996. Subsequently, the OECD Secretariat has examined a number of broad areas: macroeconomic issues, the retirement decision, incomes of older people, financial markets, employability of older workers, health and long-term care arrangements, and ways and means to implement ageing policies.

The policy recommendations based on this work were presented to Ministers at their meeting in April 1998. Seven principles were identified to guide reforms:

- Public pension systems, taxation systems and social transfer programmes should be reformed to remove financial incentives to early retirement, and financial disincentives to later retirement.
- A variety of reforms will be needed to ensure that more job opportunities are available for older workers and that they are equipped with the necessary skills and competence to take them.
- Fiscal consolidation should be pursued, and public debt burdens should be reduced. This could involve phased reductions in public pension benefits and anticipatory hikes in contribution rates.
- Retirement income should be provided by a mix of tax-and-transfer systems, advance-funded systems, private savings and earnings. The objective is risk diversification, a better balance of burden-sharing between generations, and to give individuals more flexibility over their retirement decisions.
- In health and long-term care, there should be greater focus on cost-effectiveness. Medical expenditure and research should be increasingly directed to ways of reducing physical dependence, and explicit policies for providing care to frail older people should be developed.
- The development of advance-funded pension systems should go hand-in-hand with that of the financial market infrastructure, including the establishment of a modern and effective regulatory framework.
- Strategic frameworks should be put in place at the national level now in order to harmonise these ageing reforms over time, and to ensure adequate attention to implementation and the build-up of public understanding and support.

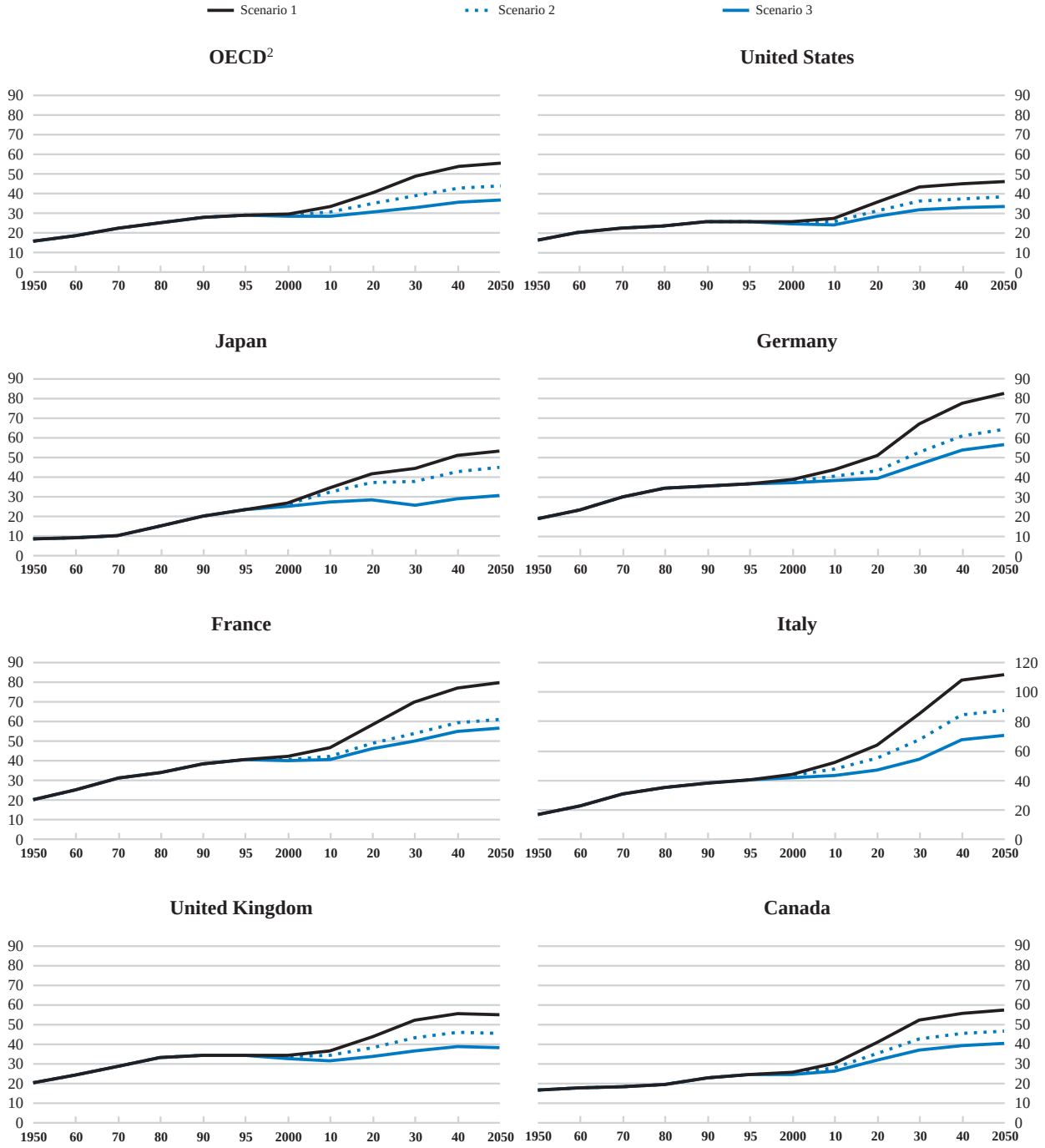
More specific recommendations were presented for each of these principles.

A summary of the analysis leading to the OECD policy recommendations on ageing is provided in *Maintaining Prosperity in an Ageing Society*. The main analytical documents prepared by the OECD are published as working papers, and are available on the Internet at *www.oecd.org*.

OECD countries over the past three decades, despite improvements in life expectancy and the health status and of older people. Should the retirement age stabilise at the current low levels, or fall even further, the adverse implications of ageing populations

## Figure VI.2. Retired persons dependency ratio[1]

In per cent




1. Ratio of retired persons to active persons.
2. Average of OECD countries excluding Czech Republic, Hungary, Korea, Mexico and Poland.

Scenario 1: male and female participation rates for all age groups constant from 1995 onwards.
Scenario 2: older male participation rate (50+) gradually increasing from 1995 to reach the levels of 1960 in the year 2030, female participation rates constant from 1995 towards.
Scenario 3: male participation rates as in scenario 2; female participation rates (25+) gradually increasing from 1995 to reach male participation rates (1995) in the year 2030.

labour markets, older workers facing uncertain and difficult prospects deciding to, or being forced to, withdraw from work altogether. Moreover, voluntary occupational pension arrangements have also played a role in some countries. But early retirement is also likely to be strongly related to changes in social security systems, which have made early withdrawal from the labour market possible and indeed encouraged retirement at relatively young ages by making continued work financially unattractive.

**Old-age pension systems**[4]

***The old-age pension system has played a major role…***

All OECD countries have established public pension schemes to support people in their old age, often supplemented with mandatory private schemes. Typically people contribute to such schemes during their working life in exchange for income support on retirement and/or benefits to surviving dependents. Public pension schemes have generally been based on a pay-as-you-go principle, with pension benefits being only weakly related to life-time contributions.

***… the standard age has fallen in some countries…***

The majority of OECD countries have kept the standard entitlement age unchanged over the past three decades (Table VI.1). In 8 countries, however, the standard age has been lowered and this has arguably contributed to discourage participation among older workers, as one year of work beyond the standard age typically implies one year's worth of pensions being foregone with little or nothing in exchange. Pensions are foregone because it is often not possible to combine receipt of pensions with full-time work, either as a result of direct restrictions on work for pensioners or because pensions are reduced with earned income so that a full-time worker on average earnings would not be entitled to any pension.

***… early retirement options have been introduced…***

Several countries allow pensions to be accessed prior to the standard age under certain conditions. Four European countries (Austria, Germany, Italy and Greece) have introduced seniority pensions since the early 1960s for those who have a long contribution history and who have reached a certain age.[5] Seven countries permit older citizens to obtain pensions before the standard age, subject to a permanent actuarial reduction in benefits. This was already possible in the United States and Sweden in the early 1960s, but was introduced later in Japan, Canada, Finland, Greece and Spain. In none of these countries is the adjustment factor sufficiently large to be actuarially neutral, so there is an incentive to retire as soon as pensions can be drawn.

***… replacement rates have been increased…***

The level of pension relative to the previous wage – the replacement rate – is arguably another element influencing the retirement decision. Workers are more likely to withdraw from the labour market as soon as they have reached pensionable age if benefits are close to wages. Gross pension replacement rates have increased in most OECD countries since the early 1960s (Table VI.1). They have risen by more than 20 percentage points in 10 out of the 19 countries for which data are available, while remaining stable or declining in only in 5 of them.

***… and pension accrual rates have been reduced***

Retirement decisions of older workers should be sensitive to the gains in old-age pensions from working for an additional period. Thus, if the pension accrual rate is zero there are no penalties from withdrawing from the labour market, whereas if it is

4. The description of old-age pension systems in the following paragraphs refers to 1995. Since then, many countries have decided on, or started implementing, important reforms. However, since reforms are being phased in gradually, pension rules applicable to people close to retirement have not changed significantly.
5. As discussed in Box VI.3, seniority pensions have been recently reformed in Italy and Germany.

Table VI.1. **Old-age public and mandatory pension system: change since 1960s**

| | Standard age of entitlement[a] | | Gross replacement ratios Summary indicator[b] | | Pension accrual rate[c] | |
|---|---|---|---|---|---|---|
| | 1961 | 1995 | 1961 | 1995 | 1967 | 1995 |
| Australia | 65 (60) | 65 (60) | 19.1 | 40.9 | 0 | 0 |
| Austria | 65 (60) | 65 (60) | 79.5 | 79.5 | 13 | 12 |
| Belgium | 65 (60) | 65 | 72.6 | 67.5 | 32 | 15 |
| Canada | 70 | 65 | 31.3 | 51.6 | 23 | 0 |
| Czech Republic | – | 60 (57) | | 53.2 | | 1 |
| Denmark | 67 | 67 | 35.9 | 56.2 | 2 | 1 |
| Finland | 65 | 65 | 34.9 | 60.0 | 10 | 4 |
| France | 65 | 60 | 50.0 | 64.8 | 25 | 12 |
| Germany | 65 | 65 | 60.2 | 55.0 | 13 | 11 |
| Greece | 65 (60) | 62 (57) | | 120.0 | | 25 |
| Hungary | | 60 (56) | | 54.6 | | 1 |
| Iceland | 67 | 67 | | 93.0 | | 10 |
| Ireland | 70 | 66 | 38.6 | 39.7 | 0 | 0 |
| Italy | 60 (55) | 62 (57) | 60.0 | 80.0 | 24 | 10 |
| Japan | 60 (55) | 60 (58) | 24.6 | 52.1 | 5 | 3 |
| Luxembourg | 65 | 65 | | 93.2 | | 19 |
| Netherlands | 65 | 65 | 29.0 | 41.2 | 9 | 9 |
| New Zealand | 65 | 62 | 32.0 | 61.3 | 0 | 0 |
| Norway | 70 | 67 | 25.3 | 60.0 | 17 | 9 |
| Poland | | 65 (60) | | 53.7 | | 9 |
| Portugal | 65 | 65 (62.5) | 85.0 | 82.6 | 15 | 10 |
| Spain | 65 | 65 | | 100.0 | 0 | 0 |
| Sweden | 67 | 65 | 53.8 | 74.4 | 21 | 0 |
| Switzerland | 65 (63) | 65 (62) | 28.4 | 49.3 | 12 | 11 |
| United Kingdom | 65 (60) | 65 (60) | 33.4 | 49.8 | 0 | 10 |
| United States | 65 | 65 | 39.1 | 56.0 | 0 | 0 |

*a)* Standard age of retirement for women in parenthesis.
*b)* The summary indicator of gross replacement rates is an average of four cases: Two earnings levels (i.e average and two-thirds of average) and two household compositions (*i.e.* a single worker and a worker with a dependent spouse). For all cases it is assumed that the employee starts work at the age of 20 and that he has uninterrupted work until the standard age of entitlement to public pensions. The earnings profile over the working life is assumed to be flat and earnings re-valued in line with changes in average earnings.
*c)* Increase in old-age pensions for a 55 year-old male by working for 10 more years, in percentage points of the gross replacement rate.

high there are incentives for workers to continue working. Pension accrual rates at older ages differ significantly across OECD countries (Table VI.1). In a few countries the level of pensions increases over the whole of the potential working life, whereas in some others pensions are not related to the length of employment or contribution records. In between are countries where full pensions are earned relatively quickly, implying zero pension accrual rates for older workers. In fact, in almost half the countries for which data are available for 1995, a 55 year-old male worker could expect no or an insignificant increase in his pension by working for ten additional years. This is in striking contrast with the practice in the 1960s, when expected pension replacement rates could be increased by more than 20 percentage points in several OECD countries by working for ten additional years.

### Other non-employment benefits

***But other benefit schemes have also played a role***

Increased disincentives to work at older ages embedded in pension systems have been compounded by changes in other benefit systems, notably unemployment-related benefits and disability benefits. These schemes were not originally intended to support people in retirement: disability schemes were introduced to

provide income support to people incapacitated for health reasons; and unemployment benefits were originally designed to offer temporary income support for active job seekers who were out of a job. However, changes in eligibility conditions have *de facto* turned these schemes into early-retirement programmes in a number of OECD countries.

The easing of entitlement to disability benefits has mostly been informal, but there have also been statutory changes in some OECD countries. An explicit labour-market criterion in granting disability pensions was written into law in several European countries in the 1970s. In some other countries (including Austria and Norway), a labour market criterion appears to have been applied, albeit not with any explicit basis in law. In all these countries, disability benefits have been more readily granted when unemployment was high or rising or when there were particular difficulties in local labour markets. However, even in countries where eligibility is supposed to be assessed against rigid medical criteria (*e.g.* United States, Japan, France, the United Kingdom and Canada), there is evidence that inflows into disability tend to be higher in times of labour market strains.[6]

A large number of OECD countries have made it possible for older unemployed workers to draw benefits until the pensionable age or allowed them to get access to old-age pension at an early age. Several countries have relaxed entitlement conditions for older workers' receipt of ordinary unemployment insurance benefits, mainly by exempting them from active job search. In some other countries, older workers with a long spell of joblessness can have access to old-age pension at an early age, thus dropping out of the labour force. Where relaxed entitlement conditions have been combined with generous benefit levels, either unemployment-related or old age pension benefits, exits into retirement via a spell of joblessness have become financially attractive.

### The implicit tax on continued work

The incentives to continue to work at older ages embedded in public income-support systems can be summarised as an implicit tax rate.[7] Continuing to work can imply costs in terms of contributions paid and foregone pensions or other benefits, while it may result in permanently higher pensions after retirement. When the sum of discounted gain in pensions over the whole retirement period is equal to the cost of continued work, the social security system is neither encouraging nor discouraging continued work and the implicit tax rate is zero. However, if the costs are higher than the sum of discounted gains in pensions, the social-security system is implicitly taxing continued work and the implicit tax rate is the difference between costs and benefits divided by gross earnings. Similarly, when the sum of discounted gains exceeds the costs, the social-security system is subsidising continued work.

***Pension systems in most OECD countries currently impose an implicit tax on continued work at older ages…***

Judging from the estimates presented in Table VI.2, old-age pension systems in almost all OECD countries imposed an implicit tax on work from the age of 55 to 64 on average in 1995. The tax rates were typically very high after the earliest age at which pension can be accessed, as the sum of discounted gains in pensions was

6. For the United States, see Bound and Waidmann (1992). For the United Kingdom, see Holmes and Lynch (1990).
7. The concept of the implicit tax on continued work has been proposed by Gruber and Wise (1997) in the context of the NBER International Project on Retirement. The implicit tax (or subsidy) on continued work is the average annual variation in the social security wealth – relative to gross earnings – obtained by postponing retirement from 55 to 64 years of age. The social security wealth is the sum of the discounted value of expected benefits (either pensions or other non-employment benefits) minus the discounted cost of obtaining these benefits. See Blöndal and Scarpetta (1998) for more details.

insufficient to offset both contributions paid and foregone pensions. Tax rates were generally much lower prior to minimum pension ages, and a few countries provided small subsidies to continued work until this age. The very high average implicit tax rate in Italy in 1995 was related to the fact that seniority pensions became available even prior to the age of 55 and that pensions were comparatively generous. Average tax rates of 20 to 34 per cent were to be found in countries where the standard or minimum entitlement age was around the age of 60, while single digit tax rates were common in countries where there was no opportunity to access pensions prior to the age of 65.

***… and the availability of other benefits increases the implicit tax considerably***

The availability of *de facto* early retirement benefits prior to the minimum pension age added considerably to the overall tax on continued work over the 55-64 age span in many countries. In this case, costs associated with continued work up to the minimum age are not confined to contributions paid, but also foregone benefits (disability, unemployment-related or special early retirement). Moreover, the common practice of crediting periods spent in such income-support programmes for pension purposes implies that there are no gains in ultimate pensions by continuing to work. For example, the availability of unemployment-related benefits without any requirement for active job search after the age of 50 implied that the average implicit tax on work in Denmark exceeded 50 per cent in 1995, whereas the old-age pension system alone did not impose any tax. The implicit tax in the Netherlands went from single digit to more than 50 per cent once it is taken into account that unemployed workers aged 57.5 could obtain unemployment benefits until pensionable age. In most countries, the implicit tax rate was even higher when it was an option to use disability schemes as early retirement schemes from the age of 55, and very high implicit tax rates were often associated with special early-retirement schemes.

Table VI.2. **Implicit average tax rate on work from 55 to 64, 1967-95**[a]

*Per cent*

| | 1967 | 1995 | |
|---|---|---|---|
| | **Old-age pension** | **Old-age pension** | **Overall**[b] |
| Australia | 0 | 0 | 21 |
| Austria | 31 | 34 | 34 |
| Belgium | –2 | 23 | 37 |
| Canada | –15 | 6 | 6 |
| Denmark | 0 | 0 | 51 |
| Finland | 0 | 22 | 42 |
| France | 2 | 14 | 49 |
| Germany | 4 | 14 | 32 |
| Iceland | . . | 1 | 1 |
| Ireland | 5 | 14 | 32 |
| Italy | 30 | 79 | 79 |
| Japan | 10 | 28 | 28 |
| Luxembourg | . . | 29 | 65 |
| Netherlands | 5 | 8 | 57 |
| New Zealand | 0 | 9 | 27 |
| Norway | 3 | 15 | 15 |
| Portugal | 5 | 4 | 33 |
| Spain | 6 | 18 | 45 |
| Sweden | –9 | 18 | 18 |
| Switzerland | –2 | 0 | 0 |
| United Kingdom | 6 | 5 | 15 |
| United States | 8 | 12 | 12 |

*a)* The implicit tax (or subsidy) on continued work (see text) is the average annual variation in the social security wealth relative to gross earnings as a result of postponing retirement from 55 to 64 years of age. The social security wealth is the sum of the discounted value of expected benefits (either pensions or other non-employment benefits) minus the discounted cost of obtaining these benefits. See Blöndal and Scarpetta (1998). Figures are relative to annual earnings and refer to a single individual at average wage.

*b)* Old-age pension and unemployment-related benefits.

***The implicit tax has increased over time***

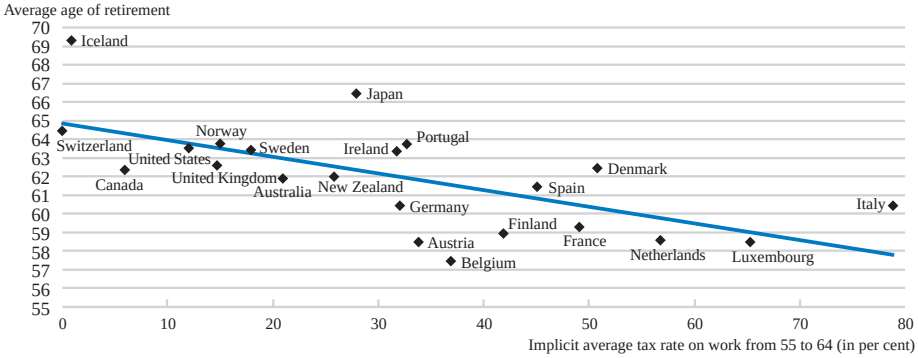
As could be expected from the discussion above, implicit tax rates on continued work after 55 have steepened significantly in recent decades. Indeed, in 1967 pension systems in several countries were close to being neutral with respect to the retirement decision over ages 55 to 64, and a few countries encouraged work over this age span by an implicit subsidisation. As entitlement conditions had not been relaxed in unemployment-related and disability systems to make it possible to use them as early-retirement systems, such systems were not taxing continued work. The broad trend towards stronger incentives in the old-age pension system to retire early masks considerable differences across countries. Increased implicit taxes on continued work have been particularly high in Italy, France, Finland and Sweden, whereas they have been broadly unchanged in the United Kingdom, Australia and Portugal.

### Impact on participation rates of older workers

***Participation is low when the implicit tax is high***

Figure VI.3 suggests a clear relationship between the average retirement age and the implicit tax rate on continued work across OECD countries in 1995. Countries where continued work was heavily taxed either because of the old-age pension and/or the unemployment-related benefit systems were typically the same countries where the average age of retirement of males is comparatively low, and *vice versa*. Thus, this simple correlation corroborates previous findings: incentives to retire early have a potentially strong effects on activity rates of older people.[8]

Figure VI.3. **Implicit tax rates on continued work and average age of retirement, males, 1995**




*Note:* The implicit tax rates (see text) take into account incentives in both old-age pension and unemployment-related benefit systems.

Empirical results also confirm that changes in social-security systems have played an important role in driving down the labour-force attachment of older workers.[9] These results suggest that an increase in the average implicit tax on continued work from the age of 55 to 64 by 10 percentage points would lead to a drop in older male participation rates of about 3.5 percentage points. On this basis, the increase in the implicit tax rate embedded in the old-age pension system since the late 1960s could

8. See Gruber and Wise (1997).
9. These results are derived from a reduced-form equation of older male participation rate using cross-section and time-series data for 15 OECD countries over the period 1971-1995. See Blöndal and Scarpetta (1998).

explain up to a 10 percentage point drop in the participation rate of older males in Italy, France and Sweden. If other non-employment benefits were included in the assessment of the implicit tax, the overall impact of the changes in the incentives could be estimated at more than 10 percentage point drop in male participation rate in Denmark, the Netherlands and Spain.

## Recent reforms

***Reforms have been introduced…***

Several OECD countries are in the process of phasing in changes in their pension systems or have decided major changes that will be implemented in the future. Reforms have either involved changes to the traditional pay-as-you-go systems or increased reliance on advance-funded arrangements, or both. Although the main motivation for these reforms has been cost containment and financial balance in the face of ageing populations, they are expected to have substantial effects on work incentives and thus on the capacity of the reforming countries to meet the "real" burden of ageing (Box VI.2).

Box VI.2.

### Moving to an actuarially neutral pension system: effects on older male participation rates

Simulations by the Secretariat suggest that eliminating the implicit taxation on continued work at older ages could significantly increase labour-force participation of older workers.[1] The cross-country variability of the participation rates of males aged 55-64 will be markedly reduced, with most countries reaching a participation rate of at least 60 per cent (France, Finland and the Netherlands are notable exceptions). The largest increase would be in Italy, where the move towards a neutral system could bring the participation rate back to its levels of the 1950s and 1960s.[2] France, Finland and the Netherlands would also experience marked increases in their participation rates, especially if other income support schemes could no longer be used as early retirement programmes. However, the simulation suggests that their participation rates would remain at the lower end of the OECD range, even after such a reform. In the other European countries, the labour supply of older male workers would increase to around 65 per cent of the older male population, while in the United States and Japan it could approach 70 per cent and 90 per cent of the older male population, respectively. Lack of data makes it impossible to estimate participation-rate equations for the 65-69 year-olds. Yet, the generally very high tax rates on continued work after 64 suggest that a move to a neutral system could have sizeable effects for this age group.

1. These policy simulations are based on a reduced-form equation of older male participation rates, which was estimated using panel data for 15 OECD countries over the 1971-1995 period. See Blöndal and Scarpetta (1988) for further details.
2. As discussed in the main text, recent reforms in Italy will indeed gradually bring the pay-as-you-go system close to an actuarially neutral system.

***… by modifying the pay-as-you-go systems…***

Reforms of the traditional pay-as-you-go public old-age pension systems have usually implied changes to several of the basic parameters determining pension benefits, including:

– a lengthening of the reference period used in determining the value of pensions (*e.g.* France, Finland, Greece, Poland, Portugal, United Kingdom, Spain and Sweden);
– indexation of benefits to net wages (*e.g.* Austria, Germany and Japan) or prices (*e.g.* France and Italy) instead of gross wages;
– an increase in the standard age of entitlement to public pensions in general (*e.g.* Italy, Japan, New Zealand and the United States) and for women in particular (*e.g.* the United Kingdom);

– an increase in the minimum age of entitlement or required years of contribution to seniority pensions *(e.g.* Belgium and Italy);
– a lengthening of contribution periods required for full pension (*e.g.* France and the United Kingdom);
– a greater flexibility in the age at which benefits can be accessed with actuarial adjustment (*e.g.* Germany, Italy and Sweden);
– an increase in contribution rates (*e.g.* Japan and Portugal).

Except for the last change listed above, these reforms have generally gone in the direction of reducing the incentives to early retirement. Box VI.3 provides details of pension reforms in selected countries.

***… but without eliminating the implicit tax on continued work***

Notwithstanding these reforms, traditional pay-as-you-go systems will still impose a significant tax on continued work at older ages in most countries. For example, in the United States the average implicit tax rate on work from 55 to 69 will have fallen only from 18 to 14 per cent once the reforms are fully implemented; in Japan the average tax rate will be unchanged as the reduction for ages 60-64 is offset by higher taxes on work from ages 55 to 59; in Germany the rate will drop from 38 to 28 per cent when there is a possibility of accessing pensions at the age of 60; in France it is practically unchanged when it is taken into account that early retirement can still take place via unemployment benefit and special early retirement systems; and in the United Kingdom the reforms have taken the average implicit tax rate down only from 16 to 13 per cent. Thus, removing the tax on continued work requires much more drastic changes to pay-as-you-go systems than have been decided so far.

***A few countries are shifting towards defined contributions and private schemes…***

More fundamental changes to public pension systems have involved strengthening the link between life-time contributions and pension benefits. Arrangements where contributions are fully reflected in pension benefits in an actuarially neutral way do not distort the work-retirement decision insofar as each additional year of contributions will be compensated by greater pension benefits upon retirement. The link between lifetime contributions and benefits has been reinforced in a number of OECD countries, including Italy, Hungary, Mexico, Poland and Sweden, by shifting from a defined-benefit to defined-contribution systems. Since the latter transfer the risk of low-income upon retirement to individuals, these reforms have generally been accompanied by the introduction of means-tested benefits for those who do not otherwise qualify for a pension or whose pension falls below some poverty threshold. Moreover, workers who have already contributed to defined-benefit schemes for a long period are generally exempted from the reform or are offered the option to choose between the old and the new system. The move towards contribution-based schemes has also been accompanied by greater flexibility in the retirement decision. After the minimum retirement age (57 in Italy, 62 in Hungary and Poland), workers will be allowed to withdraw from the labour market at the age of their own choice: those retiring early will do that at the expenses of a permanently lower pension, while those retiring later will be correspondingly rewarded.

***… using different approaches***

Different approaches have been used to move towards a contribution-based pension system. Some countries, including Hungary, Poland and Sweden, have shifted from a defined-benefit pay-as-you-go system to a mixed public-private system which includes a pay-as-you-go tier and a privately-managed fully-funded compulsory tier. Mandatory contributions finance the two pillars in different proportions depending on the country. Moreover, in some cases, favourable tax treatment will encourage workers to contribute to an optional fully-funded third tier. The pay-as-you-go first pillar is generally based on the principle of Notional Defined Capital in which retirement benefits

Box VI.3.

## Pension reforms and implicit tax: country examples

A number of OECD countries are in the process of reforming their old-age pension systems. The major features of these reforms in some selective countries and the potential impact on the incentives to retire can be summarised as follows:

***United States*** The 1983 reform, which will be fully implemented in 2022, included the raising of the standard entitlement age to public pensions from 65 to 67. Moreover, the actuarial adjustment factor for each year of work beyond the standard age has been increased from 5 to 8 per cent, while the pension system will still allow access to pension at 62 but with a downward adjustment factor of 5-6.6 per cent for each year of retirement taken from 62 to 67. These reforms implied that the implicit tax on continued work was broadly unchanged for ages 62 to 64 but fell notably for ages 65 to 69.

***Japan*** The 1994 reform, which will be fully implemented in 2025, raised the standard eligibility age for the basic component of pension payments from 60 to 65 for employees, access at the age of 60 still being possible but with an actuarial adjustment yet to be decided. Moreover, it envisaged that the level of contribution rates be raised incrementally until the long-run stability of the system is achieved; this, however, would imply an increase from 14.5 per cent in 1995 to around 30 per cent according to official projections. On the assumption that the actuarial adjustment factor will be similar to that currently applied for the self-employed, the reform will reduce disincentives to work for ages 60 to 64, but the increase in pension contributions implies that the implicit tax increases significantly prior to the current retirement age of 60.

***Germany*** Reforms in 1992 and later, which will be fully effective after the year 2004, introduced an actuarial reduction applicable to seniority pensions from the age of 63 (for males) and actuarial increases for deferred retirement. The adjustment factors are 3.6 per cent per year of early retirement in addition to reductions due to fewer contribution years; and 6 per cent for each year of retirement after 65, in addition to increases due to a longer contribution history. Moreover, old-age pensions available to some categories of workers at the age of 60 (including unemployment pensions) will also be subject to actuarial reduction. This reform reduces the implicit tax on continued work for ages 60 to 64 and 67 to 69, but the system will continue to discourage work after the age of 55.

***France*** The 1993 reform, which will be fully effective in the year 2008, included an increase in the contribution period for full pension from 37.5 to 40 years. For an employee who has contributed since the age of 20, this reform gives strong incentives to work until the age of 59 whereas there is an implicit tax on working from 57 to 59 in the current system. However, as it is still an option to retire via the ordinary unemployment benefit system and special early-retirement schemes, the implicit tax is unchanged when these possibilities are taken into account. The lengthening of the reference period used to calculate pensions will most likely reduce pension replacement rates, and thus the implicit tax on continued work after the age of 60. Nonetheless, there will still be major disincentives to work after the age of 60.

***Italy*** The 1992, 1995 and 1997 reforms will significantly change the public pension system: *i)* the standard retirement age will be gradually raised to 65 for men and 60 for women (by 2002); *ii)* the earliest age for seniority pension will be gradually raised (54 currently) and this type of pension will be abolished in the year 2013; and *iii)* pensions will be gradually determined by contributions over the entire working life. These reforms, when fully implemented in 2035, imply that the pension system will be fully contribution based and broadly neutral (see main text).

***United Kingdom*** The 1986 reform, which will become fully effective in 2028, reduced the annual accrual rate in the State Earnings Related Pension Scheme (SERPS) from 1.25 to 0.41 per cent. However, the original intention of the SERPS was that maximum replacement rate should be 25 per cent, implying that accrual rates after 20 years of contributions would be zero. The reform thus increased the pension wealth accrual after 20 years of contributions, but disincentives still remain.

will be closely linked to the appropriately indexed virtual capital accumulated by each individual during working life. The second pillar operates as a fully-funded capitalisation system. Individual pension accounts are managed by private funds under government supervision and, upon retirement, workers will buy an annuity with the accumulated contributions.

Other countries have moved in to funded pension systems without introducing a two-tier mandatory scheme. Thus, Mexico has transformed the previous pay-as-you-go system into a fully-funded capitalisation system in which mandatory contributions finance individual pension accounts managed by private fund administrators. In contrast, the pay-as-you-go system will be maintained in Italy, but pension benefits will be gradually determined by the Notional Defined Capital, the contributions being capitalised at the rate of real GDP growth. The stock of contributions can be transformed into annual pensions from the age of 57 onwards, with adjustments reflecting life expectancy and expected GDP growth rates.

***Reforms of other non-employment benefit systems are required***

A few OECD countries have also embarked on reforming their non-employment benefit systems, with an increased targeting on people in need. The Netherlands, after the abolition of the labour-market criterion in 1987, has taken further steps to tighten the disability system, including stricter medical reviews, lower benefits and replacing the criteria from ability to perform previous job to work in any occupation. The minimum age for eligibility for early disability and unemployment pensions was recently raised in Finland, while some tightening has also occurred in Italy, Australia and Norway.

The experience of countries that have recently reformed their social security systems is indicative of the close interactions that exist between the different income support programmes: tightening one programme may result in a greater use of other programme. For example, the tightening of the disability system in the Netherlands coincided with an increase in claimants of unemployment and other social welfare benefits, and this might be particularly relevant for older workers as they have benefits of long duration.[10] Also, the tightening of the disability system in Norway went hand in hand with an easing of entitlement conditions for special early-retirement benefits, and substitution between the two schemes appears to have taken place. In general, reforms to reduce disincentives to work need to look at all possible early retirement programmes together in order to reduce the danger that benefit claimants migrate from one system to another.

## Concluding remarks

There is clear evidence that old-age pension systems have had a marked impact on the retirement behaviour, often discouraging labour force participation among older workers. Although the observed trend to early retirement may in part reflect a rising demand for leisure as societies become prosperous, changes in social security systems have made continued work at older ages financially unattractive. The disincentives to work are particularly strong after the earliest pensionable age: the increase, if any, in pension entitlements due to an additional year's work is often insufficient to cover the extra pension contributions and foregone pension payments. A number of factors have contributed to the observed increases in the implicit tax on work after the age of 55 over recent decades, including the lowering of standard retirement ages, higher pension

10. This issue is discussed in Lindeboom (1998).

replacement rates, flatter pension accruals at older ages, and higher pension contribution rates. Incentives to retire early are amplified in countries where other income-support schemes – which were originally designed to deal with other contingencies – have been used to finance early retirement.

Recent reforms in old-age pension systems have gone in the direction of reducing the incentives to early retirement by changing several of the basic parameters determining pension benefits. Most of these changes are to be phased in gradually and the reformed pension systems will be fully operational in the first decades of the next century. However, only in a few cases will these reforms completely eliminate incentives to early retirement and further actions will most likely be required in the future. Actions have also been taken to tighten the access to disability benefits by abolishing the labour market criterion and focusing on stricter medical reviews. In contrast, no major action has yet been taken to reform unemployment-related benefit systems for older workers. More generally, the removal of disincentives to work may need to be accompanied by labour market reforms that promote job opportunities for older workers.

Removing the incentives to early retirement could pose a considerable challenge to OECD labour markets. The labour supply of older workers would rise significantly, and it might be difficult to absorb this increase in countries with high structural unemployment. The adjustment would be eased if reforms of pensions and other income-support systems for the elderly were to be accompanied by measures to increase job opportunities in general, including elimination of measures and practices that discriminate against older workers. The reforms discussed above could themselves contribute to increase job opportunities for older workers by inducing *inter alia* changes in their wage determination, participation in training, mobility, and working-hour schedules. However, the more broad-based reforms of labour and product markets along the lines advocated in the OECD *Jobs Strategy* would make the transition to increased participation of older workers in the labour market both easier and quicker.

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