1. Introduction

The first pillar of the 1999 employment policy guidelines of the European Commission concerns improving employability. Guidelines 4 and 6 refer to “older workers” by stating that each Member State “will review and, where appropriate, refocus its benefits and tax system to develop a policy of active ageing ..., so that older worker are also able to participate actively in working life”. In the 2001 Employment Guidelines, again, the Member States are asked to develop policies for active ageing with the aim of enhancing incentives for older workers to remain in the labour force as long as possible, in particular by reviewing tax and social protection systems with the aim of removing disincentives and creating new incentives for older workers to remain active in the labour market. Also the Organisation for Economic Co-operation and Development (OECD 1998) considers active ageing important. 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 and to remain in the labour force after a certain age. Retirement income should be provided by a mix of tax and transfer systems, advance-funded (pension) systems, private savings and earnings. The objective is risk diversification and to give individuals more flexibility concerning their decision to retirement.

In the 1970s and 1980s most EU Member States put in place special unemployment benefits, disability benefits and early and pre-retirement schemes to encourage older workers to leave the labour market, with the aim of replacing older and expensive employees with younger and cheaper ones. Early retirement was also introduced to provide a soft landing for the mass of elderly workers who were already out of the labour force, or unable to find a job. The economic environment at that time was characterised by downsizing, industrial restructuring, increasing youth

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unemployment and long-term unemployment. The generous early retirement provisions are largely responsible for the dramatic drop in the labour force participation among middle age and elderly workers over the last 30 years (see Blöndal and Scarpetta 1997; 1998; Delsen et al. 1999; Gruber and Wise 1999). The exchange of elderly employed persons for young unemployed persons is not only an expensive way to prevent long-term (youth) unemployment but it is also an inefficient measure because it excludes potential productive resources of older workers and results in the latter’s long-term unemployment. Flexible retirement schemes, such as part-time retirement, would be much more preferable from both a social and economic point of view (Schmid and Reissert 1996; Delsen and Reday-Mulvey 1996). In the 1990s changes were made to the pension systems and social security systems in a large number of EU countries in order to reverse the existing culture of early retirement. Pension schemes were made more flexible and the disability and unemployment benefits were reduced and the thresholds raised, making the early retirement options more limited or less attractive.

This chapter reviews the incentive and disincentives regarding active labour market participation of older males and females arising from the tax and social security systems of the EU Member States. In relation to the latter the focus is on old-age pension systems, disability and unemployment insurance, special early retirement programmes and social assistance systems. The (dis)incentives can be found on the contribution as well as the benefit side of these systems and have an impact on the demand as well as the supply side of the labour market. We shall also establish the effectiveness of the recent policy changes to remove the disincentives and to create new incentives by parametric and systematic reform (Chand and Jaeger 1996) of tax and social security systems in the EU Member States, aimed at reversing the early retirement incentives and promoting later retirement.

This chapter is organised as follows. In Section 2 the social security systems in the EU are characterised. In the following sections the parametric changes in the systems are discussed. The statutory retirement age (Section 3), the replacement rates (Section 4) and the contribution rates (Section 5). Section 6 reviews the impact of earnings rules and means tests. The position of older workers in unemployment and disability insurance is discussed in Section 7. Section 8 addresses implicit taxation. After that the effectiveness of the structural changes are discussed in Section 9. These changes concern the privatisation, the shift from pay-as-you-go to funding, and from defined
benefits toward defined contributions. Section 10 concludes the chapter with conclusions and policy recommendations.

2. Bismarck and Beveridge

In Europe, policies and schemes related to social security and retirement from work differ substantially between countries, reflecting both cultural and institutional differences. However, schemes tend to converge. Three types of social security systems can be identified: Bismarck-type schemes, Beveridge-type schemes and mixed systems (see Jepsen 2001; Gillion et al. 2000; Prinz 1997; Van Vugt et al. 2000). The focus of Bismarck-type systems is on maintaining the standard of living. In most European countries social security programmes providing cash benefits to the aged, disabled and/or survivors apply an earning related benefit, underpinned by a social assistance safety net which proved general anti-poverty coverage on a means-tested basis. The Bismarck line is followed by Austria, Belgium, France, Germany, Greece, Italy, Luxembourg, Portugal, and Spain. Luxembourg also has a basic benefit which is related to the length of contribution. Old-age pensions are the single largest social security benefit in OECD member countries. Bismarck-type pensions schemes offer a contribution-related old-age benefit and a contribution free survivor benefit. Because women have a longer life expectancy than men, they are the principal recipients of survivors’ benefits; this implies that women have access to pensions derived from husbands’ employment record. They also are provided longer with a pension. However, widowed and divorced women cannot rely on a husbands’ financial support throughout life, while married women may not share their husbands’ income equally (Ginn and Arber 1998; Jepsen et al. 1997). Bismarck-type system are characterised by a strong incentive for women to withdraw from the labour market. In countries with only earnings-related pension benefits social assistance schemes usually guarantee minimum levels for older people. Financing is based on a mix of employer and employee contributions, sometime supplemented by financing from government general revenue. In purely earnings related schemes women often are unable to achieve (sufficient) pension claims in their own right. This also applies to casual workers. A particular difficult group to cover are the domestic household workers.

In line with Beveridge Denmark, Finland, Ireland, the Netherlands, Sweden and the United Kingdom provide a universal flat benefit to all citizens. Beveridge-type basic pensions only offer a (usually tax-financed) basic old-age benefit, and are supplemented by a contribution related second tier. Ireland and the Netherlands only have a basic pension. In Sweden the second tier of
the first pension pillar is earning related. The two-tier basic pension system clearly encourages economic activity of women. The mandatory insurance system has an even greater incentive for women to re-enter into the labour market, because the husband would have to pay contributions in any case. Particularly for women with a continuous work biography and a low income, a situation which is often typical for lowly educated blue-collar workers, this scheme would be ideal. Pensions are not related to employment/contribution records, but to age and length of residence. Finland, Ireland, the Netherlands and the UK finance the basic benefit mainly from payroll contribution; Denmark and Sweden from general taxation. In the UK the flat rate retirement benefit is based on the payment of contributions for a prescribed period. Universal flat-rate benefits are on the decline (Gillion et al. 2000; Kalisch et al. 1998). Pure universal retirement benefits unrelated to work remain only in Denmark, Ireland and the Netherlands. Moreover, most countries apply means tested social pensions that function as a last resort of the state to ensure minimum income for the elderly.

Social insurance schemes in Austria, Germany, Ireland, Spain, and the UK apply an earning thresholds or an hours threshold. Most part-times are unable to acquire an adequate occupational pension because of low pay and lack of access to schemes (Delsen 1995; Ginn and Arber 1998). This notably applies to women. Employers are exempted from paying social security contributions for employees on low wages or in part-time jobs with only few hours, creating an incentive to offer such jobs. The frequent link of annual pension benefits to years of service or some combination of years of service and recent salary, *ceteris paribus*, induces workers to retire later rather than earlier. Part-time employment is discouraged because it leads to lower pension income. However, women often have career interruptions, due to periods of child care, problems in reconciling work and family life incurring a loss of pension rights. The impact of maternity on employment and pension rights is less negative in Scandinavian countries. A weaker link between contribution and benefit, implies an incentive for females to decrease labour supply in particular, and the resulting higher wedge\(^1\) may reduce labour supply and labour demand in general (see Section 5 on contribution rates). The pension benefit formulas in Austria, Finland, France, Italy, Portugal, Spain, and the UK leave out the best and the lowest earning years. Extending the number of final years and the shift towards earning over the entire working life (Sweden) reduces the pension benefit of the upper-income workers more than of the lower-income

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\(^1\) The wedge is the difference of labour costs (inclusive of employers’ social security contributions) and the net wage after deduction of direct taxes and employees’ social security contributions.
worker, because the former have steeper earning-age profiles. The applied earnings ceiling works
has a similar distribution effect.

Indexation of public pension benefits of existing pensioners is to prices (France, Italy, Sweden, 
UK), to net (minimum) wages (Germany, Netherlands), or to gross wages. Finland applies a 80
percent weight for inflation and 20 percent for wage growth. Most occupational pension benefits
protect against inflation. In the Netherlands they are wage indexed. Indexation to gross wages
means the pensioner enjoys the growth of labour productivity. Indexation to net wages takes
account of the impact of higher contributions and income taxes. Indexation to gross and net wages
fits the “breadwinner” household model and the Bismarck-type system. Indexation to consumer
prices takes account of inflation. This is more in line with the deferred pay concept of pension and
the trend towards individualisation and fits the Beveridge-type system. Indexing to prices not only
implies that older pensioners will have (much) lower pensions than those retired recently, also
women will be more affected because of longer life expectancy at retirement age. Career
interruptions, thresholds, and indexation to prices explain the overrepresentation of single
females of 65 years and older in the poor households in the EU, notably in the UK.

3. The statutory retirement age
The statutory retirement age in most of the EU Member States is 65. Exceptions are Denmark
and Sweden (67), Ireland (66) and France (60). The Danish retirement age will be 65 from 2004.
In Austria, Belgium, Germany, Greece, Portugal, and the United Kingdom the retirement age for
women is still lower than for men. The OECD (2001) recommends raising the age at which
benefits first become available and, in the longer run, raising the standard retirement age.
Increases of statutory retirement age for both men and women are not (yet) recorded. In recent
legislation, following developments in European law on equal treatment an upward
harmonisation of the statutory retirement age to 65 for men and women is established in Austria,
Belgium, Germany, Greece, Italy, and the UK (see Blöndal and Scarpetta 1998; EPC 2000;
Gillion et al. 2000; Jepsen 2001; Kalisch et al. 1998; Van Vugt et al. 2000). In Belgium,
although the pension age was equalised after 1991, the required number of contribution years
still remained 45 for men and 40 for women. Hence, after having worked for 40 years, male
pensions – presuming a man and a woman have experienced the same wage evolution, which is
nowhere near the reality – were still 11 percent below female pensions. This, of course, is a clear
discrimination against men. To comply with equal treatment also the required number of
working years for women to be entitled to a full pension will be gradually increased to 45 years in 2009. For 2002 this age is 42 years. Also in the UK the basic state pension age will gradually be equalised between 2010 and 2020. However, a man will need 44 years of contributions and a woman 39 years of contribution in order to qualify for a full basic pension. For those who are unable to meet these requirements due to low pay, care responsibilities or periods of unemployment, the state currently provides for contribution credits to fill these gaps and to secure full pension entitlements.\textsuperscript{2} The change in the state pensions age for women from 60 to 65 implies women not only have to wait an extra five years to receive the Basic State Pension, but if for those five years they are in low or no employment, this will also depress the value of their State Earnings Related Pension (SERPS) entitlement. In the UK by 2006 the compulsory retirement age will be abolished (Walker 2002). Also in Italy there are plans to abolish the official retirement age (Paulli and Tagliabue 2002).

Actual retirement age is below statutory retirement age in all EU Member States. From the employee point of view both pull factors, the attractiveness of life in retirement, including high net replacement rates, and push factors, aspects of the job from which people are trying to escape in the social security system, are responsible for this (Blöndal and Scarpetta 1997; 1998; Jepsen 2001). Recently much attention has been paid to the incentives and disincentives of social security to work, on labour supply. Most research on retirement aims to explain the fall in participation rate of the elderly. Three explanations are found: changes in social security, increases in amounts and coverage of private and public pensions, i.e. the result of distortions in the incentives offered to firms and workers and last but not least increases in household wealth (see Hurd 1990; OECD 1994). Labour supply has different dimensions: hours of work, participation, and effort, the productivity per hour. The social protection system will have an impact on all three dimensions.

Several EU countries, have made it possible to access old-age pension prior to the standard age under certain condition. Seniority pensions allow those who have contributed to the pension scheme for a long period to take their old-age pension early (SZW 1997). For instance in Austria, Belgium, France, Germany, Greece, and Italy for those who have a long contribution or long service history (30 years or more). Since January 2001 in Italy the minimum number of years has been raised from

\textsuperscript{2} Contribution credits are paid to the basic state pension for the registered unemployed, those claiming incapacity benefit and invalid care allowance.
35 to 40 years for seniority pension. People eligible for seniority pension with less than 40 years of contributions cannot cumulate pension and salary (Paulli and Tagliabue 2002). Other countries introduced actuarially reduced pension. Older citizens can obtain pension before the standard age subject to a permanent reduction in pension above a minimum retirement age, including Austria, Belgium, Germany, Greece, Finland, France, Italy, Spain, and Sweden (Delsen et al. 1999; Jepsen 2001; OECD 2001). The corresponding reduction in benefit is commonly around 6 percent per year or less. The penalties for early retirement in Finland (4.8 percent), France (5 percent) and Germany (3.6 percent) are relatively low and provide an incentive for early retirement. The actuarial reduction is not high enough to eliminate the discouragement to continue to work. In Sweden the actuarial reduction is high enough to encourage continued employment, however other more attractive early exit options are available.

Social security plays two roles in the decision whether to retire or to continue working. Wealth effects, i.e. higher social security wealth will induce individuals to consume more of all goods, including leisure, and to retire early. Accrual effects, i.e. the increase in retirement consumption resulting from an additional year of work, relative to the value of an additional year of leisure (Coile and Gruber 2000). The incentives offered by the pension system to retire include the replacement rate and the accumulated pension wealth. Retiring before the normal standard age results in lower pension. However, the fact that the pension increases with years of work does not necessary mean that the system does not encourage early retirement (OECD 2001). Pension wealth is the equivalent of the sum required to purchase the stream of income accorded by the pension system from the day the pension is drawn until death, i.e. it is the net present value of all future pension payments that the eligible person can expect to receive. Pension wealth is affected not only by the size of the pension, but also by the point of retirement. Deferring the pension one year reduces total pension wealth by the amount that would have been received during that year plus the costs of pension contribution payable during that same year. On the other hand if the replacement rate is higher after the additional year of work, this will increase pension payments for all the years the pension is received. If benefits increase at too low a rate (or if the contribution rates are high) pension wealth will fall if retirement is deferred another year. Hence the person pays an implicit tax equal to the loss of pension wealth (see also Section 7). Because of the impact of the flat rate component of pension systems, the incentive to retire early is greatest for those with low income.
The drop in pension wealth from continued work after 55 has steeped significantly in recent decades (Blöndal and Scarpetta 1997; Casey 1998; Gillion et al. 2000; OECD 2001). This can be corrected by moving towards actuarial neutrality: expected pension wealth would remain constant and independent of when labour force participation ends; benefit levels would be fully adjusted to take into account the period of contributions made and the period during which pensions will be received. However, factors outside the pension system that influence the retirement decision need to taken into account; e.g. disability benefits, special pensions for unemployed older workers. So an actuarial fair pension system – a close relationship between premiums paid and received benefits later – will help, but this would not be sufficient (OECD 2001) (see also Section 9).

Blöndal and Scarpetta (1997) conclude that old-age pension systems discourage work at old ages. The disincentives are particularly strong after the earliest age at which pensions become available: continued work typically implies foregone pensions and continued payment of pensions contributions with little or no increase in ultimate pension after retirement. Eligibility for a pension raises the reservation wage by providing an alternative source of income that raises the value of time spend at home, thus changing the likelihood of labour force participation. The pension accrual rate - the rate at which pensions payable at the standard retirement age increase with an additional year of employment and contributions – differ significantly across EU countries. In some countries the full pensions are earned relatively quickly, implying zero pension accrual rates from additional years of work at older ages. For instance, the 55 years old male workers could expect little or no increase in his pension by working for ten additional years in Denmark, Finland, Ireland, Netherlands, Spain, and Sweden. Earning related benefits are computed on the basis of assessed average wage income over a period varying from a few years to the entire career; accrual rate varying from 0.4 percent in the UK to 2 percent in Italy (Chand and Jaeger 1996). Old-age pension systems also discourage work before the pensionable age and gives an incentive for people to retire early: the increase in pension entitlements due to an additional year of work is insufficient to cover the extra pension contribution. People may therefore try to save more during their working lives in order to have a higher standard of living over a longer period of retirement.

People who keep working after retirement age and delay taking up their pension entitlements usually receive a permanent increment to the pensions rate (Luxembourg, Finland, Germany,  

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3 In reality actuarial fairness does not exist, because insurance companies have to deal with operating costs and make profits.
Sweden, United Kingdom). Some countries have limits on the maximum age of deferment (70). Finland, Sweden and the UK allow indefinite delay of pension take-up. In the UK 7.5 percent is considered approximately actuarially neutral. Not only non-neutral actuarial factors, also not permitting additional years of service (e.g. a cap at the normal retirement age in the UK or a maximum number of accrual years like in most countries) to add to accrual in state pension schemes represent a disincentive to late retirement (Casey 1998). A maximum on the number of years of service is relatively unfavourable for the low-income workers because they tend to begin working at younger age than high-income workers.

The most important aim of the introduction of various early and pre-retirement schemes, notably those with a replacement condition, was the reduction of the unemployment rate amongst youngsters. These schemes were abolished in Germany and the United Kingdom in the late 1980s and in 1997 in Denmark. However, the schemes still operate in Luxembourg, Belgium and Spain. In France the entitlement to special early retirement benefits was restricted to older workers made redundant after the age of 57 (56) in 1995 (see Delsen et al. 1999; Blöndal and Scarpetta 1997). The effectiveness of the reduction of the attractiveness of early retirement through changes in public benefits may be limited: the extension of private pension schemes as a substitute many of which have early retirement opportunities (UK, Sweden, Finland) may lead to further reductions in effective age of retirement.

4. Replacement rates

A high benefit level relative to earnings from work (the replacement rate) provides an incentive to leave work, and vice versa. In the EU mandatory public pension plans are generally based on the defined benefit principle: benefit received by the individual is specified in advance, usually as a function of the person’s earning history and the number of contribution years. The defined-benefit plan can be earnings related, flat rate or means tested. Often a maximum replacement rate applies. Benefits set at flat rates or set at a percentage of previous earnings subject to minima and maxima imply that the replacement rate varies according to previous earning levels (SZW 1997). Public pension replacement rates are higher for the lowest earners. The Netherlands are an exception to this rule. In Finland, Germany, and Italy, the replacement rates are above 100% for the lowest income groups (OECD 2001).

**Table 1: Old-age pension gross replacement rates (percentages) in 1995**
<table>
<thead>
<tr>
<th>Country</th>
<th>Replacement Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>79.5</td>
</tr>
<tr>
<td>Belgium</td>
<td>67.5</td>
</tr>
<tr>
<td>Denmark</td>
<td>56.2</td>
</tr>
<tr>
<td>Finland</td>
<td>60.0</td>
</tr>
<tr>
<td>France</td>
<td>64.8</td>
</tr>
<tr>
<td>Germany</td>
<td>55.0</td>
</tr>
<tr>
<td>Greece</td>
<td>120.0</td>
</tr>
<tr>
<td>Ireland</td>
<td>39.7</td>
</tr>
<tr>
<td>Italy</td>
<td>80.0</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>93.2</td>
</tr>
<tr>
<td>Netherlands</td>
<td>45.8</td>
</tr>
<tr>
<td>Portugal</td>
<td>82.6</td>
</tr>
<tr>
<td>Spain</td>
<td>100.0</td>
</tr>
<tr>
<td>Sweden</td>
<td>74.4</td>
</tr>
<tr>
<td>UK</td>
<td>49.8</td>
</tr>
</tbody>
</table>

Source: Blöndal and Scarpetta 1997, Table 2.

Gross replacement rates differ considerably across EU countries (see Table 1). In Spain and Greece, pensions match or even exceed earnings from work. High rates close to pre-retire earning are found in Italy, Luxembourg, Portugal, Sweden and Austria. Ireland and the Netherlands are at the other end. However, net after tax pension replacement rates are more meaningful for behavioural decisions about retirement than gross replacement rates. Net replacement rate is the ratio of disposable income based on social benefits when out of work and disposable income earned from work.\(^4\) In many countries there is a range of tax concessions (benefit income tax-exempt below a minimum amount and income tax age deduction). Tax relief for elderly people or pensioners explain why net replacement rates are higher than gross (EPC 2000; OECD 2001). Some countries have concessions in terms of social security contributions for pensioners, e.g. in Italy, Ireland, the Netherlands, and the UK (Kalisch et al. 1998; OECD 2001). Moreover, because of progressive income-tax systems people will pay less tax on their lower pension than on their earnings when working. Some countries, including Germany, Denmark and the Netherlands, are carrying out tax and premium reforms to make the system less favourable to pensioners or to abolish most of the concessions in order to broaden the tax base. This reduction in benefit may imply less incentive to continue to work and look for private alternatives.

Early retirement implies high net replacement rates, especially at the lower end of the income scale. For a production worker with an average wage the replacement ratios in terms of previous take-home-pay were in 1996 the following: the Netherlands, France, Italy: around 80 percent; Denmark: around 65 percent; Sweden, Spain and the UK about 60 percent; Finland: about 50 percent. For a production worker with a wage equivalent to 200 percent of the average wage, the

\(^4\) Note, however, that also work-related costs reduce take-home pay and further reduce the attractiveness of continuing or taking up employment.
replacement rates were in 1996 slightly above 80 percent in the Netherlands, slightly below 80 percent in Italy and France, around 60 percent in Sweden and Spain, around 55 percent in the UK, around 47 percent in Finland and 40 percent in Denmark (Hutsebaut 2001). The Dutch, French, Italian, Spanish and British early retirement schemes have a more strictly proportional benefit. The Danish, Swedish and Finnish schemes are relatively generous for those with low earnings, but somewhat less attractive to those with higher earnings. Like the early retirement programmes, in Denmark, Finland, France and the UK, the invalidity benefit system is relatively more attractive to those with low incomes. In Spain, Italy and the Netherlands those on invalidity benefit are not relatively financially better off. However, they are unlimited in duration (SZW 1997). In Sweden the replacement rate of disability pension is higher than the replacement rate of early old age pension. In Denmark the net replacement rate of the early retirement scheme for the low income is 100 percent (Hansen 2002). Also in France, because of the benefit ceiling, the early retirement scheme is less attractive for higher wage earners. Moreover, beyond that ceiling no pension rights are accrued, even when paying pension contribution (Jolivet 2002). In France the early retirement scheme is more generous than either the disability or unemployment benefit. In Italy and Austria it is on the par. Also in the Netherlands the conditions of the special early retirement schemes concluded in collective labour agreements are more generous. As is the case with old-age pensions, the generosity in non-employment benefit schemes, i.e. the net replacement rate, is higher for low-earning workers than for high-earning workers and spouse supplements imply higher generosity for couples than for singles. In Austria, Belgium, Finland, France, Germany, Greece, Ireland, and the Netherlands a supplement is granted for a dependent spouse, i.e. the replacement rate for a retired person with a dependent spouse is greater than for a single person. In Denmark, Finland, and Sweden the basic pension for two singles pensioners is higher than the pension for a married couple. Survivor’s pension are granted in all Member States. In most countries, except Ireland and Denmark, the accumulation of retirement pension with a survivor’s pension, notably in Portugal, the Netherlands and Luxembourg, creates differences in gross replacement rates between singles and widows (Blöndal and Scarpetta 1997; Gillion et al. 2000; Jepsen et al. 1997). High net replacement rates in unemployment benefits, invalidity benefits as well as pensions in Finland, France and the Netherlands explain in part the low participation rates of older people (OECD 1994). This also explains why in particular low-educated retire early. Retirement decision of hourly paid employees is dominated by push factors; of salaried employees by pull factors (Walker 2002). Early retirement tends to be low among females, as well as among persons with more education and those who work in the service sector (Hernaes et al.
Those with lower educational attainment and those in the good-producing sectors are overrepresented in the retired at ages 55-64. Self-employed tend to work longer than employees. The replacement rate for self-employed is much lower than for employees. As a result of flat rates, minimum or maximum pensions, the replacement rates are higher for those on low earnings (Blöndal and Scarpetta 1998; OECD 2001). This partly explains the overrepresentation of people with low earning capacity in early retirement.

Reduction in the generosity of benefits, i.e. cuts in benefit rates have taken place in Germany, Italy, Greece, Finland, Portugal, Sweden, and the UK. Over the past years in Austria, Belgium and the Netherlands benefits have been frozen (Delsen 1995; Gillion et al. 2000). Implying a reduction in the net replacement rates. Experience in Europe shows that the financial incentive needs to be considerable if it is to influence a worker’s decision on retirement (see Delsen and Reday-Mulvey 1996; Delsen et al. 1999). Empirical evidence suggests that even a relative large change (of 20 percent in Italy and Germany) in the generosity of disability, unemployment or special early retirement benefits would affect the average retirement age by only a few months (Blöndal and Scarpetta 1998). A change in the pension benefit level will have a direct impact on the financial well-being of many older people. As low-income retirees in the EU depend relatively more on social security, across the board cuts cause a larger percentage reduction in their retirement income than for upper-income retirees. The recommendation of the Economic Policy Committee (EPC 2000) is that the containment of the benefit should represent the main instrument for guaranteeing the solvency of the pay-as-you-go pensions schemes. In order to limit the reduction in the standard of living of the elderly, reforms should primarily aim at delaying retirement.

Table 2: Quasi-replacement rates of mean disposable income of people aged 65 to 74, mid-1990s

<table>
<thead>
<tr>
<th>Country</th>
<th>Relative to people aged 51-64</th>
<th>Relative to people aged 41-50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>69.4</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>75.5</td>
<td>71.6</td>
</tr>
<tr>
<td>Germany</td>
<td>84.4</td>
<td>78.2</td>
</tr>
<tr>
<td>Greece</td>
<td>79.9</td>
<td>-</td>
</tr>
<tr>
<td>Italy</td>
<td>78.7</td>
<td>78.1</td>
</tr>
<tr>
<td>Netherlands</td>
<td>80.7</td>
<td>78.9</td>
</tr>
<tr>
<td>Sweden</td>
<td>76.1</td>
<td>80.3</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>74.1</td>
<td>65.0</td>
</tr>
</tbody>
</table>

Pensioners in the EU Member States have disposable incomes, on average, of close to 80 percent of comparable groups of people during later working life, despite the wide variety of retirement income systems (see Table 2). Bearing in mind that some work-related expenses are no longer necessary, and taking into account greater home ownership, this high quasi-replacement rate means that in most countries people experience almost no or only a minor reduction of their standard of living when moving from later work to retirement. Housing wealth is considerable even among low-income older people. Financial wealth, although relatively small, is reported by nearly all income groups. The importance of working income for people aged 65 and older has declined over past decades. In several countries capital incomes (Netherlands and the United Kingdom) have risen over time with the growth of private and occupational pensions. In other countries the reduction of working income was compensated by an increase in net social transfers (Finland and Italy). The similarity across countries in the disposable income can be explained from the design of public pensions and the extent to which private pensions are mandatory. The various sources of income are substitutes (OECD 2001). The latter has to be taken into account in policy formulation.

5. **Contribution rates**

The majority of the EU Member States finance their social protection through social contributions: Austria, Belgium, France, Germany, Italy, the Netherlands, and Spain. Denmark, Ireland, and the UK predominantly rely on taxation for financing social protection. Portugal, Finland, Sweden and Luxembourg apply both contributions and taxes. In the 1990-1998 period in the EU there has been a strong shift from social contributions to taxation as a source for financing social protection (EC 1999; Hutsebaut 2001). Increases in the social security contributions rates, in most cases levied at flat rates, up to a specified limit, undermine the overall progression of the tax system. Most countries, except Italy, have a maximum earnings ceiling. Financing the well-off elderly portion of the population can be viewed as an unfair burdening of low- and moderate-income families. Higher contributions may also result in a reduction in employment, in particular low-wage labour and of workers with relatively elastic labour supply elasticities. In Finland, Germany, Italy and Sweden the earning related public pension system increases income inequality among the population aged 65 and over. The taxation system on the other hand makes income distribution more equal, especially in Finland, Sweden and the Netherlands (OECD 2001).
In most EU countries social security schemes are financed on a pay-as-you-go basis. There is little link between premiums paid and benefits distorting the labour market, labour demand and supply. Pay-as-you-go systems are vulnerable to demographic shifts and to labour market developments (unemployment), the financial burden on the working population increases. Considerable parts of the risks covered by the social security system in Europe are age related – old age, disability, sickness, and unemployment. Hence, the double ageing process will cause rising social security contributions resulting in distortions of factor prices. The main financing source of social security and public pension schemes is social security contributions levied on gross wage earnings. In some countries equally shared by employers and employees. The effect of national insurance contributions is to drive a wedge between gross and net money wages. Because of no actuarial fairness, also the pension premiums are part of the wedge in labour income. Indeed, contributions rates have been raised in many countries, including Denmark, Finland, France, and Sweden. The UK and Belgium are exceptions. By the mid-1990s contribution rates of 18 percent and over were recorded in Austria, France, Germany, Italy, Spain, and Sweden (see Table 3). Moreover, if pension claims are not fully portable, because of long vesting periods, labour is less mobile.\(^5\) Chand and Jaeger (1996) state that because workers and employers increasingly resists against further increases in contribution rates (payroll tax rates), it is likely that benefits will be cut and retirement age raised. However, the latter is opposed by well organised pensioners. That is why there has been a tendency to formulate increasingly forward-looking proposals that involve adjusting the benefits of future generations of pensioners (Chand and Jaeger 1996; Gillion et al. 2000).

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\(^5\) A disincentive to job mobility may also result from incomplete coverage under occupational pensions. Universal coverage exists only in a small number of countries: Sweden and the Netherlands.
Mandatory social security contributions are often viewed as a tax. Contributions to funded schemes are less likely to be regarded as taxes rather than as own personal retirement savings plan. However, in the case of income redistribution by supporting the less fortunate in society that is supported by the upper-income workers this is less likely considered a tax and cause distortions. There also is a theoretical ambiguity here. Taxation is a “two-edged sword”. Paying more tax may imply that a person feels less able to retire early (positive income effect). Tax cuts would reduce labour supply. On the other hand the reduction of the financial attractiveness of additional earnings makes retirement more likely (negative substitution effect). Reduction of tax would increase labour supply. Hence, tax changes can provoke entry into or exit from the labour force. Where future benefits bear an actuarial relationship to contributions, and are perceived to do so, national insurance contributions are not a tax but simply the price of insurance which has little if any distortionary effect on labour supply. A simple policy advice from this is to strengthen the link between social contributions and benefits at the individual level in order to limit the negative effect of contributions and benefits on the labour market and employment (see e.g. Casey 1998; EPC 2000). Sweden indeed introduced a greater linkage between contributions and final benefits. However, in Spain this linkage was weakened. Luxembourg and Finland allow certain periods outside employment to contribute to pension qualification requirements (Kalisch et al. 1998).

In theory privatisation and the differentiation in premium reduce moral hazard, because employers can no longer shift the costs of their behaviour onto a collective fund and hence reduces the costs of the social security system. However, Dutch experience shows that the complete privatisation and a tighter relationship between contributions and benefits in sickness, disability and unemployment insurance give incentives to employers to apply screening and even works in the wrong way for older workers, long-term unemployed and disabled people. Employers are reluctant to hire older workers and disabled people because of the financial risks involved (Delsen 2002). Also related to the costs of ageing and pension provisions it is not clear whether privatisation can reduce these costs substantially. The costs of personal pension arrangements are quite high. Also operating costs may be quite high, especially of defined contribution plans (OECD 2001). Even the reverse may be true.

The costs associated with social security and pension costs in particular – i.e. the non wage costs – present a disincentive for employers to hire older people or an incentive to fire older employees. This will certainly be the case in a defined benefit scheme. Pension costs as a
percentage of salary increase with age. This burden largely falls upon the employer. Because more has to be invested to assure the requisite pension if the investment is to be called upon relatively soon rather than after a long time (Casey 1998). The pay-productivity ratio is particularly poor in lower skilled and specialised technical jobs, giving employers a major incentive to lay such workers off. The final-pay system acts as an incentive to carry on working in order to reach the maximum pay for the retirement year, while at the same time it puts people off partial retirement from employment. The current final-pay pension system also tends to mean that older workers are the first to be phased out if the company is reorganised, to avoid a high pension liability. It also has an effect on recruitment, in that an older worker will make hardly any further contributions towards building up a pension, but will in the short term be claiming from the pension fund assets (Delsen 2002). Hence, these pension systems account for both the retirement trap and the reluctance of men to work part-time (Delsen 1998).

A number of national governments subsidise employment of older workers. EU Member States, including Germany, Greece, Italy, the Netherlands and the UK, encourage employers to hire older people through wage subsidies, exemption from social security contribution or tax credits. In this respect tax expenditures refer to implicit public expenditures in the form of tax reliefs. For instance, in the UK there is tax credit for firms that hire older workers. In Germany wage costs of older workers are subsidised. In the Netherlands employers receive a social security premium discount when hiring an unemployed older worker. The effects of these active labour market policies targeted on older unemployed are small (see Kalisch et al. 1998; OECD 2001).

Moreover there is the mortgage interest tax relief for house owners and the tax relief for private pension. The fiscal facilitation of time accounts, of pension savings and house-ownership will be at the expense of investments in human capital and represents an incentive to early retirement. In many countries the pension contribution rates are increasing, while at the same time the pension generosity is lowered. The link between premiums and benefits becomes stronger. This also implies that the pension accrual rates are declining. As a result the increase in pension entitlements due to an extra year’s work may be insufficient to offset an extra year of pension contributions. So, this policy may in fact encourage early retirement.

6. **Earnings rules, means-test and partial pension**
Most early retirement schemes operate an earnings rule, i.e. the benefit is reduced by some or all of labour income, and sometimes by al, or some, of other incomes. Also disability pension schemes effectively preclude further employment. This is consistent with their purpose. State old-age pension systems rarely mandate inactivity, although some public old-age pension schemes operate an earnings rule. In Ireland, Portugal and Spain entitlement to old-age pensions beyond 65 are conditional on complete withdrawal from work. In France and Finland access to pension is conditional on leaving the current job. Given the difficulty for older workers to find a new job, this practice amounts to de facto restriction on combining work and pension (Blöndal and Scarpetta 1997). Earnings rules in state pension schemes penalise people who worked beyond pension age. That is why it was abolished in the UK (Walker 2002). In Italy the earnings rule was abolished in 2000. Now retirees are allowed to continue to work after retirement, even if they draw a pension. The aim is to raise the retirement age and to reduce the black market, because most retired persons work illegally after retirement (Paulli and Tagliabue 2002). The most extreme earnings rules are those which are part of means-tested old age pensions (Casey 1998). In countries where the basic pension is very low, although not means tested (UK) those older people who are entitled to claim means-tested welfare benefits, are also effectively discouraged from using employment to supplement their incomes, and, thus from continued activity.

Means-tested assistance in old-age pension – only paid if a person has less than a certain amount of income and assets below a specific level – there is little or no gain from individual saving for old age. A savings trap is the result: people who see that increased savings prior to retirement lead to reduced help from the state, may adjust their savings behaviour. It penalises individual effort. A basic income might reduce private provisions, while social insurance benefits could have the reverse effect. Actuarial reductions for early retirement would push early retirees below low income thresholds and transfer the problem to the means-tested social assistance scheme. It is difficult to remove all incentive for early retirement for existing systems, in particular in those schemes that offer flat-rate benefits or minimum pensions directed to those with low income (OECD 2001). The equity issue arises.

A social security earning test may affect the hours a person works before retirement. It acts like a tax on work, it may cause workers to stop working or retire or to work part-time (Blöndal and Scarpetta 1998; Gillion et al. 2000). Nine EU Member States (Denmark, Spain, France, Ireland,
the Netherlands, Portugal, Finland and the UK) offer universal state pension regimes. In all these countries, except France, the Netherlands and Sweden, their regimes are means-tested with low earnings disregards. This implies that in most cases continued work at average earnings would entail the loss of most or all pensions. Earning tests are often stricter for those who access pension prior to the standard age, e.g. Austria and Germany. However, as Casey (1998) argues the abolishment of the earning test will have an income and a substitution effect. As a result its actual impact is not always straight forward. Related to the UK, Atkinson (1995) refers to “two nations of early retirement” and polarisation: those men aged 55-64 and as well as those above the retirement age relative fortunate in receipt of an occupational pension, for whom retirement was a welcome choice and those largely dependent on means-tested assistance, or other state benefit, for whom it is a euphemism for terminal unemployment. Older workers who are entitled to means-tested benefits are discouraged from work to supplement their income and are thus encouraged to retire. Pension traps, unemployment traps and poverty traps may occur.

One may expect that those who work part-time after retirement choose hours close to the exempt amount in the earnings test. Part-time work is often chosen to avoid the earnings test (Hurd 1990). An earnings test allows low-wage workers to work relatively more hours and the opportunity of partial pension (Austria, Belgium, Denmark, Finland, France, Germany, Italy, Luxembourg, and Spain). In Sweden the partial pension has been removed. It permits part-time earning to be combined with a reduced pension payment. Partial pensions are paid to increase labour supply. The option of combining part-time work with some pension receipt may retain people in the labour market for longer than if they had an “all-or-nothing” choice (Delsen and Reday-Mulvey 1996; Jepsen 2001; SZW 1997). These schemes are successful in making continues employment an attractive prospect from the financial point of view, but low income earners might be as well off in “full-time” early retirement schemes in Denmark and Finland as well as in the part-time early retirement schemes, representing a pull factor (SZW 1997; Hansen 2002).

A partial pension is an alternative policy to an earning test as a way of allowing partial retirement with a partial benefit. Also the tax system reduces the economic incentives to full-time work. Tax exemption – tax free basic wages induces the high transition to partial employment (Hernaes et al. 2000). Taking into account the pension formula, partial pensions are relatively more favourable for people with short tenure under the pension scheme than an earning test. Depending on how they are designed, partial pensions would only be attractive to people

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6 Early old age pension and disability pensions can still be drawn partially.
with limited pension entitlements. Partial pensions based on reduced hours are more favourable to high-wage workers than an earning test (Gillion et al. 2000; Delsen et al. 1999). Tightening eligibility (increasing the minimum age of entry) and reducing public contributions to full early retirement and lowering the benefit rates are likely to encourage the development of part-time early retirement in countries where this option is available (OECD 1994).

Work after the statutory retirement age should be hampered as little as possible. Issues requiring further attention here include the anti-cumulation rules in social security and labour and social protection after statutory retirement age, e.g. dismissal protection and minimum wage guarantees. However, it also means that no social security premiums have to be paid by the employer when employing pensioners.

7. Unemployment and disability insurance

Unemployment related schemes differ widely across EU Member States in terms of benefit generosity. In most countries the duration of the unemployment benefit depends on age, and occupational history. In all EU Member States, except Portugal and Greece, the end of the right to unemployment benefit is replaced by a right to social assistance. Contribution levied on salaries and wages of unemployment insurance schemes are found in Austria, Belgium, France, Germany, Greece, Ireland, Portugal, Spain, and Sweden. In Denmark and Luxembourg the benefits are financed through taxes. Finland, the Netherlands, and the UK use a mixed system of taxes and contributions (Jepsen et al. 1997; Jepsen 2001). Entitlement conditions have been relaxed for older workers in unemployment related schemes. In Austria, Belgium, Denmark, Finland, Germany, Ireland, Italy, Portugal, and Sweden unemployment pensions have been introduced. It opens up the possibility of early access to old-age pension for unemployed older workers after a certain age (55+). In other EU countries, Belgium, Denmark, France, Germany, the Netherlands, Finland, Sweden, and the UK, the duration of the unemployment benefit for elderly workers has been lengthened and elderly unemployed prior to retirement are no longer obliged to register at the labour office or to apply and search actively for a job. This measure results in an underestimation of the unemployment phenomenon and labour market participation. This feature may also partly explain why the average duration of unemployment for older age groups in all OECD countries is higher than the average for all workers (Blöndal and Scarpetta 1997; Delsen et al. 1999). In the Netherlands there are plans to abolish this beneficial treatment of older workers in unemployment insurance.
Related to disability pensions, eligibility requirements have been tightened and programmes have been introduced to increase the rate of employment among people with disability, so they can rely more on their own earnings to support themselves rather than relying on social security (Kalisch et al. 1998). Health is an important factor in the retirement decision of older workers (see Jepsen 2001 for an overview). Health insurance offerings may be endogenous to tastes for retirement. Moreover, workers may justify retirement by reporting poor health. Workers in fair or poor health are significantly more likely to retire than workers in good or excellent health. Health conditions deteriorate with age and are influenced by labour market status. Health is also endogenous to the labour market states (Coile and Gruber 2000; Heyma 2001). In many countries the disability benefit is the most generous compensation, relative to unemployment schemes and special early retirement schemes. Exceptions are France and the Netherlands (same rate as unemployment benefit). The benefit levels are close to those available in old age pension systems at the standard age of entitlement, reflecting the common practice of crediting years of disability until the standard retirement age for pension purposes (Blöndal and Scarpetta 1997). In general, the net replacement rates of unemployment and disability benefits are higher for low-earning workers than for high-earning workers (see also Section 4). In Sweden the disability pension for older workers due to labour market reasons was abolished in 1991.

With higher labour participation, the probability that elderly people are laid off or experience bad health conditions increases. More relatively unproductive and unhealthy workers are employed, who have higher probabilities of being laid off or becoming disabled in performing labour. The layoff probability is highest for less educated employees at lower levels and with only a few years of labour experience. Involuntary retirement as a result of layoffs and health can only indirectly be influenced by financial policy measures (Heyma 2001). Training on the job for (elderly) workers to increase productivity can be stimulated by subsidies or fiscal advantages. Policy measures may also be directed to working conditions that reduce motivation for employment (reduce push factors).

In the literature hardly any attention is given to the demand side of the labour market. Also policy attention has focused mostly on the supply side. The demand side needs more research to identify the barriers to employment of older workers as perceived by employers (OECD 2001). There are strong indications that entitlement conditions have been de facto eased in disability benefit systems in the EU. Even in countries where disability is supposed to be assessed against rigid medical criteria only. For instance France and the UK. In some other EU countries the legal
eligibility criteria for a disability benefit explicitly include a labour consideration: Austria, Finland, Germany, Italy, the Netherlands, Spain, and Sweden. In Finland, Germany, the Netherlands and Sweden these labour market considerations in the definition of disability have been abolished (Blöndal and Scarpetta 1997; Delsen et al. 1999). However, disability insurance is still used as an early exit route. Hidden unemployment among older workers is the result.

8. **Implicit taxation**

Some insurance systems impose implicit income taxes on workers eligible for benefits. For an implicit tax both earning tests and sub-actuarial accrual are necessary. The implicit tax rate concerns the difference between costs and benefits of continued work at a certain age, relative to expected gross earnings, i.e. the financial losses from working longer due to the functioning of the insurance systems. Applied to old-age pensions, the costs are equal to continued payment of pension contributions and foregone pension benefits, i.e. the sum of the pension contribution age and the pension replacement rate. The benefits are the net present value of the increase in the pension replacement rate as a result of delaying retirement (Blöndal and Scarpetta 1997). Older workers are calculating in their behaviour: they are strongly influenced by financial incentives. Income is one of the most obvious determinants of elderly labour force participation. Financial incentives to retire early are amplified in countries where it is possible to get access to public income support prior to the pensionable age: cost of an extra year of work is not only paid contributions, but also foregone benefits, whereas ultimate pensions are often unaffected. Such *de facto* early retirement schemes operate within disability programmes, notably where a labour-market criterion is explicitly used to assess entitlements to benefits. They are also embedded in unemployment-related programmes, especially when benefit periods for older workers are extended to the pensionable age, the job-search requirement is removed for older workers and/or where unemployment pensions have been established. Moreover, early retirement programmes have been established in several EU countries to assist older people to retire before the pensionable age. The implicit tax rate at early retirement varies considerably between EU Member States (see Table 4). The difference in the average age of retirement across countries is closely related to the extent of these disincentives.

<table>
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<th>Table 4: Retirement incentives of social security programmes</th>
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<td>Implicit tax rate at early retirement (percentages)</td>
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7 Actuarial equilibrium: at each point in time the amount of reserves is equal to the present value of all liabilities.
Gruber and Wise (1999) find positive implicit tax rates even in the absence of earning tests. Their tax variable explains over eighty percent of the cross-sectional variance in non-work of older people 55–65 ($R^2 = .82$). Research by Johnson (2000) confirms the significant negative impact of retirement incentives on labour supply found by Gruber and Wise (1999). He uses replacement rates and implicit tax rates to establish the size effect of old-age insurance (OAI) on the participation of males. He concludes that men retire earlier when OAI benefits exist for their age group, but do not do so because of an anticipation of benefits at higher age. Thus changes in eligibility ages are particularly important to male participation rates. However, greater wealth explains most of the reduction in participation of men aged 60–4. The steep fall in participation after 1970 are partly explainable from disability and other near-retirement schemes. The number of contributors decreased, while the number of retirees, i.e. recipients increased.

**Figure 1: Implicit tax rates on continued work and average age of retirement of males, 1995**


The elderly marginal tax rates increase significantly with the size of the programme (Mulligan 2000). Blöndal and Scarpetta (1997) found a close relationship between the average effective retirement age of older males and the implicit tax rate on continued work across OECD countries in 1995 (see Figure 1). Countries with high implicit tax rates tend to have lower average retirement ages, and *vice versa*. The average implicit tax rate on continued work due to old-age pension system in 1995 was particularly marked after the earliest age at which pensions could be accessed. This implicit tax rate is very high in countries with high replacement rates (Austria,
Spain and Italy). In many countries the accrual rate is negative for workers past the minimum pensionable age. This negative accrual is an implicit tax on work and encourages retirement. The availability of de facto early retirement benefits prior to the earliest age at which old-age pensions can be obtained has major implications for the implicit tax on continued work. Additional work has three effects: it raises total wage earnings, increasing utility; it reduces the number of years over which benefits are received, lowering utility; it may raise or lower the pension benefit amount, depending on the shape of the benefit, i.e. on the accrual rate. The common practice of crediting years of unemployment, special early retirement and disability in calculating old age means that the level of old-age pensions is not affected in most countries. So there are no gains to offset the costs in terms of contributions and lost benefits. Estimation results from pooled cross-country time-series regression show that removing these disincentives could lead to an increase in the participation rate of older males (55-64) of almost 10 percentage points in those countries where the financial penalties are particularly high (Blöndal and Scarpetta 1997).

Most research only takes into account incentives to work in the next year, i.e. on accruals. However, also the incentives in all future years are considered by individuals. Coile and Gruber (2000) conclude from their research of the impact of social security on male retirement that these forward looking incentive measures for social security are significant determinants of retirement decisions. In fact, retirement responds much more to social security incentive variables defined with reference to the entire future stream of retirement incentives than to the accrual in retirement wealth over the next year alone. Their research also suggest that social security policy which increases the incentives to work – the benefits for working – at older ages can have large impacts on the work decisions of older persons and significantly reduce the exit rate of older workers from the labour force. For due to offsetting wealth and accrual effects there are at best modest effects of raising the normal retirement age on labour supply.

Gustman and Steinmeier (2001) analyse the reasons behind the counter intuitive relationship that a raise or abolishment of social security early retirement age more people would retire earlier rather than later. The reason is that raising the retirement age would reduce the reward to continue work, since some of the reward results from deferring claiming of benefits, i.e. there would be no benefit from deferring claiming associated with the decision to postpone retirement

\[8\] Wealth refers to non-social security, non-pension wealth.
from 62 to 65. Intuitively we expect that raising retirement age will result in many people to defer their retirement, e.g. because of liquidity constraints. Much research has been carried out on the relation between retirement and the incentives created by pensions and social security.\(^9\) Studies of retirement recognise that pension and social security benefit formulas affect the reward to continued work. These incentives are included. These single equation are of importance for behavioural and policy analysis to predict the effects of an importance change in current proposed social security policy and changes in pensions on retirement, increasing the age of eligibility for early social security retirement benefits.

9. **Fundamental reform**

Parametric reform, i.e. changing the parameters of the existing public pension system is the most widely spread reform approach. More fundamental systematic reform concerns the privatisation of social security in order to mitigate labour market distortions associated with payroll taxation under the pay-as-you-go approach in Europe, by linking benefits and contributions, to take advantage of the conceivable better rate of return of private fully funded schemes, to increase savings and to reduce the risk of political management (Chand and Jaeger 1996). The combination of pay-as-you-go financing and capitalised schemes enables a better balancing of risks (OECD 2001). According to the Economic Policy Committee the role of funded schemes should be gradually increased (EPC 2000). The latter would reduce the need for unsustainable increases in payroll tax or contribution rates and would generate additional net savings. In defined-contribution pension plans the annual contribution paid by the individual is specified, usually as a proportion of gross salary, and benefits depend on accumulated contribution and the realised rate of return on the past investments. However, these issues are controversial. Dutch experience shows that replacing pay-as-you-go early retirement schemes by flexible pensioning, i.e. more actuarial fair replacement rates has only a limited impact on the employment participation of the elderly. In part disability and unemployment insurance is used as an alternative. As far as disability benefit is no option, notably those people with health problems and considerable own wealth will chose for early pensioning despite a lower benefit. The employees bears the brunt of the costs: early retirement will result in considerably lower pension income. This can only be afforded by people with sufficient income or wealth, especially higher educated employees with a larger volume of valuable (firm specific) human capital. Flexible pension allows them to retire early, while low

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\(^9\) Studies of retirement typically assume that capital markets are perfect, so that savings and consumption decisions are made in the background, and do not affect the retirement decision. However, there is a relationship between
productive employees will continue working. And low productive employees will be dismissed earlier. Hence, flexible pensioning results in both early exit and more dismissals (Heyma 2001). His simulation results may come as a surprise to policy makers.

In most EU countries social security schemes are defined benefits schemes. Some countries are moving towards defined contribution schemes. In the UK workers are permitted to contract out of the earning related part of the social security and replace that defined benefit scheme with an individual account defined contribution scheme. Italy (1995) recently reformed their public pension schemes in the direction of a mix defined benefit, defined contribution plans to make the pension system actuarially fair. The new Swedish old age pension system (1999) is a defined contribution system (Gillion et al. 2000; OECD 2001; Wadensjö 2002). Only in Denmark, the Netherlands, and the UK the second and third pillar are well developed. Pay-as-you-go financing of national defined contribution scheme is found in Sweden. Fully funded defined benefit occupational pension schemes are found in the UK and the Netherlands. Also in France more funding is being introduced. Private sector pensions are usually fully funded. Fully tax-financed (Denmark, first-tier) or fully contribution financed schemes are rare (UK, Ireland). Most schemes are mixed financed (Gillion et al. 2000). In the Netherlands and Sweden public involvement is reduced and the role of the market sector is increasing. The idea is that the costs of early pensions are met by the employer and/or the employee rather than the public. In Ireland and the UK greater importance is on private schemes to supplement the low level of public benefits (Kalisch et al. 1998; Delsen 2002). Financial incentives were also introduced by privatisation of (parts) of the social security system and the pension arrangements in Denmark, Ireland, Germany, and the Netherlands (see also Section 5).

In defined benefits plan, the pension formula is defined in advance. In most plans, benefits depend on years of employment and salary over some period (final year(s)). The risks of longevity and economic downturns is borne by society. However, in case of defined benefit, workers bear the risk of pension loss in the case of mobility as well as the risk of tax changes. Compulsory participation (overinsurance) and the pay-as-you-go financing (wedge) distort the labour market. Defined benefit plans protect pension benefits of the worker against inflation risk, because prices and money wages change at about the same rates. However, pensions once taken are not protected against inflation, so that a worker who retires early and is then rehired at fewer hours will not have retirement and savings behaviour.
inflation protection for the pension. This method of reducing hours on the main job expose a worker to considerable inflation risk compared with staying on the main job longer than retiring completely (Hurd 1993). In defined contribution pension plans workers bear considerable investment risk. Defined contribution plans increase the compensation from working. Unlike pay-as-you-go schemes defined contribution schemes do not insure households against shocks to longevity, earnings, and inflation and involve high transaction costs (Chand and Jaeger 1996). Defined contribution is at the disadvantage of those who are enforced to leave the labour force prematurely and introduces an element of uncertainty into future retirement income. Inadequate retirement income may be the result. Although the annual contribution is defined in advance, the benefit depends on how well the investments are managed and how long the workers contribute and collect. So workers bear considerable investment, disability, and longevity risk. The effect of inflation on the defined contribution plan will depend on how the worker’s assets are invested (Hurd 1993). Personal pensions and defined contribution plans are by definition fully funded.

Defined contributions have a wealth effect because they represent forced savings that the worker might have not done otherwise; they can influence the age of retirement by a so-called liquidity effect. Retirement wealth from defined contribution pensions will usually continue to rise with age, while defined benefit pensions often have a strong incentive to work to a particular age and disincentives to work beyond this age (Coile and Gruber 2000). Defined benefit retirement and pension schemes may affect retirement age through the minimum pensionable age, an earning test for workers to receive retirement benefits, the generosity of the benefits and the adjustment of benefits when workers postpone receiving them (Gillion et al. 2000). In the literature it is often suggested that defined contribution schemes are neutral with respect to the retirement age of workers. However, also mandatory defined contribution schemes may affect retirement age (Gillion et al. 2000). Similar to defined benefits schemes a minimum pensionable age could cause workers to retire earlier or later than they would in the absence of a social security plan. Also the generosity of the benefit available may affect retirement age, depending on the rate of return in capital markets near the expected retirement age. Also changes in the interest rate on the level of the monthly benefit provided by an annuity will affect workers’ retirement decision. So changes in asset values, annuity markets and interaction with minimum benefit programmes affect retirement age. Defined benefit schemes usually require a minimum number of years of coverage or contribution to receive pension benefits. Defined contribution schemes usually do not have such a requirement, because workers with few years of contribution simply receive
smaller benefits. A moderate requirement as to minimum years of contribution may encourage greater years of work among people. However, long requirements is disadvantageous for women because they tend to have fewer years in the formal labour market than men.

Individual retirement savings can also serve as a source of early retirement income. This would not be an issue if occupational and personal retirement plans were given the same tax treatment as other forms of savings. Most countries offer preferential treatment to retirement arrangements by exempting contributions and capital gains from taxation and taxing only distributions from the plans. However, the financial situation of the household/families increases due to employment attachment and private savings. Offering workers greater choice and thus greater sovereignty can also result in adverse selection on the labour market. The average life expectancy is increasing, and older people are fitter, leave employment earlier and have greater financial scope available (Delsen 2002). Workers who are well-off and highly productive in particular are able and willing to opt for early retirement. The less well-off and less productive workers will choose, or be financially forced, to carry on working for longer, perhaps even too long. Lower paid will have less opportunity to choose; certainly when the conditions are increasingly individualised and made actuarially fair. The growth in the number of female workers and in the number of households with two incomes will increase the demand to stop work, which will also become possible thanks to private schemes. The financial scope to retire early increases. This may mean that despite the fact that the unemployment and disability benefit rules and the rules in (company-based) retirement schemes have been tightened up, the activity rate among older men will not increase by much. Also more complete careers and higher references wages offer greater financial scope for early retirement. Public and private pension schemes act like substitutes. In fact, reduction of public pension provisions may be overcompensated by private provisions and savings. So reversing the incentives in early retirement may be a necessary condition, but not a sufficient condition for active ageing. New policies will change the relationship between retirement and the increase in the value of social security benefits with postponed retirement, resulting in incorrect predictions of the effects of new policies.

10. Conclusions and policy recommendations
Increasing the employment rate of older people does not only have a denominator effect - because the basis for financing is broadened - but also a numerator effect, when the number of allowance recipients with a pension, disability, early retirement or unemployment benefit goes down. The
European Commission considers a paid job the ultimate guarantee for social security and a remedy against poverty and social exclusion. Based on this notion the national social security systems in the EU put more emphasis on the promotion of activity, on reintegration and the obligation to work of those on benefits than on providing benefits and guaranteeing a minimum standard of living for those who are no longer able or no longer needed to work (see Van Vugt et al. 2000). The social security systems in many EU countries still aim at exclusion, rather than transition towards employment.

Raising pensionable age, increasing the required number of years of contribution, increasing the contribution rate and cutting benefits are policies applied to assure the financial viability of retirement benefits and to increase the employment rate of older people in the EU. Another option applied is to introduce an efficient social security system with incentive-compatible contribution schemes, including privatisation, defined benefits and funding. All decisions taken in relation to employment will have its consequences on the retirement decision, i.e. the changes in contributions result in changes in the benefit level. The implications of this is that working time should be considered from a working life perspective and the implications of social security and taxation for these decisions should be taken into account in order to realise working time preferences of all individual workers in all stages.

One may question the effectiveness of the policy measures for active ageing in the EU. A higher minimum age at which public pensions become available or reduced benefits may not result in an increase of the actual retirement age when other favourable public and private early exit routes are not altered or abolished (communicating vessels). Experience in Europe, moreover, shows that the financial incentive needs to be considerable if it is to influence a worker’s decision on retirement.

The desire to retire early and the incentive for employers to dismiss older workers may in fact be a consequence of the policy changes and the newly created incentive structure, i.e. policies to increase the activity rate of older workers may be counter productive. For instance, in many countries the pension contributions are increasing. On the other hand, as a result of the cutbacks in pension generosity the pension accrual rates are declining. Consequently the increase in pension entitlements due to an extra year’s work is insufficient to offset an extra year of pension
contributions. Pension wealth will fall. So, the changes in the pension systems aiming at reversing the culture of early retirement may in fact encourage early retirement.

There also is doubt about the reduction of the costs of ageing and pension provisions by privatisation. Moreover, privatisation and individualisation may result in adverse selection and a narrowing of the tax base to finance the welfare state expenditures. Workers who are well-off and highly productive in particular are able and willing to opt for early retirement. The less well-off and less productive workers will choose, or be financially forced, to carry on working for longer, perhaps even too long. Lower paid will have less opportunity to choose; certainly when the conditions are increasingly individualised and made actuarially fair. These incentive will reinforce the incentives to retire early instead of later resulting from household wealth, increasing household income and higher pension benefits linked to longer employment and contribution records. Social security systems influence savings decisions, particularly the extent to which people make provisions for old age. The various public income provision and private sources of income are substitutes. The latter has to be taken into account in policy formation.

The policy measures aiming at active ageing not only have allocative effects, they also have distributive effects. As low-income retirees in the EU depend relatively more on social security, across the board cuts cause a larger percentage reduction in their retirement income than for upper-income retirees. Flat rate benefits directed towards those with low income are an incentive to retire. Earnings rules and means-tested benefits create pension, unemployment and poverty traps. Notably for those at the lower end of the labour market. Removing these disincentives to late retirement by the introduction of actuarial fairness may result in inadequate retirement income. The fear of poverty, segmentation and polarisation is real.

Empirical studies on early retirement employs different definitions of retirement (Hurd 1990). We need an exact definition of what is meant by being working and what it means to be retired. This is an important reason why empirical research has only been able to demonstrate a very modest impact of social security benefits on the retirement decision and dates: self-assessed retirement; permanent departure from the labour force; leaving a firm; sudden and discontinuous drop in hours of work. The demand side needs more research to identify the barriers to employment of older workers as perceived by employers.
Removing the incentives to early retirement and creating incentives to later retirement are necessary conditions, but not sufficient conditions for active ageing. In order to achieve an effective and efficient pension system, the reforms of the pension system have to go beyond changes to the financing and the introduction of a flexible pension date and part-time retirement. Increasing the employment/population ratio of older employees is an essential condition for maintaining the European social security systems, since many of the risks covered become bigger with age. Effective stimulation of the employability of older employees requires that both the interests of the employer as well as those of the employee are being looked after. Both the financial and the material conditions must be created to allow people to stay in work for longer, i.e. for a greater number of years. Therefore, in the company practice variables have to be improved that make work at the end of the career less expensive, more flexible, customizable and more productive.

A tight(ening) labour market seems essential for older people to be active in the labour market. However, it may be a necessary but not a sufficient condition. Most employees prefer to retire as soon as possible, independent of income, health, and working conditions. Therefore, a policy that aims at changing attitudes of employees and employers with respect to retirement seems necessary. The demand side of the labour market in particular deserves more policy attention.

Since less-productive workers are laid off first, policy should be directed towards elderly labour productivity by schooling and training on the job. To promote employment opportunities training for older workers to increase productivity can be stimulated by subsidies or fiscal facilitation. Age barriers should be removed from training schemes.

**Bibliography**


