

# Pension system reforms in the EU15 countries

P. Bisciari  
D. Dury  
B. Eugène  
L. Van Meensel

## Introduction

In the very short term, all European countries will be faced with the challenge represented by the generation born between the end of the Second World War and the mid-1960s reaching retirement age. The elderly dependency

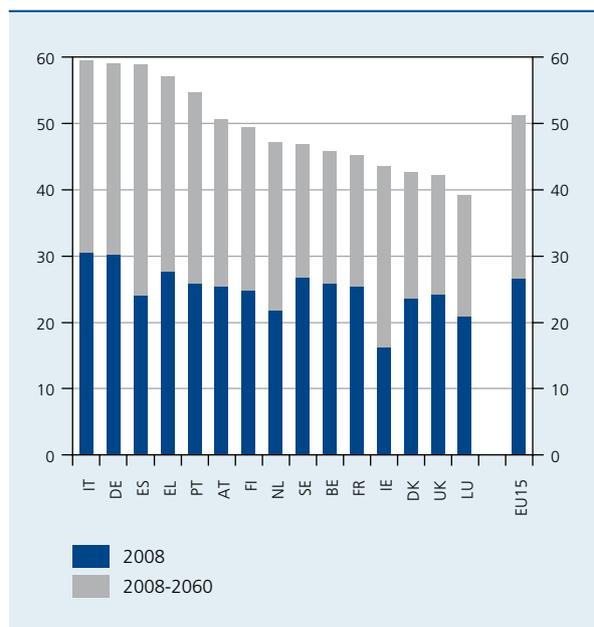
rate – i.e. the number of people aged over 65 expressed as a proportion of the working age population – is set to almost double between 2008 and 2060. This increased pressure on the working age population would vary, nevertheless, from one country to another.

As far as the problem of pensions is concerned, population ageing presents two main inseparable aspects, which must be taken into account by political decision-makers. The first relates to the increase in the budgetary burden which will weigh on public finances, namely the 'fiscal sustainability' constituent. The second is the 'social sustainability' constituent, in the sense that pensions have a role to play as a safety net. On the one hand, they need to limit the specific poverty risk affecting elderly persons. On the other hand, and more generally, the aim of social sustainability is to maintain living standards upon retirement.

The influence of population ageing on pension expenditure varies considerably from one country to another. These discrepancies are partially the result of disparities between the different national pension systems, be they original or due to the reforms which have been made.

The first section of this article sets out the main points of the existing systems with an emphasis on their diversity. The second presents, by category, the reforms which have been introduced or decided and the third looks at how the reforms have been introduced in some countries. Some effects of the reforms made are presented in a fourth section and, finally, a set of conclusions is drawn.

**CHART 1** ELDERLY DEPENDENCY RATE  
(number of persons aged 65 and over as a percentage of the number of persons aged 15 to 64)



Source : Eurostat.

## 1. Pension system typology

The pension systems of European countries differ greatly in the way in which they are organised. Drawing inspiration to a large extent from the work of the OECD, published in successive editions of 'Pensions at a Glance' (2007 and 2009), which consider the pension systems for private sector employees only, it is possible to present a basic outline of these systems.

A mandatory part and a voluntary part can be distinguished among these systems. The mandatory part of pensions comprises most often a universal cover part and an 'insurance' part.

The universal cover part, which aims to establish safety nets and guarantee a minimum standard of living on retirement, is generally organised according to three main types: basic systems, means-tested plans and minimum pensions. The basic systems grant an amount, unconditionally, which may be a lump sum (identical for all retired persons) or which may depend on the number of years in work or of residence without taking account of wage levels. Means-tested plans aim in particular to protect persons on low incomes, the benefits being dependent on any other income and, in certain cases, assets. Minimum pensions are targeted at the same people but are conditioned only by the level of retirement income, excluding other sources of income or assets.

The aim of the insurance part of mandatory pensions is to maintain an adequate standard of living upon retirement compared to before retirement. The management of this insurance part may be entrusted to the public sector, as is most often the case, or to the private sector, as is the case in Denmark and the Netherlands. Here, the occupational systems are quasi-mandatory, and the coverage rate exceeds 90 p.c. of employees in the private sector. They are associated with the mandatory systems in the rest of this article. In Sweden, the management of the system is entrusted to both sectors.

In nine of the EU15 countries, the insurance parts managed by the public sector are defined benefit systems, which are the most common type of retirement insurance system. This type of system is also managed by the private sector in the Netherlands. In these systems, the pension received depends mainly on the number of years for which contributions have been paid and the individual wages from work.

Alongside, or in the place of the defined benefit systems, some countries have set up defined contribution systems. In a defined contribution system, the contributions are

capitalised on an individual account and converted into income flows upon retirement. This capitalisation may be real or fictitious. In the latter case, it involves point systems or notional account systems.

Two countries (France, in addition to the general defined benefit system, and Germany) have established a point system operating on a pay-as-you-go basis. These points are acquired on the basis of individual wages for each year of contribution. Each point has the same value and gives entitlement to a certain pension amount upon retirement.

A notional account system exists in two countries, Sweden and Italy. This system works in the same way as traditional insurance, the individual contributions being 'capitalised' on an individual account, but in a fictitious – notional – manner since there is no real capitalisation and the system continues to operate on a pay-as-you-go basis, i.e. where workers' contributions are used to pay for the pensions in payment. Upon retirement, the – fictitious – capital and investment income are converted into income flows paid in the form of a retirement pension taking life expectancy into account.

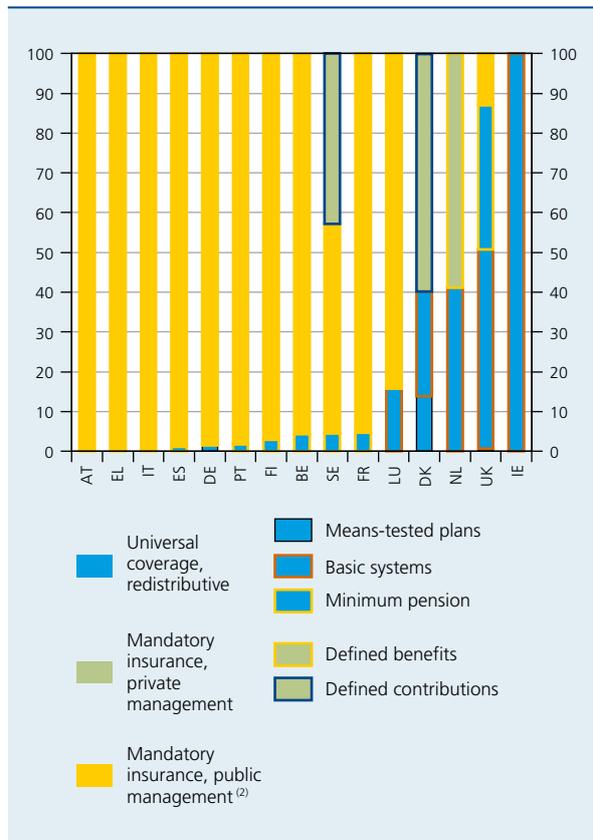
Pure defined contribution systems, i.e. by capitalisation, and managed privately, are in place in Denmark and Sweden. In the latter case, this system supplements the notional account system.

Despite these numerous differences in the organisation of pension systems, they do have a number of important shared characteristics. Thus, in most cases, pension entitlements are calculated based on the same parameters: length of career, wages, adjustment of wages, income ceilings considered, indexation of pensions in payment, etc. However, the reference values of these various parameters differ considerably from one country to the next.

Based on the pension systems in place in 2006 and considering a worker joining the labour market that year, who will have a full career, the OECD has modelled the sources of income which this worker will receive on average upon retirement, for the mandatory pension element.

Overall, more than 95 p.c. of pensions received will come from the insurance element in 10 of the EU15 countries. This share is less in Luxembourg, Denmark and the Netherlands, very limited in the United Kingdom and non-existent in Ireland, where the pension is lump-sum. In these five countries, the universal cover element plays a more important role. Therefore, despite the many systems in existence, the insurance purpose dominates pension expenditure to a large extent, even if the protection element for the underprivileged plays an essential social role.

**CHART 2** STRUCTURE OF MANDATORY PENSIONS  
(contribution of the different pension system components<sup>(1)</sup>, percentages)

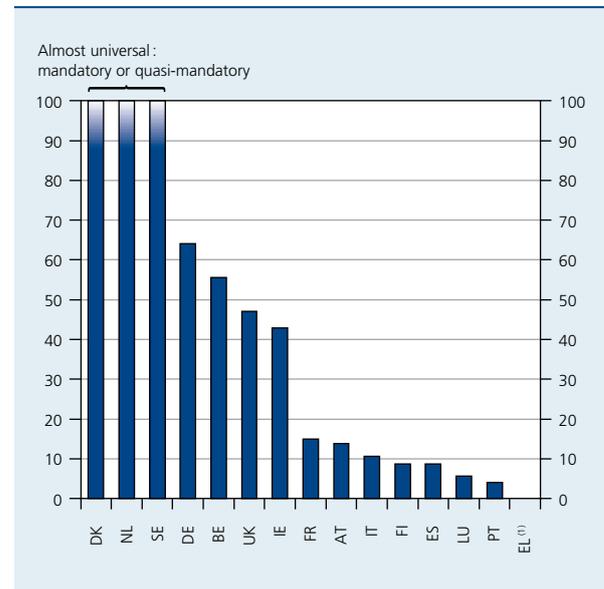


Source : OECD.  
(1) Percentage of the weighted average of pension assets for a worker in the private sector joining the labour market in 2006 and working a full career.  
(2) Defined benefits in most cases but also notional accounts in Sweden and Italy and point systems in France and Germany.

Within mandatory insurance itself, the vast majority of payments to those drawing pensions come from systems managed by the public sector, whether these are defined benefit systems, point systems or notional account systems. The share of private management is significant in Sweden, Denmark and the Netherlands.

In addition to these mandatory pension systems, almost all EU15 countries have established opportunities to form a second, private, source of income. This relates to private pension entitlements obtained under the contract of employment, which are not, generally speaking, mandatory in legal terms, but are sometimes imposed by the employment contract binding employee and employer. Therefore, these systems are considered as being established on a voluntary basis and are most often defined as second pillar systems.

**CHART 3** COVERAGE RATE OF OCCUPATIONAL PENSION SYSTEMS  
(private sector employees covered as a percentage of total employment, mid-2000s)



Source : OECD.  
(1) The coverage was less than 1 p.c. in Greece.

Besides the three countries already mentioned where this pillar has been greatly encouraged, indeed imposed, namely Denmark, the Netherlands and Sweden, in the mid-2000s, more than 40 p.c. of the employed population was covered by private occupational plans in Germany, Belgium, Ireland and the United Kingdom. By contrast, this cover was limited to less than 15 p.c. of the working population in the other EU15 countries. Where the cover exceeds 90 p.c. of employees, these systems will be considered as mandatory parts and, therefore, analysed later in this article.

Finally, it is possible to join an individual private pension system, often defined as a third pillar system. The international data on this pillar are particularly incomplete and, as a result, it is not considered below.

## 2. Cross-sectional analysis of the reforms

Many countries have reformed their pension systems as a result of demographic pressure and its consequences on public finances and on the risk of poverty among the elderly. These reforms, of variable extent, are most often staggered over time. Furthermore, some decisions have yet to be implemented on a gradual basis. The reforms examined in this section are those introduced since the

1990s. The analysis is limited in general to the insurance element of mandatory pension systems.

The reforms which have been introduced are divided into three main categories below. Structural reforms, which are characterised by a fundamental change in the way the pension system is organised, form the first group of reforms. The second comprises parametric reforms, which mainly focus on the values of the parameters used to calculate pension entitlements within a given system. Finally, the third set of reforms relates to public sector pensions, which have been separated owing to their specific nature. Therefore, the analysis of structural and parametric reforms relates only to the pension systems of workers in the private sector. Furthermore, it concentrates on the reforms affecting a vast majority of the population, with frequent exceptions.

## 2.1 Structural reforms

Two principal trends characterise the structural reforms of the pension systems which have been adopted by certain EU countries: a change of system to a capitalisation system and a change of pension type from the 'defined benefit' type to a 'defined contribution' type.

Thus, the first trend in terms of structural reform is moving from a pay-as-you-go system in which the costs of the pensions in payment are paid for by the social security contributions of the generation currently in work, to a capitalisation system, in which each generation finances its own future pensions. These capitalised systems exist, at least partially, in Denmark, Finland, the Netherlands and Sweden and reserves have been created in several countries. In addition, many new EU Member States have also adapted their pension systems in this way recently<sup>(1)</sup>.

This type of system, particularly if introduced when first setting up the pension system, offers clear advantages in terms of fiscal sustainability during a period of demographic decline. Indeed, each generation (or each person) contributes for its own future entitlements, so that no generation will have to contribute for a generation more numerous than its own. By contrast, the move from a pay-as-you-go system to a capitalisation system is very difficult to introduce since it involves the pivot generation contributing to the pensions of the previous generation and the formation of its own capital at the same time. This burden is almost too great to bear, unless spread out over a very long period, spanning several generations. Finally, a capitalisation system is susceptible to risks taken on financial markets. Therefore, if financial assets depreciate, this loss

of value needs to be offset by increasing contributions or reducing the amount of the benefits.

A second trend characterising structural reforms is that of the move from a defined benefit system to a defined contribution system. Originally, pension payment systems were most often designed in the form of defined benefits.

As already stated, mandatory defined contribution systems with capitalisation have been established in Denmark and Sweden. The latter country has also set up a system of notional accounts, in the same way as Italy. The point system has been introduced in France for the mandatory supplementary system and in Germany. The move from a defined benefit system to a defined contribution system does not necessarily involve a change in the management method (capitalisation or pay-as-you-go), or managing sector. However, the contribution rate becomes a determining factor since it provides the basis of the capitalisation which takes place during the careers of workers. It is a fundamental difference in relation to the defined benefit systems, in which this contribution rate has no impact on pension entitlements. On retirement, the actual or fictitious capital in a notional account system or the entitlements acquired in a point system are converted into an income flow, which generally involves the consideration of life expectancy, a factor rarely considered in defined benefit systems.

One of the advantages of these systems in relation to defined benefit system is that, in principle, they are more transparent and the direct and clear link between contributions and entitlements acquired is able to provide an incentive to remain in the labour market longer.

Again from the point of view of fiscal sustainability, if the introduction of these systems does not include actual capitalisation, it only resolves the imbalances resulting from demographic impacts indirectly – by the effects generated by this introduction, such as a greater incentive to continue working – and partially, since a pay-as-you-go system will continue to weigh on less numerous generations. Nevertheless, the consideration of life expectancy offers an important advantage in terms of fiscal sustainability, since the risk linked with the expected average increase in life expectancy is covered.

In terms of fairness, these systems present a positive aspect with respect to long careers, which are more common among those workers with the lowest incomes. These are rewarded, in fact, since the capitalisation begins

(1) Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland and Slovakia.

earlier, and so generates higher income from investments, and lasts longer. The ambivalent effects of taking life expectancy into consideration will be discussed later, in the part dedicated to this type of reform.

### 2.2 Parametric reforms

Alongside structural reforms, it is possible to carry out major reforms whilst retaining the same basic system, such as a defined benefit system, for example. Within this context, these reforms will be described as parametric, since they mainly influence the values of the parameters used to calculate pension entitlements.

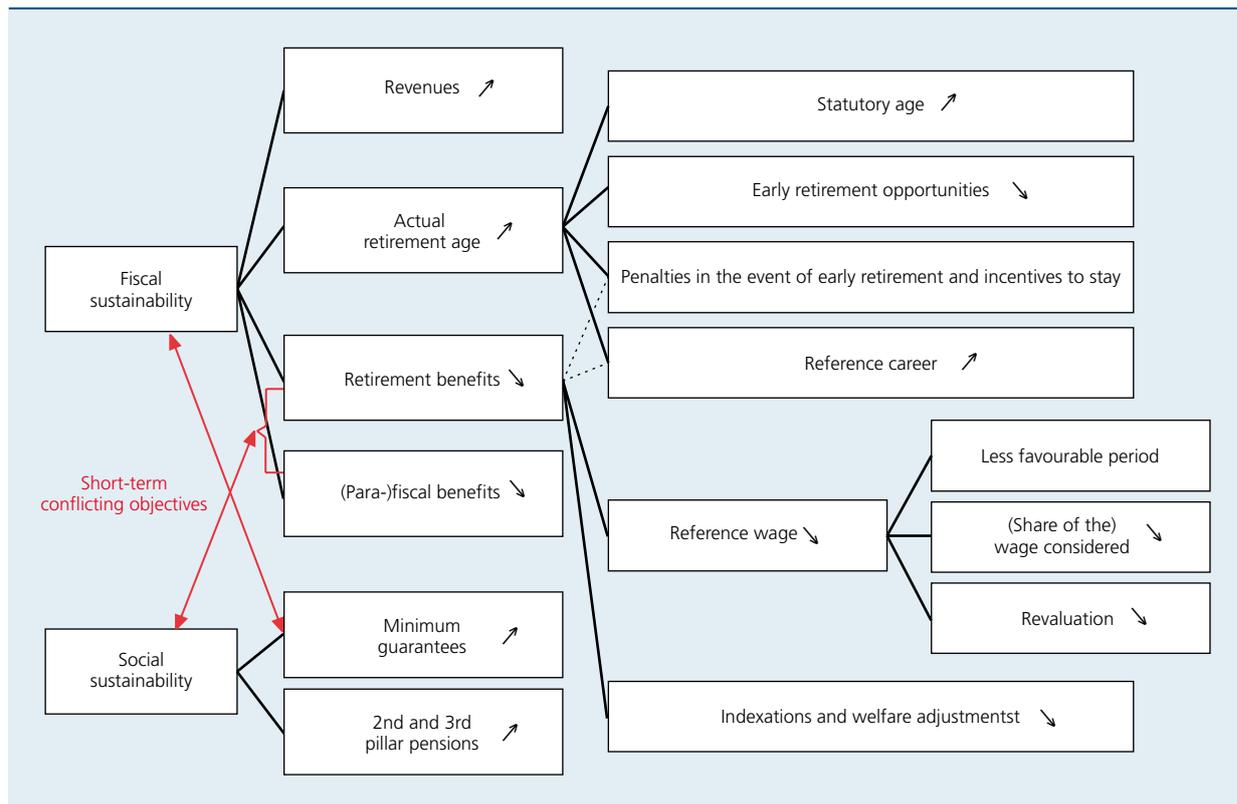
The two main objectives pursued by pension system reforms, namely the improvement of fiscal sustainability and social sustainability, have been used to create a diagram of the main parametric reforms which are possible and other non-systemic reforms linked to pensions.

In order to improve fiscal sustainability, it is possible to increase revenues or limit the (para-)fiscal benefits which pensioners' income go with. However, these reforms will not be analysed in this article, which is limited to expenditure in terms of pensions.

By raising the actual retirement age, it is possible to reduce expenditure, since the period which has to be covered by the pensions is then shorter, and increase revenues as the period of work is longer. The retirement age can be raised coercively, by raising the statutory retirement age or early retirement age, or by means of incentives. These incentives may take the form of a bonus-malus system linked to career extension or early retirement, or enter in the calculation of pension entitlements by changing the reference career considered.

It is also possible to reduce expenditure by acting directly on the amounts of benefits or their growth. In this way, the wage considered for the calculation of entitlements may be limited in different ways. Firstly, it is possible to take wages into account over a less favourable period. In fact, the reference period is limited sometimes to the best or last years of the workers' careers rather than all of it. Secondly, it is possible to cap the share or absolute level of the wage considered. Finally, pension entitlements may be tempered by a limited revaluation of the previous wages entering in their calculation. With regard to the growth of pensions already in payment, it is possible to use more limited indexation or restrict the welfare adjustments. Lastly, the penalties and the increase in the number of reference years used to calculate entitlements are also a

**SCHEMA 1** A TYPOLOGY OF PARAMETRIC AND NON-STRUCTURAL REFORMS OF PENSION SYSTEMS



way of reducing the pensions or their growth, as well as being incentives to continue working.

Other reforms may aim more at improving the social sustainability of pension systems. As far as persons in a poverty risk situation are concerned, the minimum guarantees must be strengthened. Furthermore, in order to raise the replacement rate, increasing participation in the second and third pillars also offers possibilities. It may involve (para)fiscal stimuli, improving the legal framework to increase protection and, therefore, the trust of the actual and potential affiliates, or mandatory affiliation for all workers or some of them.

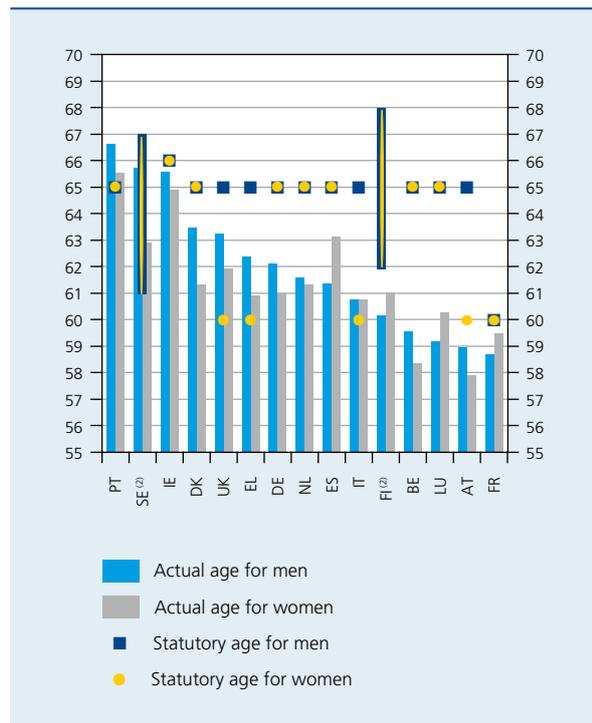
Some reforms are a means of achieving one of the two main objectives set – fiscal and social sustainability – to the detriment of the other. In this way, restricting the (para)fiscal advantages from which pensioners benefit and the measures which would limit the pension amount are contradictory, to a large extent, with the aim of improving social sustainability. On the other hand, some social protection measures, such as granting minimum guarantees, are a burden on public finances. Nevertheless, it is necessary to underline that in some cases, such as raising the retirement age or extending the second and third pillars, as far as they do not offer huge tax benefits, these objectives are pursued jointly. Finally it is advisable to note that, in the long term, fiscal sustainability is crucial to guaranteeing social sustainability.

#### STATUTORY AND ACTUAL RETIREMENT AGE

Currently, the statutory retirement age in most EU15 countries is 65 years both for men and women. For both sexes it is 66 years in Ireland and 60 in France, however. For women only, this age is still 60 years in the United Kingdom, Greece, Italy and Austria. Moreover, in Sweden and Finland, the statutory retirement age is flexible between 61 and 67 years and between 62 and 68 years respectively. Finally, early retirement is possible in several countries, generally subject to conditions relating to the length of career.

Unlike the statutory age, the actual retirement age varies considerably from one country to another. Calculated on the basis of the average number of retirements between 2002 and 2007 and including the different forms of early retirement, the bracket of actual retirement ages ranges from 57 years and 11 months for women in Austria to 66 years and 7 months for men in Portugal. Actual retirement takes place on average below 60 years only in Austria, France, Belgium and, for men, in Luxembourg. Therefore, given the existence of a number of early retirement or pre-retirement systems, the actual age of

**CHART 4** STATUTORY AND ACTUAL RETIREMENT AGE <sup>(1)</sup>  
(situation as at 1 January 2009 for statutory age; mean 2002-2007 for actual age)



Source: EC, OECD.

(1) The actual retirement age includes all final withdrawals from the labour market, including the different forms of early retirement.

(2) In Sweden and Finland, the statutory retirement age is flexible.

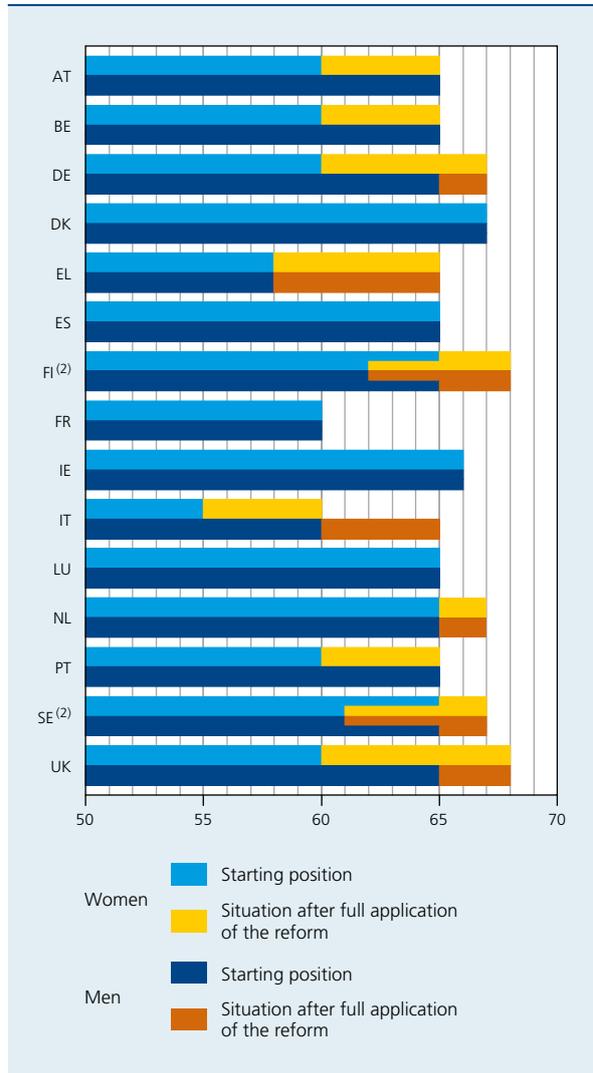
withdrawal from the labour market is lower than the statutory age in almost all EU15 countries.

The increase in the actual retirement age improves fiscal sustainability. Indeed, extending the working life is synonymous with supplementary budget revenues and lower costs. Even if the entitlements of future pensioners increase, the net effect remains favourable. In terms of social sustainability, there is an increase in the replacement rate in principle.

#### REVISION OF THE STATUTORY RETIREMENT AGE

The difference between the actual and statutory retirement ages shows that an increase in the statutory age is not sufficient to bring the actual age to this level. However, it may contribute towards delaying retirement and several countries have raised the statutory retirement age. In most cases, these adjustments have been spread over time and some are yet to take place (in part). Three types of change have characterised the reforms in the EU15: flexibility, increase for all workers and alignment of the statutory age for women with that for men.

**CHART 5** RAISING THE STATUTORY RETIREMENT AGE<sup>(1)</sup>  
(private sector employees, mandatory element)



Sources: EC, OECD.

(1) Reforms decided upon since the start of the 1990s.

(2) Flexible statutory age.

A flexible statutory age has been introduced in Finland and Sweden where it is now possible to retire at the age of 62 and 61 at the earliest and 68 and 67 at the latest respectively, compared with 65 previously. This flexibility, however, comes with financial incentives as set out below, so that it should not lead to a lowering of the actual age.

The statutory age for women has been adjusted to that for men by an increase of 5 years, in four of the EU15 countries: Belgium, Germany, Portugal and the United Kingdom. In Austria, this increase will be implemented gradually by 2033. Only Italy will, in future, retain a statutory age for women below that for men, if there is no policy change.

The aim of a general increase has been to bring the retirement age to at least 65 in those countries where this was not yet the case, with the exception of France and Italy. In France, the statutory age remains 60 whilst in Italy, it has been increased by 5 years for men and women, but is still 60 for the latter. The general revision has been most significant in Greece where the statutory age has increased from 58 to 65, staggered over time for women. In the Netherlands and Germany, the statutory age will be increased to 67 between now and 2025 and 2029 respectively. In the United Kingdom, the statutory age will be increased gradually from 65 to 68 between 2024 and 2046. In Denmark, the statutory age had been lowered by two years in 2004 but will be gradually put back up to 67 between 2024 and 2027. It will then be raised in line with the increase in life expectancy.

#### REVISION OF THE EARLY RETIREMENT AGE

Alongside regulations concerning the statutory retirement age, early retirement is permitted in most EU countries<sup>(1)</sup>. In general, this right is linked to conditions regarding the length of career. Some countries have also increased the age from which early retirement may be taken. These are Denmark, which has raised the age by 2 years, Italy, where the increase is in progress and will be by 5 years in total between now and 2013, and Austria. In the latter country, the total increase will be 1.5 years for men and 3 years for women by 2017. In the United Kingdom, the possibility of early retirement has been withdrawn. This is also the case in Spain, except for persons entering the system before 1967 or those who are unemployed. In the Netherlands, the restrictions linked to its authorisation had been strengthened. When the statutory retirement age is raised there from 65 to 67, it will be possible to retire at 65, under certain conditions.

#### BONUS-MALUS SYSTEMS

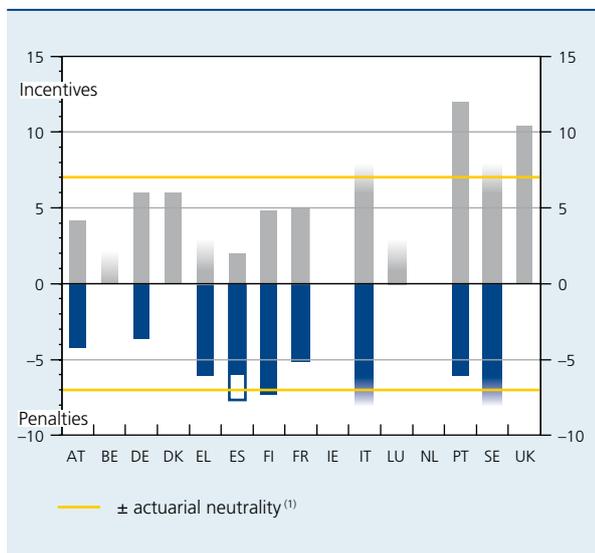
The actual retirement age can also be delayed by the introduction of penalties for early retirement or incentives for staying in work, also known as a bonus-malus system. This procedure is less restrictive than raising the statutory age but can achieve comparable results. According to Quaisser and Whitehouse (2006), the actuarially neutral annual penalty or incentive rate – i.e. the rate at which the extension or ending of career is budgetary neutral – would be 6.2 p.c. and 5.6 p.c. on average respectively for men and women at 60 and 7.4 and 7 p.c. respectively at 65.

(1) The analysis is limited to people taking early retirement in the strict sense. Consequently, there has been no consideration of other types of early retirement such as pre-retirement, invalidity or unemployment.

**CHART 6**

**PENALTIES FOR EARLY RETIREMENT AND INCENTIVES TO STAY IN WORK**

(percentages of penalty by year of early retirement or bonus for postponement in relation to the statutory age, unless otherwise stated, for private sector employees, mandatory element)



Sources : EC, OECD.

(1) From a budget point of view, actuarially neutral rates would average 6.2 p.c. and 5.6 p.c. respectively for men and women at 60 and 7.4 p.c. and 7 p.c. at 65, according to Quaisser and Whitehouse (2006).

Seven of the EU15 countries have introduced bonus-malus systems, most often paired with conditions relating to the length of career, and four other countries have introduced the incentive element only. In addition, the Italian and Swedish notional account systems intrinsically comprise the equivalent of these incentives and penalties, the rate of which would be equal to actuarial neutrality. These incentives and penalties are generally calculated on a monthly basis in relation to the statutory retirement age but are expressed here as annual rates. The incentives and penalties are generally activated for maximum durations which match, in particular, the limits of early retirement possibilities.

In addition to a specific penalty for unemployed persons who wish to benefit from a pension in Spain, the penalty rate is highest in Finland, at 7.2 p.c. per year, for persons aged between 62 and 65. The penalty rates are also equal to or close to actuarial neutrality in Greece, Portugal and France. The penalty is more limited in Austria and Germany.

The incentive to continue in work is highest in Portugal, at 12 p.c. per year after 40 years of work and for a maximum of 5 years. It is also higher than the actuarially neutral

rate in the United Kingdom and close to this in Germany and Denmark where it depends on the ratio between the number of years of postponement and the average life expectancy on retirement. It is more limited in France at 5 p.c. In Finland, the incentive amounts to 4.8 p.c. but is only triggered after the age of 68. In Spain, the incentives are more limited. Finally, in Belgium, the annual bonus comprises a lump-sum of 2 euro per day worked beyond the age of 62 or after 44 years of contributions.

Moreover, by means of a system which can be likened to a bonus, Finland grants an acquisition rate – that is the rate at which a worker acquires pension entitlements for each year of cover – which is clearly higher between 63 and 67 years. Luxembourg and Greece do the same but in a limited way. Italy grants its elderly workers a “super bonus” in the form of an exemption from personal social security contributions.

As far as the bonuses are lower than the actuarially neutral rate and do not generate a large windfall effect, the introduction of a bonus-malus system should have a generally favourable impact on the fiscal sustainability of pension systems. In effect, penalties for early retirement reduce entitlements or delay retirement – with a favourable effect on both revenues and expenses – and incentives are only granted if retirement is postponed, with decrease in expenditure that is greater than the supplementary entitlements acquired. However, these bonuses represent a simple opportunity for some who would remain in the labour market beyond the age when this system is triggered, even without an incentive. From a social point of view, a bonus-malus system has a potentially favourable impact in that the equity between those taking their retirement at different ages or with different lengths of career is improved thereby. Replacement rates can also be improved by career extension. However, there would be a risk if a penalty affected those who had to leave the employment market prematurely.

**CAREER CONSIDERED FOR CALCULATING ENTITLEMENTS**

The basis for calculating pension entitlements in the mandatory insurance constituent integrates the average wage level of each individual during a specific part of his or her career. Whilst five of the EU15 countries – including Belgium – have for a long time considered the entire career for this calculation, others only took part of it into account. Therefore, pension entitlements were calculated sometimes based on income from the final years of a career and sometimes on income from the best years which, in practice, is not very different since the income from the final years of a career is generally the highest.

Six countries have significantly extended the career considered for calculating entitlements or are going to do so on a gradual basis. In the Netherlands, it is now the income from the entire career which is considered rather than the final year as was the case before. In Finland, Sweden, Portugal and Austria also, the entire career is considered rather than the final or best 10 to 15 years as was the case previously. In France, the extension is more limited, the career in consideration moving from the best 10 to the best 25 years. Therefore, the number of EU15 countries, which now consider the entire career is eleven, with the exceptions including France, Spain and Greece. In Ireland, this parameter does not apply, since the basic pension is entirely lump-sum.

This parametric change has a positive effect for fiscal sustainability since the consideration of the impact of a less well remunerated part of a career, is to lower the average reference wage used to calculate the entitlements. However, the social effects of this change are mixed, at best, since most retirement benefits are lower after this adaptation. In principle, there is no significant negative effect on the poverty risk as the persons with the lowest wages are also those whose wages have risen the least during their careers. On the other hand, the replacement rates of the highest paid persons, already generally lower than the population average, are further planed down by the consideration of a less favourable part of their wages.

Along the same lines, some countries have increased the duration of the reference career considered in order to obtain a full pension. In general, this latter actually requires a person to have worked a minimum number of years, the entitlements being calculated pro rata to the number of years worked where a career is incomplete. Four countries have recently changed the length of a full career. In Italy, it has risen from 37 to 40 years for a seniority pension and in France from 37.5 to 41 years. In Belgium, it has been raised from 40 to 45 years for women, in order to bring it into line with that for men. However, in the United Kingdom, it has been reduced from 44 years for men and 39 years for women to 30 years for everyone, where the basic state pension is concerned. An increase in the reference career automatically reduces the entitlements of those who do not have a full career and this is an added incentive for staying in work and has a positive effect on budgetary sustainability. As far as social sustainability is concerned, the effects are also mixed.

Finally, several countries impose minimum lengths of career, either to be able to benefit from early retirement or to be able to benefit from the granting of the pension

itself. Some have also carried out reforms in the area, following the same logic as the reforms affecting length of career.

#### INDEXATION OF PENSIONS IN PAYMENT AND ADJUSTMENT OF WAGES

Pension entitlements are adjusted to take account of changes in the cost of living and/or welfare of the working population. To do this, the previous wages used to calculate the entitlements are adjusted, on the one hand, and the pensions currently being paid are indexed, on the other.

At the start, the indexation of pensions in payment was carried out on the basis of wage changes in seven of the EU15 countries and on the basis of prices in five of them. Finland applied a formula based on a weighting of these two components and Ireland made adjustments which were decided upon within the framework of the annual budgetary procedure. Greece also took discretionary measures, generally more significant than the increase in prices, at least where the most modest pensions are concerned.

Several countries have made changes in terms of the indexation of pensions in payment but in sometimes opposite directions. Four countries have thus become less generous: France and Italy, which have moved to an indexation on the basis of prices rather than wages, Finland where the weight of wages has decreased in favour of that of prices, and Portugal. In the latter case, the pension now develops at the most according to the rate of inflation and by 0.2 times the actual growth of the GDP, when the pension level is low and economic growth vigorous. Besides Portugal, Italy is applying less favourable indexation rules to the highest pensions. On the other hand, three countries are now more generous: Sweden and the United Kingdom, which make an adjustment on the basis of wages rather than prices, and Belgium, which takes discretionary measures linked with welfare in addition to indexation on prices – but via a system imposed by law. Eight countries have not changed their method of indexation for pensions paid. Four of these carry out indexation on the basis of the rise in wages (Germany, Denmark, Luxembourg and the Netherlands), two on the basis of prices (Austria and Spain) and two by discretionary measures (Greece and Ireland).

The adjustment of wages used in calculating entitlements upon entering the system is made necessary by the erosion in monetary terms which the previous income has suffered over time. Five countries used to carry out adjustments limited to the rise in prices, whilst five others took

account of the growth in wages. Finland considered both these factors by weighting them equally. In Greece, the decision was taken in a discretionary manner and in Italy it is the increase in GDP which determined the extent of the revaluations. Finally, in Denmark, the parts with defined contributions benefited from the application of an interest rate and, possibly, a share of the profits realised by the funds. In Ireland, there is no reason to adjust past wages, since the basic pensions are lump-sum.

Eight countries have carried out reforms in this area. Half of them are now more generous: Austria, Sweden and the United Kingdom make adjustments on the basis of the growth in wages instead of prices and Belgium regularly makes welfare adjustments of some reference wages, beyond price indexation. Four countries are less generous, however. France limits itself to an adjustment on the basis of prices rather than wages, Finland weights prices more, at 80 p.c., to the detriment of wages and Portugal has introduced the development of prices into the adjustment formula, at three-quarters of the weighting. Germany, for its part, links the increase in the value of points to the growth of the net rather than gross wage – so that when the contribution rate of individuals rises, it does not lead to any growth in the value of points – and limits it where there is a variation in the sustainability factor, which reflects the changes in the elderly dependency ratio. Five countries have retained their previous adjustment method: on the basis of the growth in wages (the Netherlands and Luxembourg), in prices (Spain), in the nominal GDP (Italy) or even on a discretionary basis (Greece). Finally, two countries do not have to make these adjustments: Denmark, where the capitalised defined contribution system involves past income benefiting from interest and any capital gains, and Ireland where the lump-sum pension does not depend on the previous income level.

#### CONSIDERATION OF THE INCREASE IN LIFE EXPECTANCY

The increase in life expectancy is set to continue in all European countries. Seven countries have now introduced an amendment to automatically reduce the negative budgetary effects of this future increase. This amendment takes various forms. Finland and Portugal have introduced a sustainability factor linking pensions to life expectancy, within the framework of a defined benefit system. Therefore, the amount of pension entitlements is multiplied by the ratio between life expectancy at a given moment in the past – that observed on average over 2004-2008 and in 2006 respectively – and life expectancy at the time of actual retirement. In Sweden, Italy and Denmark, the defined contribution and notional account systems which give entitlement genuinely or fictitiously to a capital distributed later over the supposed

remaining life, intrinsically take account of life expectancy. In Sweden, for example, the individuals in the cohort born in 1990 should work two years more than the cohort born in 1940 to neutralise the effect of increased life expectancy and maintain their standard of living at the same level as that of preceding generations. Germany takes account of the increased life expectancy via a sustainability factor introduced in order to adjust past wages and for the indexation of pensions in payment. As for France, it links the number of years required for a career to be considered complete to life expectancy. In Denmark, the statutory age for an early pension and public old-age pension will be revised every 5 years to be adapted to the increase in life expectancy, as from 2025.

This consideration of life expectancy in the calculation of pensions means, in particular, that it will not be necessary in future to impose new reforms with every increase of this life expectancy. Therefore, the demographic impact on fiscal sustainability will be limited as a result. However, where it has an impact on the total retirement benefits, the consideration of life expectancy risks reducing the replacement rate of future generations of pensioners fairly considerably if there is no change in behaviour. In addition, the consideration of the same life expectancy for all socioeconomic categories and for both sexes presents a major risk in terms of equity. In fact, life expectancy is not the same for all social categories<sup>(1)</sup>. By using a single life expectancy value for all social categories, the capital accumulated individually would not therefore be distributed in full to low-education workers, whilst it would be insufficient to pay for the end of retirement of high-education workers, on average. The problem of the differences in life expectancy between men and women could also undoubtedly be considered in this type of system.

#### 2.3 Reforms to the pensions of public sector workers

In most EU15 countries, public sector workers are subject to a specific pension system, whether it be so-called special schemes like those in force in Germany, Belgium and France, among other countries, or a scheme which is an addition to a national system. In many countries in other regions of Europe or the world, such a system does not or no longer exists<sup>(2)</sup>.

(1) In the Netherlands, for example, life expectancy at 65 years was 17.5 years for men with a high level of education and 13.9 for men with a low level of education, in 2008.

(2) According to Palacios and Whitehouse (2006) at the start of the 2000s, the pension schemes in the public sector were integrated with those of the private sector in 74 countries, including Eastern Europe nations, whilst 84 countries had a separate specific pension scheme for the public sector.

Originally, the specific scheme for the public sector was generally more generous than that for the private sector. This was characterised by less strict conditions of access – earlier retirement in the public sector – and more generous pension benefits, the special defined benefit systems often being based on the final salaries. Consequently, replacement rates were higher. The adjustment and indexation regulations were also generally more favourable for workers in the public sector. In addition, contributions, for their part, could have been lower and/or borne by the State in full or in part.

In general, the special schemes for the public sector apply only to statutory civil servants. In many countries, a significant group of civil servants is recruited on a contractual basis, which means that the social security system and, consequently, pensions in the private sector are applied to some general government staff.

In terms of fundamental pension system reforms, some EU15 countries including Denmark, have switched gradually, by analogy with the private sector, from a defined benefit system to a defined contribution system. Other countries, including Austria, Finland, Italy and Portugal, have amended the public sector system towards convergence with the private sector system. In some cases, new workers in the public sector were hired with the social security system of the private sector applying. This was the case, most notably, in Italy and Luxembourg. In Portugal, the reforms affected not only new workers but also those already in employment. Privatisations, subcontracting and contractualisation<sup>(1)</sup> also reduced the relative weighting of public sector pensions. Furthermore, certain parts of the public sector, such as defence, police and justice, often

escaped reforms in full or in part. Preferential treatment was, and sometimes still is, granted to public enterprise workers in certain branches of activity such as transport or energy.

Parametric reforms have been carried out successfully in the public sector in most EU15 countries. As in the private sector, these reforms have changed key parameters such as the statutory or minimum retirement age, the contribution period and the calculation of benefits, etc., simultaneously or not. They have also been able to try to change the actual retirement age by curbing early retirement or providing bonuses for deferring retirement.

In most EU15 countries, the age at which pension entitlements are paid has been brought up to 65, in particular in Austria, Italy and Portugal, and the retirement age has been harmonised between men and women. Increasingly, the statutory retirement age has also been replaced by a minimum age, thereby making the choice of when to retire more flexible.

Beyond the statutory retirement age, all EU15 countries have tried to raise the actual retirement age by limiting access to early retirement, such as by applying penalties or by encouraging or facilitating deferred retirement.

The contribution periods to obtain a full pension have been extended and brought up to at least 40 years in several countries including Germany, Austria and France.

(1) In Denmark, for example, the appointments of civil servants have been limited to a set of occupational categories since 1 January 2005. Staff not appearing on this list are recruited as contract civil servants, with a status comparable to the private sector.

**TABLE 1** MAIN PARAMETRIC REFORMS TO THE PENSIONS OF PUBLIC SECTOR WORKERS<sup>(1)</sup>

	AT	BE	DE	DK	EL	ES	FI	FR	IE	IT	LU	NL	PT	SE	UK
Raising of retirement age or minimum retirement age . . . . .	X			– <sup>(2)</sup>			X <sup>(3)</sup>		X	X	X	X	X	X <sup>(3)</sup>	X
Restraints on early retirement or promotion of deferred retirement . . . . .	X	X	X	X	X	X	X	X	X <sup>(4)</sup>	X	X	X	X	X	X
Extension of contribution periods	X		X				X	X		X	X	X	X		
Reduction of retirement benefits	X		X				X	X		X	X	X	X	X <sup>(5)</sup>	– <sup>(6)</sup>

Sources: Kings et al. (2007), OECD (2007a), Palacios and Whitehouse (2006).

(1) A cross in a cell means that it has been possible to find a convincing indication of the presence of this reform element for the country in question since 1990, whatever the significance of the change introduced.

(2) In Denmark, the normal retirement age had been lowered from 67 to 65 in 2004 but will be raised by 2 years between 2024 and 2027.

(3) Flexibility of statutory age.

(4) Ireland, only the compulsory retirement age has been withdrawn.

(5) By means of switching to notional accounts.

(6) Retirement benefits have been revised upwards, especially via indexation based on wages rather than prices.

This extension has generally been accompanied by a reduction in pension benefits. In this way, when calculating entitlements, the final wage is being replaced more and more often by an average wage over a longer period, indeed by the average income received throughout life. In several countries, including Germany, Austria and Italy, the reforms have aimed explicitly at reducing replacement rates. Conversely, in the United Kingdom, the aim of the reforms has been to make the retirement system more generous.

In all, the reforms have affected more parameters in some countries than in others. In Austria, Finland, Italy, Luxembourg, the Netherlands and Portugal, they have affected many parameters, whilst some countries, including Belgium, have made minor reforms to public sector pensions.

### 3. Reforms in a selection of countries

The aim of this section is to provide a more detailed presentation of the reforms which have been made in six particularly interesting countries. These countries are, in fact, either precursors or major reformists. The countries in question are the three major countries neighbouring Belgium – Germany, the Netherlands and France – as well as Sweden, Italy and Austria. An analysis by country makes it possible in particular to understand the reasons which made these reforms necessary.

#### 3.1 Germany

Since the start of the 1990s, Germany has reformed its pension system considerably. Consequently, whilst statutory retirement pensions here were fairly generous in the past, those pensions which can be claimed by new beneficiaries have been lowered significantly.

Since 1992, pensions have been indexed to net rather than gross wages. This change has reduced pensions indirectly, insofar as the taxes and social security contributions have then risen, thus decreasing net wages pro rata to gross wages. In parallel, the pension is now penalised in the event of early retirement and the statutory retirement age has been raised to 65 years for women and other types of pensionholder, such as the unemployed.

Nevertheless, the reform in 1992 seemed too limited to guarantee the sustainability of the German pension system. Therefore, it was followed by a second reform in 2001. With a view to controlling labour costs and achieving a fairer distribution of the increasing pension burden between

generations, the stabilisation of contribution rates has been inscribed in law. In order to guarantee the long-term sustainability of the public pension system, a decision was also taken to reduce the actual replacement rate gradually from 70 to 63 p.c. between now and 2030 by way of a weaker adjustment of pension rights than to the growth of net wages. This substantial drop in statutory retirement pensions should be offset by an increase in supplementary pensions. To achieve this objective, the supplementary pension plans intended to create pension funds are promoted either by tax reductions or direct subsidies granted independently to each pension plan or occupational pension scheme.

In order to prevent a sharp rise in contribution rates, in 2004 a sustainability factor was added to the formula used to calculate pensions. More precisely, pensions have been coupled with a dependency ratio, which corresponds to the relationship between beneficiaries and contributors. When the dependency ratio increases, pensions are not fully indexed to the increase in income. The gross replacement rate cannot be lower than 43 p.c., however. In order to be able to comply with this minimum, the changes in the dependency ratio are not fully reflected in the pension benefits but are offset in part by raising the contribution rate. Whether working or retired, all workers are affected to the same extent by the sustainability factor, given that the reference income is affected by the same coefficient as the pensions paid.

Finally, it was decided in 2007 to raise the statutory retirement age from 65 to 67 on a gradual basis between 2012 and 2029.

#### 3.2 The Netherlands

The Dutch pension system is based on two main pillars. The first, a public pillar, comprises a basic pension – the AOW pension for “*Algemene Ouderdomswet*” or general old-age insurance law –, the total of which increases according to the number of years of residence in the Netherlands. The second, a private pillar, comprises supplementary pensions which practically all employers offer their staff. Managed by a large number of pension funds, this pillar has a coverage rate of more than 90 p.c. and represents a little over half the pension benefits. It also applies to civil servants. The *Algemeen Burgerlijk Pensioenfonds* (general civil pension fund), which manages the pension assets of all Dutch civil servants is, also, the largest pension fund in Europe.

Given that the Netherlands has a significant second pillar financed by capitalisation and that, consequently, the country depends less on the pay-as-you-go system than

most other European countries, the ageing of the population seems to jeopardise the funding of pensions less. Nevertheless, the impact of this problem on public expenditure in terms of pensions is considerable, due in particular to the indexation of public pension benefits to minimum wages. To date, the generosity of the pensions has remained almost intact, despite the decision taken in 2005 to remove the tax benefits from early retirement systems.

With regard to the second pension pillar, there has been a slide in recent years towards supplementary pension schemes based on average wages and no longer on the last wage, under pressure from general government which feared that the liabilities in terms of pensions would weigh too heavily on the cost of employment and its tax revenues, since increasing contributions imply higher tax deductions and the government would have to contribute more to the general civil pension fund. The indexation of contributions and pension benefits has also become conditional more often. The non-indexation of pension entitlements may now be used more easily as a regulatory element in order to perpetuate the financial health of pension funds. Consequently, the beneficiaries of pensions now and in the future are faced with an increased risk of a relative decrease in their standard of living.

With a view to increasing the transparency of pension funds, a law on pensions was approved in 2007, replacing the law on pensions and savings. This new law aims, in particular, at better measuring the solidity of the pension funds. Very close attention has also been paid to transparency in respect of the affiliate. Therefore, pension funds are now required to explain more clearly the method of indexation used as well as the conditions under which indexation is reduced.

It was recently decided to raise the statutory retirement age from 65 to 66 in 2020 and again to 67 in 2025. However, a transitional phase is planned until 2047 enabling some working people to retire at 65, provided that they have worked for a sufficiently long time. Those who take up this opportunity, however, will receive a lower AOW pension.

### 3.3 France

Before the reforms, France was characterised by the coexistence of numerous specific occupational retirement funds and a relatively high level of generosity. This generosity was extended until the start of the 1980s. The statutory retirement age was then lowered to 60, in most cases, as long as the required number of years of contribution is reached. In addition, a minimum pension

(*minimum contributif*) was established: any person having contributed for at least 37.5 years, was entitled to 85 p.c. of the minimum wage at the time.

In the general system applying to salaried workers in the private sector, the pension amount was the product of three terms: the payment rate (equivalent to 50 p.c. at full rate), the mean annual wage calculated on the basis of the 10 best years – these wages being capped and adjusted – and the relationship between the period of contribution and the period which was required in order to obtain the full rate (150 quarters for a full rate).

A first parametric reform to improve fiscal sustainability was introduced in 1987 when it was decided to adjust the wages used to calculate entitlements and no longer to index-link the pensions in payment and minimum entitlements on the basis of wages but on prices. In 1993, this measure was confirmed without a time limit.

The reform of 1993 related only to the private sector and, in particular, the general system as well as three so-called aligned schemes, those of salaried agricultural workers (who have since become financially integrated into the general system), craftsmen and manufacturers and tradesmen. In addition to confirming the method of indexation, this reform included various changes to parameters and measures. In this way, the period of contribution was increased from 37.5 to 40 years on a gradual basis, at the rate of one quarter per year. The reference period for calculating the mean annual reference wage was increased gradually from the 10 best years to the 25 best years. Therefore, the mean annual reference wage is lowered by the consideration of 15 less good years. In the – likely – case that these years are also earlier, this reduction is reinforced by the fact that the 25 best years are adjusted on the basis of prices and not average wages.

In order to encourage older workers to stay in work, the 1993 reform also established an annual 10 p.c. penalty for each year less than the full contribution period. This penalty is added to the reduction of the pension amount resulting from the ratio between the contribution period, expressed in quarters, and 160, which is less than 1.

Between 1993 and 2003, the main striking element was the salvage of the supplementary schemes organised according to a point system, in several stages. The raising of these two pillars took place by reducing the yield rate and increasing contributions.

A second major pension reform took place in 2003. It related to both the private and public sectors. With a view to reconciling the more generous public system

with the private system, the contribution period in the public sector was gradually aligned with that in force in the private sector, increasing it from 37.5 years to 40 years at a rate of six months per year and the pension amounts were henceforth index-linked to prices rather than average wages. However, in the public sector, the retirement benefit continues to be determined by wages in the last six months, which are generally also the highest.

The 2003 reform also reduced the penalty per missing year to 6 p.c. in the private sector. In parallel, it introduced a 2 p.c. penalty in the public sector, which rose to 3 p.c. in 2008. For both the private and public sectors, a bonus was also established in order to encourage older workers to remain in employment: pension entitlements rise by 3 p.c. for every year worked beyond the normal length of career.

The 2003 reform created an original system enabling the period of contribution to be increased so that a career is considered complete in line with the increase in life expectancy, for both the private and public sectors. In this way, it planned that the period of contribution would rise gradually from 40 to 41 years between 2009 and 2012, at the rate of one quarter per year. It was planned that this rise could be updated if the context was changed in the light of developments in the rate of employment of persons aged over 50, the financial situation of pension schemes and the employment situation. This issue was debated in 2008 as planned and the increase has been maintained.

Finally, the 2003 reform also involved a social element designed to raise the lowest pensions. It again set a target for the minimum pension. So, in 2008, for those who had worked a full career, a minimum replacement rate of 85 p.c. had to be reached. Moreover, the minimum old-age pension granted irrespective of the contributions if the other resources are insufficient, was also raised.

In 2007, special pension schemes were reformed. These schemes cover some 500,000 salaried workers in public enterprises who had been spared by the previous reforms to a large extent and were enjoying even more generous schemes than those in the public sector. These enterprises operate, *inter alia*, in transport, energy, mining and the navy. This reform related to the same parameters as that of the public sector in 2003. Therefore, the contribution period must be increased from 37.5 years to 40 years by 2012 and to 41 years between now and 2016. It also establishes a penalty and a bonus, within certain limits. Retirement pensions are now also index-linked to prices and no longer to wages. However, the effects of the

reform have been offset in the short and medium term by various advantages for existing staff, for example, the incorporation of bonuses in the calculation of the pension amount.

In 2008, various adjustments were made to increase the actual retirement age. Therefore, the bonus was brought to 5 p.c. per year under certain conditions. The government also relaxed certain restrictions which slowed down the employment-retirement combination for persons aged 60 and over and the mandatory retirement age was increased from 65 to 70 for most salaried workers in the private sector. However, the penalty was brought to 5 p.c. and the statutory retirement age, set at just 60, has remained a taboo subject.

### 3.4 Sweden

Sweden has gone further than implementing one or more parametric reforms and changed the very nature of its pension systems, both for the statutory system (first pillar) and the supplementary scheme (quasi-mandatory second pillar).

Before the reform, the first pillar comprised a universal basic pension created to combat poverty among the elderly and a supplementary allowance for those who had regularly received income from work. This supplementary allowance responded to the logic of a defined benefit pay-as-you go pension system.

In order to receive a full supplementary allowance, 30 years of contributions were required. The contribution rate was relatively high, which enabled surpluses to be generated. These were accumulated in a fund designed to act as a buffer in the event of a problem. This reserve represented up to 40 p.c. of GDP. The contributions served not only to finance retirement pensions but also survival pensions and invalidity benefits. The pension allowance was calculated on the basis of the 15 best annual wages and the aim was to achieve a replacement rate of 60 p.c. up to a ceiling equivalent at the start to 1.5 times the mean wage. The normal retirement age was fixed at 65 years but workers could retire earlier, to some extent – once they reached 60 – or later – up to 70 –, subject to penalties and bonuses, the aim of which was already at achieving actuarial neutrality.

Persons with little or no income were entitled to a pension supplement as well as an allowance which could cover up to 95 p.c. of housing costs. The basic allowance and supplement were to reach approximately 30 p.c. of the average wage.

TABLE 2 MAIN CHARACTERISTICS OF FIRST PILLAR PENSIONS IN SWEDEN

	Before the reform	After the reform
Basic schemes (other than those based on wages)	<ul style="list-style-type: none"> <li>• basic universal pension</li> <li>• in the absence of sufficient income from work, right to a pension supplement and housing allowance<sup>(1)</sup></li> </ul>	(residual) guaranteed minimum pension and housing allowance financed by general budgetary resources
Wage-based scheme	supplementary pension based on defined benefits covering wages up to a ceiling: <ul style="list-style-type: none"> <li>• 15 best wages</li> <li>• indexation to prices (for the ceiling also)</li> <li>• 30 years of contributions</li> <li>• 18.5 p.c. contribution rate</li> <li>• normal retirement age: 65 years but possible retirement from 60 years</li> </ul>	pension based on defined contributions covering wages up to a ceiling: <ul style="list-style-type: none"> <li>• benefits determined by contributions paid</li> <li>• yield and indexation linked to wages (for the ceiling also)</li> <li>• 18.5 p.c. contribution rate:               <ul style="list-style-type: none"> <li>– 16 p.c. notional accounts</li> <li>– 2,5 p.c. capitalisation</li> </ul> </li> <li>• flexible working age from 61 years</li> </ul>
Survival pensions	funded by social security contributions	distinct system financed by general budgetary resources

Source: Sundén.

(1) The basic universal pension was financed by social security contributions but the funding was supplemented by general budgetary resources. These resources were also used to grant the pension supplement and housing allowance.

The second pillar of the Swedish pension system involved mainly four major occupational schemes: one for blue-collar workers in the private sector, one for white-collar workers, one for central government workers and one for local authority workers. These schemes granted defined benefits.

The reform of the system was fine-tuned during the 1990s but only entered into force as from 1999. As in most countries, long transition periods were provided for.

In the new pension system, the basic pension has been removed and replaced by a residual guaranteed minimum pension. It is only granted to persons having little or no other income from work. This guaranteed pension was established at a level equivalent to 1.5 times the previous basic pension, so as to maintain the standard of living of those who were receiving this basic pension and the pension supplement at the same time. The housing allowance was maintained.

The earnings-related system still covers salaried workers up to a certain income ceiling. However, this ceiling is now index-linked to wages and no longer to prices in such a way that the statutory system should no longer be eroded as in the past.

The system is financed by a contribution of 18.5 p.c. of which 16 p.c. is paid to the notional account system operating on the pay-as-you-go principle. This part of the retirement pension is determined on the basis of contributions paid plus a imputed yield, all divided by the average life expectancy for a given cohort at the age of 65. The yield rate is equal to the growth rate of the actual wage per capita. The life expectancy is calculated uniformly, without taking account of sex or socioeconomic category. The remaining 2.5 p.c. is paid to the defined contribution system by capitalisation. In this system, the contributions paid are frozen on individual accounts and each worker may choose the managing pension funds. The rate of return is that of the investments and the financial risk is transferred to the individual.

The pension is index-linked according to a system which, in the long term, is equivalent to indexation on the basis of wages. However, the indexation may be reduced automatically if the financial stability of the system is jeopardised, that is, when the total liabilities exceed the total assets. In this case, it is reduced by multiplying it by the ratio between assets and liabilities. This scenario seemed unlikely on the basis of projections drawn up but could result notably from a change in life expectancy which does not comply with that expected or a downward movement in the number of workers.

The retirement age has become totally flexible as far as pension legislation is concerned and a statutory retirement age no longer exists. The minimum retirement age has been increased from 60 to 61 and there is no longer a maximum age. The age of 65 now serves only as a reference for the calculation of life expectancy.

The second, quasi-mandatory pillar, which covers more than 90 p.c. of workers, has also undergone considerable transformations since the four main schemes have switched, one by one, from a defined benefit system to a defined contribution system.

The successful implementation of the reform is based on a number of factors. First of all, the importance of the second pillar was able to cushion the impact of a reform to the first pillar. Next, the substantial buffer funds accumulated over the years have served, on the one hand, to supply the new system with reserves and, on the other, to transfer the resources to the State in order that it takes back cover for schemes previously coming under social security. This has enabled social security contributions to be maintained at a reasonable level. Thirdly, the reform was supported by a very large majority in parliament. Whilst some were interested, in particular, in the greater link between benefit and contribution, others were interested in safeguarding a first pillar, based mainly on the pay-as-you-go principle. This first pillar was threatened by the fact that an increasing number of workers were affected by the wage cap. In fact, as this ceiling was indexed exclusively to prices, the rise in real wages over a long period had resulted in an ever increasing share of the population being affected thereby. In addition, the reform has made it possible to put an end to redistribution carried out to the detriment of low-education workers and for the benefit of high-education workers. In fact, contributions were deducted from all wages from the age of 16 until the age of retirement whilst benefits were based on the best 15 years of wages only. Therefore, the difference between these two formulae led to a transfer of income to the detriment of those who had a long and smooth career and for the benefit of those who had a shorter career characterised by sharper growth in the income profile.

The reform does not prevent certain pitfalls, however. Although the consideration of life expectancy enables the budgetary burden that this represents to be confronted, the system remains sensitive to demographic changes insofar as the first pillar is still based, above all, on the pay-as-you-go principle. Therefore, the costs linked to the pensions of large cohorts weighing down smaller cohorts, remain problematic.

Certain unexpected or pernicious effects have also manifested themselves. During the first few years of the implementation of the reform, the actual retirement age remained around 62, a relatively low figure in respect of the measures which should have contributed to its rise. This increase did not take place immediately, essentially for three reasons. First, the applications for disability allowances soared among older workers and it was necessary to await a reform of this type of allowance, in 2004, to stem the flow. Secondly, labour market legislation dissuades many salaried workers from working beyond the age of 67 and employers from keeping very elderly workers. Thirdly, several occupational second pillar schemes include incentives for early retirement.

In 2008, for the first time, the liabilities of the system exceeded its assets, so that the automatic balancing mechanism was activated. Therefore, pensions rose at a slower pace than wages.

### 3.5 Italy

As in other countries, the pension system in Italy became increasingly generous and costly until the start of the 1990s. Pension costs absorbed a larger share of GDP than in most other EU15 countries and the loss of control over these costs was increasing. Another major feature of the Italian system was its complexity. In fact, besides a multiplicity of schemes specific to certain professions, Italy had two pension systems, one for seniority and the other for old-age. The seniority pension was granted irrespective of age after 35 years of contributions in the private sector, 25 years in local authorities and 20 years (15 years for women) in central administrations, whilst the old-age pension was subject to a dual condition of age (60 for men and 55 for women) and contribution period (15 years).

Since the starting point was more unfavourable than in other countries, the reforms were more substantial. The most significant reforms were also adopted from the 1990s within a context of monetary and budgetary crisis.

The 1992 reform was parametric, above all, but its originality lies in the fact that the reform concerned several significant parameters at the same time. The age required for granting an old age pension was gradually brought to 65 years for men and 60 years for women, as opposed to ages ranging from 55 to 65 years according to sex and socio-occupational category before. The period of contribution required for granting an old age pension was also extended by 5 years, thereby increasing to 20 years. For new entrants, the reference salary was from

then on based on the entire career, instead of the last 10 years for the self-employed, the last 5 years in the private sector and the last month in the public sector previously. The contribution period required for the seniority pension in the public sector, for its part, was brought in line with that in force in the private sector, that is, 35 years. Finally, pensions are index-linked and reference wages adjusted to prices and no longer to salaries with the possibility of increases, nevertheless. Furthermore, tax incentives have been established in order to promote the development of the second and third pillars.

The 1995 reform was structural: the pension system moved from a defined benefit system to a defined contribution system for new workers, with a long transitional period for those who were in the system for less than 18 years, the others remaining in the old system. The pension system is now based on notional accounts, capitalisation being only fictitious here. Contributions are adjusted according to the growth of the nominal GDP. The transformation coefficient of the retirement capital into income is an increasing function of age and decreasing function of life expectancy, which provides an incentive to postpone the age of retirement. The coefficient which was to be revised every 10 years, was lowered in 2007 and will now be revised every three years directly by the administrative authorities.

In parallel with the introduction of notional accounts, the 1995 reform brought other changes. Thus, pensions are index-linked to prices only. The conditions for starting old-age pension entitlements have been lowered: 5 years of contributions suffice. On the other hand, 40 years of contributions are now required before there is any entitlement to a seniority pension. However, 35 years could suffice but the persons must have reached the age of 57. In other words, a minimum age has been introduced for the seniority pension. Some rules have been harmonised between private and public sectors.

In 2004, a new stage was crossed in the process of pension reform in Italy. This reform gradually increased the age of granting seniority pensions, raising it from 57 to 62 years between 2007 and 2014. It also increased the system resources, among other things by establishing of a solidarity contribution from the highest incomes towards the more modest incomes. One part of these savings or revenues was devoted to funding a temporary "super bonus", that is an exemption from personal social security contributions for workers deciding to continue to work beyond the statutory retirement age. Furthermore, this reform encouraged the second pillar, above all.

In 2007, the government reconsidered certain elements of the 2004 reform by slowing the rate of increase in the minimum retirement age, and granted various social measures. Having done this, for the first time since the start of the 1990s, pension measures resulted in an increase in expenditure. The measures included, inter alia, more favourable conditions for the accumulation of contributions for atypical workers (redemption of study periods and full cover in the event of career interruptions) and an extension of the list of occupational groups whose employment conditions are deemed hard, these groups now being able to claim retirement 3 years earlier than the normal age but without being able to retire before the age of 57.

In 2009, following formal notification from the EC for failure to comply with the principle of equality between men and women, the authorities were forced to gradually harmonise the retirement age of women (60) with that of men (65) in the public sector.

### 3.6 Austria

Before reforms were undertaken, the public pension system in Austria could be described as generous and costly. In addition, the participation rate of persons over the age of 55 was particularly low in the country. Without reforms, the high and increasing pension expenditure within the context of ageing would have seriously jeopardised the sustainability of public finances.

These structural weaknesses were offset by several in-depth reforms of the pension system, which were decided on a gradual basis. The 1997 and 2000 reforms concentrated above all on raising the actual retirement age whereas those of 2003 and 2004 related to the numerous parameters influencing the retirement benefits. The raising of the actual retirement age and changes to retirement benefits aimed at easing the pressure on pension expenditure considerably and, therefore, improving the sustainability of public finances.

In order to encourage people to work longer, it was decided in 1997 to reduce the replacement rate by 2 percentage points per year of early retirement prior to the statutory age with a maximum replacement rate reduction of 15 p.c. Furthermore, that year, pension entitlements acquired by year worked were increased, reaching 2 p.c. The maximum replacement rate of 80 p.c. would then be reached after a career of 40 years. Retirement benefits, therefore, became more generous as a result of this last measure.

The 2000 reform further increased the penalty per year of early retirement, bringing it to 3 percentage points, the maximum replacement rate reduction being maintained. However, an exception was included for persons who had almost reached statutory retirement age, for whom the former legislation continues to apply. Furthermore, the bonus per year worked after the statutory retirement age was increased from 2 to 4 percentage points, but the replacement rate cannot exceed 90 p.c. In addition, the minimum early retirement age was raised from 60 to 61.5 years for men and from 55 to 56.5 for women. Finally, the possibility of retiring early owing to reduced working capacity was removed.

In 2003, the reduction of retirement benefits in the event of early retirement was again increased, namely to 4.2 percentage points. In addition, the possibility of early retirement owing to unemployment was removed. Pension entitlements acquired per year worked will be gradually brought to 1.78 p.c. and the reference period used to calculate pensions has been extended from the 15 best years in terms of wages to 40 years. The increased generosity of retirement benefits resulting from the 1997 reform was thus cancelled out by that of 2003. The reforms to the pension system applicable to civil servants reflect those implemented for workers in the private sector. In relation to the benefits which would have been obtained prior to reform, the maximum reduction to the pension resulting from these measures was limited, however, to 10 p.c. until 2032. Furthermore, exceptions to the new regulations were planned for certain groups, such as workers performing heavy work.

The 2004 reform brought several changes to the existing pension system. In this way, the "80/65/45" formula acts as a guideline for the new pension system. This formula means that a pension received at the age of 65 is equal to 80 p.c. of the calculation basis after 45 years of insurance. Bearing in mind this new formula, the reference period is now extended to the entire career. Moreover, the possibility of retiring early was restored by establishing a pension corridor between the age of 62 and 68, by means of an adjustment to pension penalties and bonuses. Finally, the contributions paid are adjusted on the basis of the increase in wages rather than prices. Existing pensions are price-indexed as was already the case before, in fact. As a result of the introduction of individual pension accounts, pension entitlements acquired are now notified in complete transparency. The new regulations only apply fully to persons in work who had not yet acquired pension entitlements prior to 2005. The others are subject to both the old and new regulations *pro rata temporis*. The ceiling relating to the maximum reduction in the retirement benefit resulting from the reform was also lowered from

10 to 5 p.c. until 2024 whilst remaining fixed at 10 p.c. after this date.

Finally, following a decision issued by the Constitutional Court, the statutory retirement age for women will be gradually brought in line with that for men, so increasing from 60 to 65 years by 2033.

## 4. Effects of the reforms

This section sets out the extent to which the reforms to the pension systems decided upon in most of the EU15 countries have produced certain effects. Firstly, it will be a question of knowing whether these reforms have led to an increase in the actual retirement age. Next, the examination will focus on the impact of the reforms from the point of view of fiscal sustainability and social sustainability.

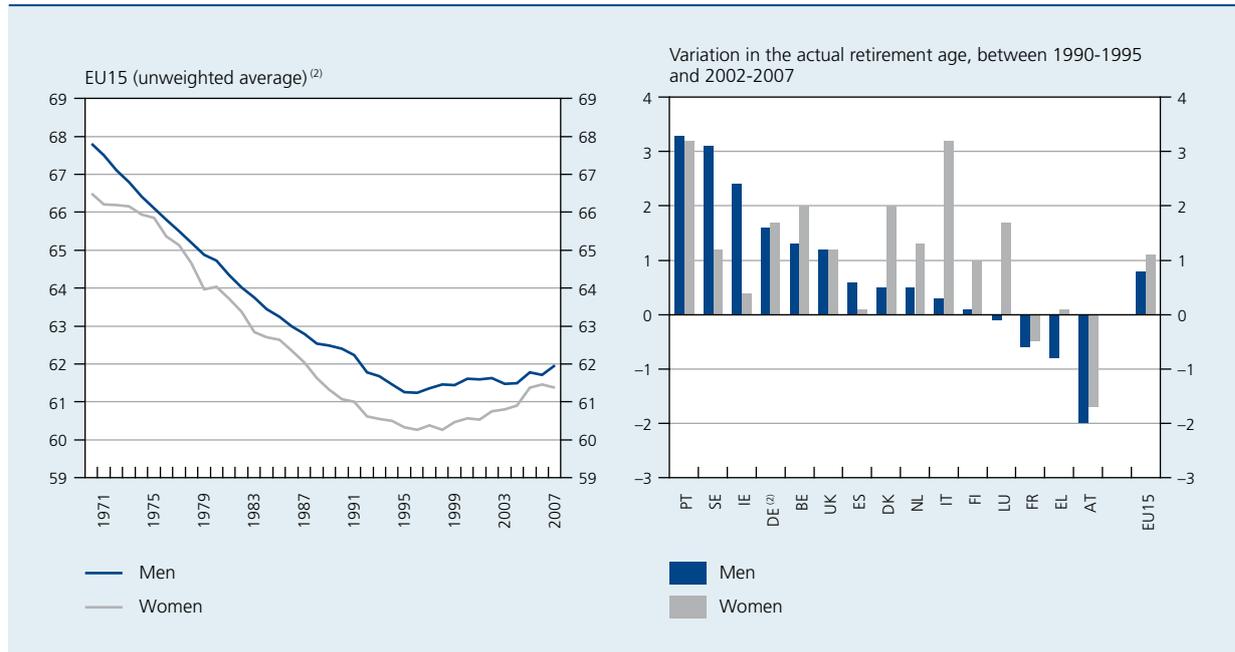
### 4.1 Actual retirement age

Many coercive measures and incentives have been introduced to raise the actual age at which workers leave the labour market. In fact, this type of increase makes it possible to face both the budgetary and social challenges posed by an ageing population at the same time, increasing the number of years of contributions and reducing the number of years of benefits, without in any way affecting the level of benefits received by persons drawing their pensions.

The changes in the average actual retirement age indicate the extent to which the reforms have had a visible impact on this, in particular. To do this, the OECD data established by a moving average of 5 years are used, and this enables the economic climate elements to be eliminated to a large extent. In addition, these data integrate all the forms of retirement from the labour market including the various forms of pre-pensions, which come under other branches of social security, such as unemployment or invalidity. Consequently, any reforms affecting these other branches may also have an impact on the actual retirement age reported here.

In the EU15 considered as a whole, the average retirement age fell significantly between the start of the 1970s and the mid 1990s – which is when retirements were at their earliest – dropping from more than 67 years to 61 years and 3 months among men and from 66 years and 6 months to 60 years and 3 months among women. Consequently, the average age rose somewhat to nearly 62 years and 61 years and 5 months

**CHART 7** AVERAGE ACTUAL RETIREMENT AGE<sup>(1)</sup>  
(by 5 year period)



Source : OECD.

(1) The average actual retirement age from the working population is based on a comparison, over a period of five years, of the rate of activity of successive groups (by five-year group) of working people aged 40 years and over.

(2) The data for Germany are only available from 1991-1996.

respectively in 2007. These movements affected almost all EU15 countries, albeit to various extents and with slight time differences.

Between 1990-1995 and 2002-2007 – that is before and after the most significant reforms carried out in Europe –, most countries saw the actual retirement age begin to increase. This postponement of the retirement age averaged 9 months for men and 13 months for women; this difference can be explained in part by the fact that the measures for raising the statutory retirement age were more significant for women than for men.

The increase in the actual retirement age reached more than 3 years in Portugal, for women in Italy and men in Sweden and approximately 2 years for men in Ireland and women in Belgium, Denmark and Luxembourg. However, retirement continued to be taken increasingly early in France, as well as among men in Greece and to a lesser extent, in Luxembourg. In Austria, the downward trend still did not appear to have been halted in 2007.

In some countries where the increase is significant, such as Portugal and Sweden, major reforms may be partly at the origin of this increase. On the other hand, some

countries where the erosion of the retirement age has continued, have adapted certain parameters which are supposed to delay the retirement age. This confirms that long transition periods tend to only bring about very few changes in behaviour in the short term. The increase in the retirement age should continue, therefore, since many reforms are staggered over time and have yet to produce their effects, at least partially.

#### 4.2 Fiscal sustainability

The effect of the reforms can also be measured in terms of fiscal sustainability. Therefore, the Working Group on Ageing Populations or AWG – an EC working group which carries out joint projections on the subject of the cost of ageing – has made a forecast of the increase in the share of pension expenditure in GDP by 2060. The last projections give a glimpse of the major developments expected in EU countries, taking into account, in particular, the future effects of the reforms decided. Insofar as they date from the middle of 2008, however, these projections do not take account of the effects of the current economic crisis or the latest pension reforms.

The increase in pension expenditure in GDP can be broken down into five factors: the elderly dependency rate, the coverage of senior citizens, the employment rate, the benefit rate and a residual factor. Among these factors, two can be directly influenced by the implementation of pension system reforms. On the one hand, coverage, which is equal to the ratio between the number of pensioners and the population aged 65 and over, can be influenced by delaying the actual retirement age. On the other hand, the benefit rate, that is, the ratio between the mean pension and mean wage is influenced if the reforms affect the total benefits received. The other factors do not depend, or at least not directly, on the pensions policy. Thus, the dependency rate, which expresses the size of the population aged 65 and over as a percentage of the working population, only depends on demographic factors. And the employment rate depends on factors which exceed the framework of the pension systems to a large extent, even if this framework may also influence it.

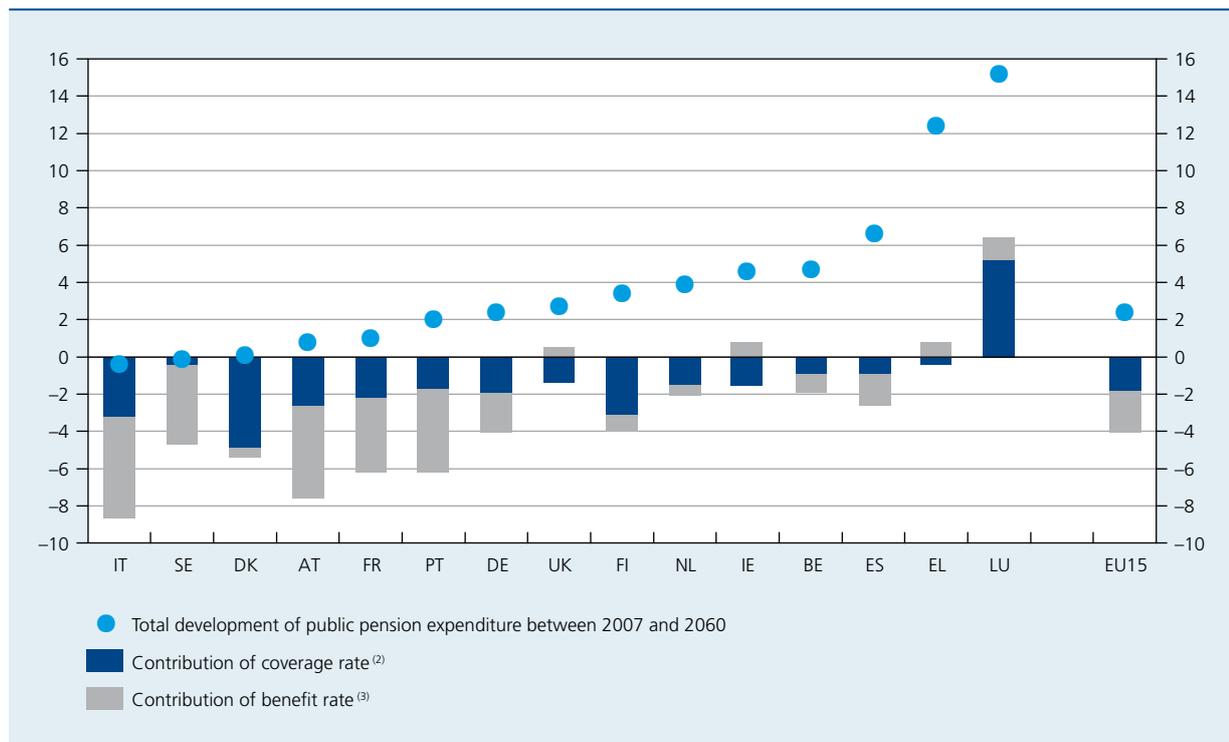
The reduction in coverage indicates an increase in the average actual retirement age, an increase which may result from the increase in the statutory age, the decrease

in early retirement opportunities, a bonus-malus system or an extension of the reference career. In addition, the coverage may be influenced by factors of generation cohorts or changes in mentality which do not come directly under economic policy instruments.

The coverage rate should decrease significantly in Italy, Denmark, Austria, France and Portugal as well as in Finland and in Germany. Among these countries, the statutory retirement age has been or will be raised – sometimes gradually – in Italy and, for women, in Austria and Portugal. The early retirement age will also be raised in Austria. Systems establishing a significant bonus-malus system for early retirement or retirement postponed beyond a pivot age have been introduced in all these countries. Finally, the full career serving as a reference for the calculation of certain entitlements has been extended in Italy and France.

For its part, the benefit rate is influenced instead by a limitation of the benefits or growth thereof, mainly obtained by reducing the reference wages – obtained by referring to a less favourable period, by capping the wages used in

**CHART 8** PENSION EXPENDITURE AND FACTORS LIKELY TO BE INFLUENCED BY A PENSION SYSTEM REFORM<sup>(1)</sup>  
(GDP percentage points)



Source: EC.

(1) Public expenditure relating to the pensions of workers in the private and public sectors.

(2) Ratio between the number of pensioners benefitting from a public system pension and the number of persons aged over 65.

(3) Ratio between the mean pension and mean wage.

the calculation of the entitlements or limiting their adjustment – or by a less favourable indexation of the pensions in payment.

The benefit rate should drop significantly by 2060 in Italy, Sweden, Austria, France and Portugal. This is also the case to a lesser extent in Germany and Spain. A less favourable period will be taken into account for most of these countries (Sweden, Austria, France and Portugal) with a lowering impact on the benefit rate. The adjustment of wages in the past when calculating entitlements has been limited in France and Portugal where there has been a move from adjustments on the basis of wages to adjustments limited to inflation, at least in part. However, the adjustments are now more generous in Sweden and Austria, which to some extent limits the gain obtained by considering a less favourable period. Finally, pensions are not indexed as heavily as in the past in Italy, France and Portugal, which also reduces the benefit rate by 2060. In Sweden, however, the heavier indexation tempers the other factors.

Despite the generalised ageing of the population, it follows from these projections that some countries seem to have kept the increase in pension expenditure under control: Italy and Sweden, which would even see a slight reduction in this expenditure, and Denmark, Austria and

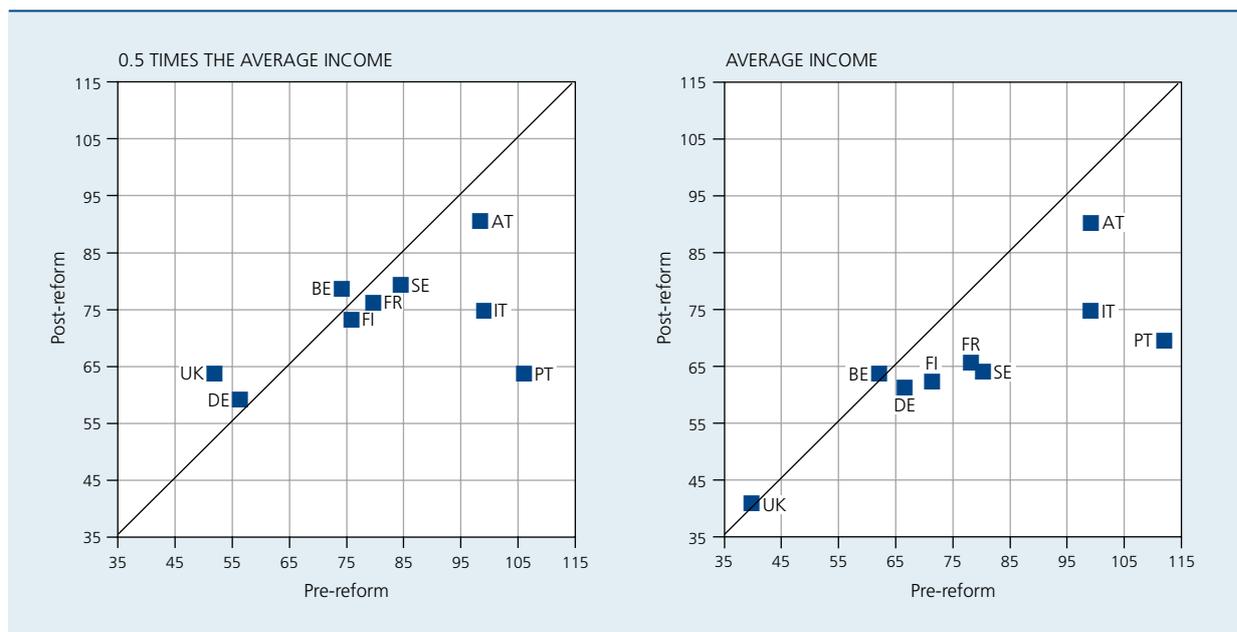
France where their increase would be less than 1 percentage point of GDP between now and 2060. All these countries have carried out an active policy of reform which will have an impact, at least in future, on the coverage and/or benefit rate, which reduces their expenditure linked to ageing all the more. On the contrary, other countries such as Greece and Luxembourg will have to face up to a dramatic increase in these costs, with an unchanged policy. Finally, a median group seems to have already partially limited the consequences of ageing on the cost of pensions, but will have to face an even greater increase in spending if new reforms are not introduced. Belgium forms part of this group and the expected rise in pension expenditure is clearly higher there than that of the average in the EU15.

### 4.3 Replacement rate

The improvement in the budgetary outlook is sometimes accompanied, however, by a reduction in retirement benefits, to the detriment of social sustainability. A simulation by the OECD enables some observations to be made.

In countries where the net replacement rates – the average pension expressed as a percentage of the final wage – were the highest, the reforms implemented have reduced

**CHART 9** IMPACT OF PENSION SYSTEM REFORMS ON INDIVIDUAL ENTITLEMENTS IN CERTAIN COUNTRIES  
(net replacement rates before and after reform, men employed in the private sector)



Source : OECD.

(1) The OECD has selected the countries which had implemented major pension reforms between the mid-1990s and the mid-2000s. Within the EU15, this relates to nine countries, which include most of the major reformists.

it. This is the case of Portugal in particular where this rate was higher than 100 p.c. prior to reform, and in Italy and Austria where it was close to this level. The replacement rate has also fallen in Sweden, France and Finland, albeit to a lesser extent. In Germany, the replacement rate of workers on modest incomes was improved a little, whilst for average incomes, it has been revised downwards. This tendency towards a less significant reduction for the lowest incomes is widespread<sup>(1)</sup>.

The countries where the replacement rates were lowest will retain replacement rates which are at least as high as those before the reforms, however. They will even be clearly improved in the United Kingdom, as far as the lowest incomes are concerned.

In this way, the replacement rates in the EU15 tend to be converging, both for average income and modest income.

## Conclusions

All European countries are faced with the challenges of ageing populations. In particular, the increase in the elderly dependency rate is already underway and is set to almost double in the EU15 by 2060. These developments call into question pension systems based to a large extent on a demographic situation which was considerably different in the past. For this reason, almost all European countries, but not every one, have already carried out reforms – major reforms in some countries – or plan to do so in the more or less short term.

Some countries have made systemic changes involving either capitalising a part of the amounts required to pay for future pensions or moving to a defined contribution rather than a defined benefit system. In addition, the parameters used to calculate pension entitlements have generally been changed, either specifically or within the framework of a system change. It has been possible to observe these parameter changes in most countries, with those countries where no reforms have been made being rare. However, since the reforms are staggered over sometimes very long periods, it is common for them not to have generated all their consequences yet.

This study shows that most countries have attempted to raise the actual retirement age. On the one hand, this has been done coercively, by raising the statutory retirement age and reducing the opportunities for early retirement. On the other hand, some countries have introduced incentives, including the establishment of a system of bonuses for delayed retirement and penalties for early retirement, increasing the length of career required to be able to

claim a full career or taking account of the increase in life expectancy in the calculation of annuities, sharing out the accumulated capital. The effects of these reforms have been that the downward trend in the actual retirement age was interrupted in the mid-1990s and since then this age has risen in most EU15 countries. In future, this rise is set to continue also, some of the effects of certain reforms having yet to be produced in a number of cases.

Another line of reforms broadly followed consists of reducing the entitlements of (future) pensioners. To this end, the parameters used to calculate these entitlements have been changed in various ways: reducing the reference wage by using a less favourable period, capping the wage considered, less generous adjustments or limiting the indexation of pensions in payment. However, these reforms were mainly established in countries where the replacement rates were particularly generous and the governments there have ensured in general that the least favoured are not made weaker.

In all the EU15 countries, a specific pension scheme, usually more generous, is applied to (statutory) workers in the public sector. In addition to the measures sometimes taken to limit this group of people, such as the reduction of public employment, subcontracting or the hiring of contract workers, a number of countries have carried out reforms on the pension schemes of this group. These reforms have often taken the form of a reconciliation with the pension schemes of workers in the private sector, limiting the specific characteristics, by harmonising further or even removing this specific scheme. Parametric reforms have also concerned the public sector in almost all the EU15 countries.

Following these reforms, several countries seem to have succeeded in controlling the growth of their pension expenditure. Thus, Italy, Sweden and Denmark, for example, should maintain pension expenses which are generally comparable with those in 2007 by 2060. Other countries such as Luxembourg or Greece, however, have every reason to be concerned by the surge in these costs. Finally, a median group, including Belgium, seems to have already introduced reforms limiting the rise in pension expenditure but not sufficiently enough to prevent a considerable increase.

Finally, following reforms, the replacement rates in different EU15 countries have converged or are set to do so. In this way, countries where these rates were the lowest, such as the United Kingdom or Belgium, or even Germany

(1) For income equivalent to 1.5 times the average income, the overall effect of the reforms is comparable to the effect on the average income.

for modest incomes, have higher replacement rates post-reform than before. On the contrary, countries which had high replacement rates have carried out sometimes major reforms, which have lowered these rates, whilst frequently ensuring the social sustainability of the new system.

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