



IZA

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## Pension Systems in the EU – Contingent Liabilities and Assets in the Public and Private Sector

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DIRECTORATE-GENERAL FOR INTERNAL POLICIES

**POLICY DEPARTMENT**  
**ECONOMIC AND SCIENTIFIC POLICY** **A**

PENSION SYSTEMS IN THE EU - CONTINGENT LIABILITIES AND ASSETS IN THE PUBLIC AND PRIVATE SECTOR



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DIRECTORATE GENERAL FOR INTERNAL POLICIES  
POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

# Pension systems in the EU – contingent liabilities and assets in the public and private sector

## STUDY

### **Abstract**

This study provides an overview of the different pension systems across EU Member States and describes contingent liabilities and assets in the public and private sectors. Therefore, the study assesses both the recent development of the pension schemes and the current state of play. As a result, good practices are identified and sound features commended which are to be implemented across the EU. Key elements of an adequate and sustainable pension scheme include, for example, a higher labour market participation rate, most notably amongst older workers, a higher retirement age and an appropriate mix of pension pillars.

This document was requested by the European Parliament's Committee on Economic and Monetary Affairs.

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# CONTENTS

<b>LIST OF ABBREVIATIONS</b>	<b>6</b>
<b>GLOSSARY</b>	<b>8</b>
<b>EXECUTIVE SUMMARY</b>	<b>10</b>
<b>1. Introduction</b>	<b>15</b>
<b>2. Overview of Pension Systems in the EU</b>	<b>16</b>
2.1. Population trends and recent reforms in Member States	18
2.2. Financial situation of public pension schemes	20
2.3. Pension systems – the use of different ‘pillars’	25
2.4. Defined benefits, defined contributions or hybrid systems	30
2.5. Entitlement and distribution of pensions	34
2.6. Differences between public and private sector entitlements	39
2.7. Minimum levels of state pensions	41
<b>3. Financial development of the pension systems</b>	<b>43</b>
3.1. Introduction	43
3.2. The main scenario of the 2009 Ageing Report	44
3.3. Risks to the Ageing Report projections	48
3.3.1. Demographic and macro-economic assumptions	48
3.3.2. Achieving the transition to longer working lives	50
3.4. The role of funded pension systems	51
3.4.1. Portfolio allocation in public pension funds	54
3.4.2. Survey of portfolio allocation in pension funds	55
3.4.3. Corporate governance in public pension funds	55
<b>4. Working longer</b>	<b>59</b>
4.1. Retirement age	60
4.2. Working until retirement age: Effect on the present pension systems	63
4.2.1. Reasons of being out of labour market	66
4.2.2. Prerequisites to work longer	68
4.2.3. Incentives to work longer	69
4.3. Scenarios for working until retirement age	70
4.4. Definition of fiscal sustainable pension systems	74
4.5. Effects on pension sustainability	75

<b>5. Contingent liabilities</b>	<b>77</b>
5.1. Implicit pension debt in the social security pension system	79
5.2. Generational accounts	80
5.3. Estimates of implicit pension debt	81
5.4. Estimates of generational imbalances	83
5.5. Implicit pension debt and the Stability and Growth Pact	86
5.6. Private pension liabilities	87
5.7. Private households' housing assets and mortgages	88
<b>6. Policy recommendations</b>	<b>91</b>
6.1. Increasing the labour force participation rates across the EU	92
6.2. Working longer	92
6.3. Establishing three-pillar pension schemes across the EU while respecting national circumstances	93
6.4. Risk diversification	93
6.5. Enhancing the transparency of pension schemes	95
6.6. Contingent liabilities now and in the future	95
<b>REFERENCES</b>	<b>97</b>
<b>ANNEX 1: CASE STUDIES</b>	<b>104</b>
<b>1. The Netherlands</b>	<b>104</b>
1.1. The Dutch pension system	104
1.2. Future trends and reforms	107
1.3. Lessons to be learned	109
<b>2. France</b>	<b>111</b>
2.1. The French pension system	111
2.2. Future trends and reforms	113
2.3. Lessons to be learned	116
<b>3. Italy</b>	<b>118</b>
3.1. The Italian pension system	118
3.2. Future trends and reforms	120
3.3. Lessons to be learned	123
<b>4. Poland</b>	<b>124</b>
4.1. The Polish pension system	124



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<b>4.2. Future trends and reforms</b>	<b>127</b>
<b>4.3. Lessons to be learned</b>	<b>130</b>
<b>5. Conclusions</b>	<b>132</b>
<b>ANNEX 2: Minimum pensions across EU Member States</b>	<b>134</b>

## LIST OF ABBREVIATIONS

- AGIRC** General Association of Complementary Institution Frameworks/Association générale des institutions de retraites de Cadres
- ARRCO** Association for the Supplemental Pension Plan for Employees/ L'Association pour le régime de retraite complémentaire des salariés
- ATP** Arbejdsmarkedets Tillægspension
- AWG** Ageing Working Group
- DB** Defined benefit
- DC** Defined contribution
- EEE/EET/ETT/TTT** E=exempt, T=taxed; refers to exemption or taxation of a) premium payments, b) accrual of capital gains and investment income, and c) pension payment; see also explanations in the Glossary for more details
- EPC** Economic Policy Committee
- ER** Earnings related
- ETT** See EEE
- EU** European Union
- EUROPOP** Eurostat Population Projections
- EU-SILC** European Union Statistics on Income and Living Conditions
- EU-12** The 12 Member States which joined the European Union after 1 May 2004: Bulgaria (BG), Cyprus (CY), Czech Republic (CZ), Estonia (EE), Hungary (HU), Latvia (LV), Lithuania (LT), Malta (MT), Poland (PL), Romania (RO), Slovakia (SK) and Slovenia (SI).
- EU-27** The 27 Member States of the European Union
- FR** Flat rate
- FRw** Flat rate by wage categories
- GDP** Gross Domestic Product
- HC** Health care
- MISSOC** Mutual Information System on Social Protection

<b>MT</b>	Means tested
<b>NDC</b>	Notional defined contribution
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>OLF</b>	Out-of-labour force
<b>OPF</b>	Open Pension Funds
<b>PAYG</b>	Pay as you go
<b>PERCO</b>	Plan d'épargne pour la retraite collectif
<b>PERP</b>	Personal pension
<b>SGP</b>	Stability and Growth Pact
<b>SHARE</b>	Survey of Health, Ageing and Retirement in Europe
<b>SPC</b>	Statistical process control
<b>TTT</b>	See EEE
<b>ZUS</b>	Polish pension authority

## GLOSSARY

- Average exit age** The average exit age in the Ageing Report 2009 is calculated with the age specific pattern of economic participation rates for each single year of age, comparison of labour force participation rates over time and the probability of retiring at certain age. Average exit age is then calculated as the weighted sum of the retirement ages.<sup>1</sup> The European Commission, as well as the OECD, uses the average exit age from the labour force, country specific statistics use the mean age of retirement (e.g. Pension Commission, 2004).
- Cohort effect** The size of one cohort and its labour force participation rate can influence the structure of the working-age population: if a big cohort with a low participation rate enters retirement, overall participation rate is increasing even if in the different age groups the participation rate stays constant.
- Defined benefit schemes (DB)** Scheme where the pension payment is defined as a percentage of income and employment career. The employee receives a thus pre-defined pension and does not bear the risk of longevity and the risk of investment. Defined benefits schemes may be part of an individual employment contract or collective agreement. Pension contributions are usually paid by the employee and the employer.
- Defined contribution schemes (DC)** Scheme where the pension payment depends on the level of defined pension contributions, the career and the returns on investments. The employee has to bear the risk of longevity and the risk of investment. Pension contributions can be paid by the employee and/or the employer and/or the state.
- Discount rate** A factor by which a future cash flow must be multiplied in order to obtain its present value. The discount rate values future payments less if they are received in the more distant future. The interest rate used for the calculation is usually chosen to be equal to the cost of capital. Often the market rate of return (yield) on government bonds is used as the cost of capital.
- EEE / EET / ETT / TTT** Tax system on pension contributions, pension investment/savings and pension benefits: The EEE-system is a non-taxation system: Pension contributions are tax-exempt, capital gains of investments are tax exempt and also the pension benefits are tax exempt.
- In the EET-system pension contributions and investment income or capital gains of investments are tax exempt just the pension benefits are taxed. Most Member States of the European Union use this system on occupational pensions.
- In the ETT-system pension contributions are exempt and investment income or capital gains of investments as well as pension benefits are taxed.

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<sup>1</sup> Carone, G.

In the TTT-system pension there are taxes in all three stages: Contributions, investment income or capital gains of investments and pension benefits are taxed.

- Employment rate** According to the European Union labour force survey, the employment rate is generally measured for persons aged 15 to 64. Thus, both indicators employment rate and participation rate can be used as synonyms describing the percentage of working age population in employment.
- Explicit debt** Explicit debt is the result of accumulated past deficit spending of a government. It corresponds to the official government debt figures as published by Eurostat.
- Hybrid pension schemes** Hybrid schemes combine elements of defined benefits and defined contribution systems so that the risk of longevity and the risk of investment is split between beneficiaries and scheme's operator. The designs of the Notional Defined Contribution (NDC) schemes transform the public PAYG systems to become actuarially connected, which was previously only the case for private, fully funded schemes.
- Implicit debt** Implicit government debt results from the promise of future payments by a government. In the case of a PAYG pension system this refers to future benefits that are not covered by future contributions. Because these promises are not explicitly recorded in the government's budget the present value of future negative cash flows emanating from the promise is called an implicit debt.
- Participation rate** see 'Employment rate'
- Pension rate** see 'Employment rate' to which the pension rate is a comparable indicator, it is defined as relation of pensioners within a certain age group.
- Present value** The value on a given date of a future payment or a series of future payments. The computation of a present value allows comparison of cash flows at different points in time on a meaningful "like to like" basis and uses a discount rate.
- Steady state** An economy is in a steady state if it has reached is long-term equilibrium. In a growing economy, this implies that although output is growing several economic variables remain in a stable relationship, i.e. the capital-labour ratio, the savings rate, or social security contribution rates remain constant over time.

## **EXECUTIVE SUMMARY**

### **DIFFERENT PENSION SYSTEMS FACING SIMILAR CHALLENGES**

Pension systems differ throughout the EU-27 as each system reflects in a certain way a specific institutional arrangement. Still there are some features which most of these systems contain, and similar developments can be observed as many Member States are faced with the same general challenges regarding pension sustainability and adequacy. In general, it is useful to distinguish different pension pillars: a public mandatory old-age pension, occupational pensions and private savings plans. The main structure is common across all pension systems. However, the size of each pillar depends on the institutional context of each Member State and therefore differs across the EU.

Pensions within the first pillar are often based on the pay-as-you-go principle (PAYG) where contributions and taxes of current workers are used to finance (often earnings-related) pensions of current pensioners. In many Member States public pension systems entail minimum pension arrangements to alleviate old-age poverty. The so-called pillar 1bis has grown recently as some countries have switched part of their social security pension schemes into funded pension schemes. Provision and participation in the first pillar pension scheme is usually statutory. Nine of the 27 EU Member States switched part of their social security pension provision into statutory funded pension schemes.

Savings within the second pillar aim to provide retirees with an adequate replacement rate which is more advantageous than the pension level provided by the first pillar alone. Occupational pension arrangements may be voluntary or mandatory while some Member States have both types. Nonetheless, not all Member States have occupational pension schemes.

The third pillar represents individual private pension schemes. Usually, private pension schemes are voluntary, but in most Member States with a third pillar private savings are encouraged via tax subsidies.

Although each pension system differs from Member State to Member State, all of them face similar challenges in particular with regard to the phenomenon of an ageing population. Those demographic changes are due to low fertility rates and increasing longevity and will lead to a change in the old-age dependency ratio between the population aged 65 and over and working-age people between the age 15 and 64. This means that the EU-27 would move from having 4 persons of working-age for every person aged over 65 to a ratio of only 2 to 1. As a result, the increasing dependency ratio puts a strain on the government budgets of each Member State. One way to make pension systems less vulnerable to future pension liabilities has been to strengthen the second and the third pillar, i.e. by transforming pension systems into multi-pillar arrangements.

### **RECENT PROJECTIONS ON PENSION EXPENDITURES**

The future development of pension expenditures constitutes one important element of the financial sustainability of pension schemes. Demographic projections imply that the pension costs will increase in the future and hence constitute a strain on the government budgets. The financial crisis has further aggravated this situation. It has shown how vulnerable pension schemes based on capitalisation can be.

For all EU Member States on average, the public pension expenditures amounted to 10.2% of GDP in 2007. The 2009 Ageing Report prepared by the European Commission projects that public pension expenditures in the European Union would rise by 2.4% of GDP until 2060 – but only if all the latest reforms enacted in Member States are taken into account.

However, under less optimistic assumptions, the rise could also amount to 10.2 to 18.9% of GDP until 2060 (see chapter 3. for more details).

The risks to the projections of the 2009 Ageing Report appear to be tilted towards sharper increases in pension expenditures. Two further factors might contribute to the upward risks. Firstly, former forecasts suggest that life expectancy could increase faster than assumed. Secondly, the assumptions on labour productivity growth seem to be very optimistic.

Furthermore, the projections assume that pension reforms will result in a substantial increase in labour force participation rates, most notably among older workers. However, the extent to which this will materialise depends on the success in implementing a wider range of reforms to foster and support longer working lives. Against this background, all different pension schemes of Member States entail major risks as well as contingent liabilities.

## **RISKS AND CONTINGENT LIABILITIES OF PENSION SCHEMES**

Pension liabilities are the present value of the difference between projected contributions and expenditures of the social security pension system. The variety of methods and assumptions available for doing the projections impedes comparison between different estimations. Pension liabilities are also called implicit pension debt as they result implicitly from entitlements against the pensions system rather than explicitly from claims backed by a debt contract, e.g. government bonds. Thus, implicit liabilities constitute most notably costs related to the greying population.

A high implicit pension debt signals future deficits in the social security pension system and reveals need for political action, unless there is a public pension fund big enough to cover the pension liability. All published estimates indicate substantial levels of implicit pension debt throughout the European Union. Generational accounts compute present values but link contributions and benefits to individual generations. Thereby they display possible imbalances between generations. Usually, generational accounts comprise total government revenues and expenditures and do not separately present the financial flows of the pension system. Countries with high implicit debt will have to run budget surpluses in the medium term. Therefore, successful pension reforms should aim at achieving the objective of a balanced budget.

## **REFORM TRENDS**

Major reforms of the existing pension systems have taken place across Member States of the European Union. A strong reform trend that could be identified was the spread of mixed-pillar systems across the European Union. Other reforms with regard to the second pillar introduced a combination of a semi-mandatory occupational pension system. This specific system refers to national pay bargaining and thus results in a comparatively high coverage rate of the employed workforce. Similar reforms in the last decade have focused on extending the contribution period and the retirement age. Some Member States have meanwhile implemented notional accounts. These accounts consider GDP growth and future life expectancy to determine benefits.

Latest political reforms across the Member States have blurred the old dividing lines between PAYG/funded, public/private and voluntary/mandatory schemes by combining elements from all types. Though public pensions still have an important role as the bulk of pension income, they will continue to be provided by public PAYG schemes, whereas the role of funded and defined contribution pensions grows.

The transition from defined-benefit to defined-contribution has been a key feature of the reform process since the mid-nineties to secure adequacy and sustainability. This has

tightened the link between the contributions paid into the system and the benefits paid out. Defined-contribution pension schemes can be public, occupational or personal and pre-define the level of contributions, and not the final benefit.

Last, but not least, most EU Member States have started to phase-out early retirement schemes over the last decade in order to withdraw incentives to early exit from the labour market. Yet, the extent to which premature retirement is still possible varies across Member States to a large extent. In general, there is still a significant difference between the actual and the formal retirement age.

## **POLICY RECOMMENDATIONS**

Notwithstanding differences between Member States, there are general guidelines for reforms to ensure the sustainability and adequacy of pension systems.

### **1. Higher labour force participation rates and working longer**

First, employment and labour market policies should focus on the activation of inactive working-age people as well as of older workers and should be aware of the fact that unemployment and inactivity must be kept as low as possible. Hence, high participation rates, which imply a favourable ratio of gainfully employed in relation to the population, and increasing the duration of working lives are essential elements of fiscal sound pension systems and adequate pensions.

An increase in employment rates would go hand in hand with a decreasing number of pensioners and pension expenditures. Increased employment rates among older employees and an increased retirement age had a strong impact on each pension scheme since they would positively influence the amount of pension contributions. Furthermore, it is important to encourage access to employment. Another weakness of some pillars is their dependence on labour market performance. This means a weak labour market and interrupted careers can lead to significant lower replacement rates. Employment policies and pension reforms need to take into account all different groups. To bring back inactive people of the labour market into employment special measures have to focus mainly on persons with health problems and persons with family care duties.

Currently, effective retirement ages are considerably below the official age. The increase in the effective retirement ages should take into account possible incentives for longer working lives and, at the same time, has to withstand possible short-term political pressures. The postponement of the labour market exit age is crucial for the financial stability of pension systems. For a number of countries the findings suggest some scope for increasing the effective retirement age by re-designing pension systems to enhance incentives for workers to work longer. This could include linking the level of benefits with the retirement age and the number of working years.

Country specific data shows that increased employment participation among older and the postponement of retirement reduces the number of retirees which has a considerably impact on pension expenditures. For instance, in Austria, the increase of the average retirement age by about one year lead to a decrease of overall pension expenditures between 2.4 to 3.0%; this is 0.5% of public expenditures in percentage of GDP (Austrian Pensions Commission, 2010). The increased GDP due to the increased work force is not included in this number. So the employment effect is supposed to be bigger in the case of Austria and, of course, respectively for the Member States of the European Union.

Also other measures could contribute to raising the attractiveness of working longer. In reality, older workers face serious difficulties with finding a new job after unemployment in countries with seniority wages. A reduction of the seniority wages could help raise the attractiveness of older employees for employers. Likewise, active labour market policies



should be targeted towards preparing older workers for more job mobility at the end of their careers by supporting of on-the-job training and special job finding programmes. For this, incentives and schemes for a gradual move towards retirement may contribute to extending working lives. Moreover, the role of employment protection for job prospects of older workers is under debate, since many studies find a negative relationship. And lastly, the working conditions can be improved and the job-related health risk has to be decreased. However, modifying the legal retirement age is an important policy tool, but does not work by itself.

## **2. Diversifying risks by establishing three-pillar pension schemes across the EU while respecting national circumstances**

An appropriate mix of the different pension pillars can help create sustainable pension systems in a period of intense demographic change without endangering the objective of pension adequacy. Three-pillar pension systems perform best in combination with a dynamic labour market, which includes a low unemployment rate and a high and increasing participation rate of older workers. Nonetheless, the recent financial crisis has shown that even well developed three-pillar pension schemes are struggling with the rate of funding for its future liabilities due to extensive market losses. This shows that fully funded systems are vulnerable as well. However, it is clear that with the imminent demographic changes and the apparent volatility of financial markets no system can be developed which is invulnerable and completely insulated from all outside challenges, whether they be demographic or economic in nature.

Consequently, it is essential that the potential risks in the system are shared. This can be done by using several pillars so that the pension system might suffer setbacks, but is unlikely to collapse entirely due to one specific problem, making it more durable in uncertain environments now and in the future.

First of all, risks need to be shared between government and individuals. The government cannot provide full replacement rates for all its citizens in most countries while avoiding deficits. Contrary to this, the return of pension funds is not always guaranteed. This means that, on the one hand, a public pillar is necessary to provide a certain basic replacement rate that is sufficient to prevent the elderly from falling into poverty. On the other hand, the old age risk must be borne by individuals through savings in occupational and private pensions plans. Together they can achieve a replacement rate comparative to previous earnings, while liabilities are split. The step from defined benefits to defined contributions in public systems is also an element of this risk sharing between government and individuals, with individuals certain about their contributions and a minimal return guaranteed by the government, which in turn is safe from outside demographical and economical changes to future liabilities.

Secondly, risks need to be shared between individuals to provide a stable pension system. For the public pillar this is done by equalising contribution rates for all individuals as much as possible. In occupational and private pillars this is done by pooling resources in a fund without individual claims. Profits and losses are evened out between the participants and not based on individual accounts. The provision of a form of minimum pensions is also an element of risk sharing. A good example is the sharing of the gender risk as women are more likely to have atypical careers in their active years in the labour market. This could be applied to a number of target groups whose integration on the labour market is more difficult. Depending on career types, including part-time work or self-employment, it is not always possible to build up equal pension rights. Part of this falls under individual responsibility, but another part should be covered by basic pension rights for every individual to counter inadequacies in the labour market.

Thirdly, a solid pension system must share risks between generations. An element of generational risk sharing is found in the nature of the public PAYG systems. By obliging participation in occupational and/or private fund, funded systems can count on continuous inflow of capital reducing the risk caused by short-term losses in assets. However, a large increase in pension spending means less budgetary space for the contributing generation and should therefore be avoided, allowing of course for national preferences. Thus, in order to make a pension system sustainable, it must continue to be supported by all generations in practice (contributions) as in theory (policies). To start, benefits must be fair between each contributing generation and public pension spending must be contained. Adding the element of life expectancy to future benefits would ensure that the costs are shared more equally between generations. A final generational element is the creation of public support for these systems with all generations. In order to harness and keep this support, it must be avoided to place the cost of reforms with future generation. If not, it may result in the (un)willing avoidance of the general schemes by newer generations.

### **3. Enhancing the transparency of pension schemes**

Transparency in pension system has two major implications, one regarding the economy and the public budget and one referring to the individual. First, it is important for sustainability that all cost and liabilities related to pensions are made explicit and are included in calculations and projections. Second, overall adequacy of pension systems should be monitored regularly. This calls for common European standards regarding pension sustainability and adequacy. All Member States should be monitored systematically on a regular basis in terms of their pension adequacy and sustainability by an independent group of experts who can then formulate country-specific recommendations.

In addition, transparency could be enhanced by better informing the individuals. As more pillars are introduced and benefits are not defined, it is especially important to point out individuals their pension right and their future liabilities. In many countries occupational and private pension funds are obliged to inform their participants each year of future benefits under current contributions and indicators. For (semi-) public pension this rarely exists in a standard and comprehensive form.

The combination of public, occupational and private benefits always has to be done by the individual. This is made even more difficult as pay-out methods differ. Standardising information of pension benefits to European citizens will provide an incentive to use all available pension schemes.

Therefore, enhancing transparency to individuals is important to inform them of their future pension claims and to encourage them to enter in newly formed occupational and private pension systems. This can be realised by using annual account reports from the different pillars including occupational and private pensions. In this context, the European Parliament could stand up for the implementation of such accounts in all Member States.

## 1. INTRODUCTION

The phenomenon of population ageing is due to an increasing life expectancy which raises pension funds' liabilities and increases the costs for the PAYG system across the European Union. In this respect, sustainability in both fiscal and retirement pension policy remains top of the political agenda within most EU Member States.

This study intends to analyse the pension systems in the EU from a macroeconomic perspective in order to identify contingent liabilities and assets in the public and private sectors. The study aims at assessing the sustainability of the systems in EU Member States and assesses different policy options and their consequences.

A holistic approach is followed in order to both survey the recent development of the pension schemes and the current stay of play. This includes reviewing various documents and recent initiatives by the European Commission on this subject most notably guided by research issues and questions. In addition, insights from international organisations such as the IMF and the OECD are taken into account while analysing the measures and reforms of Member States.

Since a Europe-wide dimension in the sense of a close observation of each Member State would exceed the usual scope of such a study, an in-depth analysis of selected Member States takes place. As pension systems differ throughout the EU-27, there are certain features which most of these systems contain. Although each system across the EU reflects in a certain way a specific institutional arrangement, there exist similar developments as many Member States are faced with the same general trends. The challenges laying ahead include for instance the ageing or greying population, a decreasing dependency ratio as well as volatile financial markets.

Against this background and assuming no other changes, this situation would lead to a rise in pension expenditures across the EU-27. At the same time, life expectancy might increase even faster. However, projections of all these developments and the resulting challenges they create are so far nothing new. Already during the last decade several reforms have been enacted in most Member States or are proposed to maintain the sustainability of the pension system in the future.

Beside the information of the pension systems used in the Member States, additional data is provided in terms of the demographic and financial future of the Member States. If nothing is changed in present pension systems, most Member States will face major difficulties according to demographic data and projections on public finances. In this context, the issue of accountability and awareness is discussed. How can Member States be encouraged to create sustainable pensions or public finances? To answer this question, policy options are laid out such as raising the retirement age or increasing the participation rate, most notably among older people. However, these policy areas are politically sensitive.

In order to find practical solutions, it is asked how it could be ensured that the work force remains productive until the retirement age. In this respect, policy reviews such as active ageing and incentives to work longer as well as removing early retirement are discussed.

## 2. OVERVIEW OF PENSION SYSTEMS IN THE EU

### KEY FINDINGS

- Demographic changes due to low fertility rates and increasing longevity will lead to a change in the dependency ratio (i.e. the ratio between the population 65+ and working-age people 15–64). In the EU the dependency ratio will increase from 25% in 2007 to 50% in 2050 (i.e. a change from 4 persons in the working group per 65+ to 2 persons per 65+).
- The increasing dependency ratio puts a strain on the government budgets. The Member States which have the most serious problems in 2050 according to the projections are Cyprus, Estonia, Greece, Luxembourg and Slovenia.
- To solve the problems, pension reforms point at: 1) adapting the statutory retirement age and contributions to longevity, 2) increasing the effective retirement age by eliminating early exit pathways from the labour market, 3) a higher participation rate for women, 4) developing multi-pillar systems to release the burden on the public liabilities, 5) lowering benefits on existing pension schemes.
- Among the funded pensions, there is a tendency to a shift from defined benefits (pre-defined benefits) to defined contributions (pre-defined contributions but no final pension promises).
- Net replacement rates of public pension schemes (i.e. the individual net pension entitlement divided by net pre-retirement earnings, taking account of personal income taxes and social security contributions paid by workers and pensioners) are generally greater than the gross replacement rates (i.e. the level of pensions in retirement relative to earnings when working is measured as lifetime average earnings for an individual). There are two main reasons for this. First, the progressivity of the income taxes implies that pensioners typically have to pay less in tax when the gross replacement rate is lower than 100%. Second, pensioners often do not pay social security contributions and receive preferential treatment under the income tax.
- If the person is classed as single, the net replacement rate is lower in most of the Member States than if married to a person who does not earn an income.
- The ratio between the average gross public pension benefit and the average gross wage — also called the benefit ratio — is projected to decrease for the majority of Member States. According to the life-cycle theory, people will need to draw upon supplementary pensions, for example occupational pension plans and private pension plans. Establishing more pronounced multi-pillar systems can provide possibilities to do so.

This chapter aims at providing a stylised overview of the pension schemes in the individual EU Member States to discuss the problems arising if the systems are not adapted to the demographic challenges. This is also the background for the release of a communication titled “Dealing with the impact of an ageing population in the EU (Ageing Report, 2009)” by the Directorate-General for Employment, Social Affairs and Equal Opportunities. The communication pointed at five policy responses to demographic changes:

- Promoting demographic renewal;
- Promoting employment (more jobs and longer working lives of better quality);
- A more productive and dynamic Europe;
- Receiving and integrating migrants; and
- Sustainable public finances to guarantee adequate social protection and equity between the generations.

Ageing populations represent a challenge to the EU Member States as there will be fewer working-age people who are capable of paying for the retirees. To the extent current pension systems rely on tax payments and/or contributions to pension funds from current workers to pay for transfers for the elderly as social security pensions and early retirement, this burden will increase dramatically. This calls for a change of the pension systems to become less dependent on payments from the current tax payers. The first section in this chapter describes how the populations are changing.

Given the demographic projections from the first section, it is possible to calculate the required increases in government expenses for early retirement benefits and pensions given the planned future development of the pension systems. Pension transfers constitute an important item of government expenditures. Accordingly, the increased expenses raise the worry whether it will be necessary to cut benefits for future pensioners if pension systems are not changed now. The problem is that it will be difficult for the public pension systems to be sustainable as the increasing expenses will have to be met by financing of some kind. In other words, the demographic changes imply that the Member States need to prepare for long-term sustainability of public finances. The second section in this chapter looks at the public pension expenditures and the projections thereof.

There is a trade-off between sustainability of public finances and the question of adequacy. As the public expenses increase, it could be inevitable to reduce benefits to accommodate for the problem. This is, however, very difficult with regard to adequacy. There will be complaints that future pensioners will not receive enough income. Public pensions belong to what we call the first pillar. Traditionally, there are three possible pillars of a pension system. A state pension, an employee investment pension provided by the employer and a personal pension plan. The main structure is common across all pension systems but vary from Member State to Member State.

To evaluate the future situation in EU Member States, the presentation shows projected figures from the Ageing Working Group (AWG) of the Economic Policy Committee (EPC) and the European Commission who have prepared a report to encourage the discussions on the liabilities of pensions (European Commission, 2008a). The projections are based on a reporting framework coordinating the input given by the Member States where pension reforms will be implemented during the projection period.

The projections represent a "status quo" situation showing how the public pension expenditures will develop if no further measures are taken. Thus, the growth of public pension expenditures would have been more pronounced if these reforms had not been implemented. Although the projections reflect the fact that Member States are reducing the generosity of public pension schemes, it is still possible to take further measures. The assumptions behind the projections will be discussed in later chapters.

## 2.1. Population trends and recent reforms in Member States

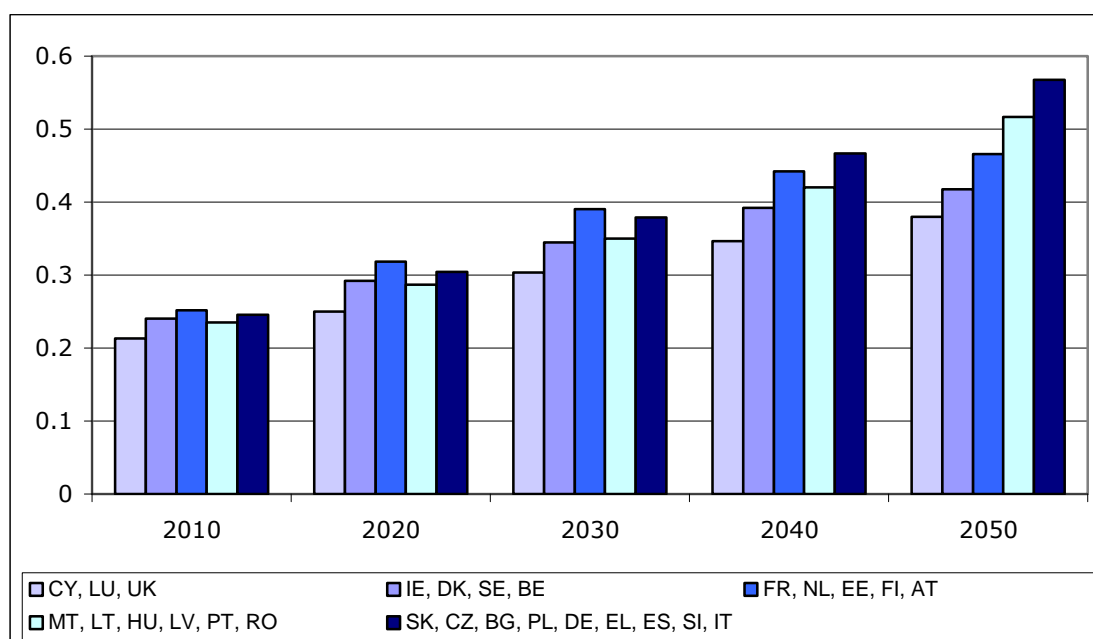
Projections of the total population reflect projections of how long people live and the number of births per woman (i.e. fertility rates). The average of all EU-27 Member States lays at a fertility rate of 1.52 in 2008, which is projected to increase to 1.62 by 2050. The life expectancy at birth is expected to increase as well. The life expectancy at birth in 2008 was 76 years for a man and 82 years for a woman, and in the projections these figures increase to 83 years and 88 years in 2050 respectively.

If a man was 65 years old in 2008, he could expect to become 81½ years old and a woman could expect to become almost 85 years old. In the projections, these life expectancies will increase for a man in 2050 to be almost 86 years and for a woman 89 years.

All other things equal, the projected figures of the fertility rates and the longevity go in the direction of a growing total population in the EU-27 Member States. The projections assume only little net migration. Although the fertility rates in the projections do not decrease, fertility rates have already declined over the cohorts of the current population.

The total picture is that European populations age as fertility rates are low and that life expectancy grows. At the same time the baby boom generation (those born between 1946 and 1964) will begin to retire. The fact that the proportion of elderly grows might not be a problem if the supply of workers would grow as well. The problem is, however, that the working-age population shrinks. Thus, the number of workers who can support a pensioner, which is measured by the dependency ratio, will decline. This is illustrated in Figure 1.

**Figure 1: Evolution of demographic dependency ratios (population 65+ as % of population 15–64) 2010–2050**



Source: Table A 49 in the Statistical Annex to the EU Ageing Report 2009.

Figure 1 depicts the projected dependency ratios defined as the number of persons who are 65 or older divided by the number of persons who are 15–64 years old. Figure 1 shows that the dependency ratios will increase gradually over 2010–50.

All Member States are sorted by the level of the dependency ratio at the end of the time horizon in 2050. According to the projections, Member States such as Slovakia, the Czech Republic, Bulgaria, Poland, Germany, Greece, Sweden, Slovenia, and Italy will face the

most severe challenges. For instance, in Germany the number of people of working age (15–64) are set to fall from 54.6m in 2007 to 41.9m in 2050 whereas the number of pensioners aged 65+ will increase from 16.3m to 22m. In Greece there were 7.5m in the working-age population in 2007 decreasing to 6.3m in 2050 and over the same time horizon the number of pensioners will increase from 2.1m to 3.5m.

For all Member States the dependency ratio was 25% in 2007, which will increase steadily to 50% in 2050. Today there are more than four people who work for every person over 65, whereas there will be on average fewer than two working people for every person over 65 in the EU-27 in 2050. Against this background, many Member States have taken action; some examples are described below.

In **Austria** early retirement will be eliminated by 2017. Similarly, the statutory retirement age for women will be gradually increased between 2019 and 2034 up to the retirement age of men of 65. Furthermore, a bonus for later retirement is introduced.

In **Belgium** the law “Solidarity Pact between Generations” is in place since 2006. Thereby the participation rate in the labour market has been increased by postponing the statutory age for early retirement from 58 to 60. At the same time, participating in the labour market after the age of 62 is rewarded.

In the **Czech Republic** in 2004 the retirement age has been shifted gradually to reach 65 years for men and 62-65 years for women (depending on the number of children) for those born as of 1968. For those retiring later a bonus is guaranteed for every completed 90 calendar days, whereas early retirement is penalised.

In 2006 **Denmark** carried out a reform package known as the “Welfare Agreement”. In this way, the usual retirement age will be increased from the age of 65 to 67 between 2024 and 2027. In addition, early retirement will be increased from age 60 to age 62 between 2019 and 2022.

Since the early nineties a series of reforms were carried out in **Germany** including a bonus for deferred retirement and a further development of the second and third pillar pension schemes, the so-called Riester pension, by subsidising contributions. Similarly, statutory pension payments were adjusted by a formula which takes into account the relation between the workforce and the number of retirees. Furthermore, the age of retirement will be postponed two months each year from 2012 to 2024 until the age of 67 years by 2029.

In **Estonia**, the retirement age in the PAYG system was raised for women to 63 by 2016 and mandatory individual accounts in the second tier and voluntary accounts as the third tier were set up.

**Spain** abolished mandatory retirement age in 2002 in the private sector and introduced incentives for people working longer than the age of 65. In case of postponement of retirement in **France** a bonus will be introduced. The number of contribution years for the entitlement to a full pension has been increased since 2004 which is due to the gains in life expectancy.

From 2008 on an increase of lower amount pensions was implemented in **Italy** by a lump sum of EUR 420 per year to pensioners of 64 and over with a lower income. Starting from 2013 the retirement age with 35 years of contribution will be 62 for the employees and 63 for the self-employed.

**Latvia** set up a three-pillar system including a defined contribution PAYG system which relies on notional accounts. In 2003 the retirement age was 62 (men) and 62.5 (women). In **Lithuania** the standard minimum retirement age for women was increased up to 60 years in 2006. For men it was increased up to 62.5 years in 2003.

From 2006 to 2007 the **Hungarian** Parliament decided to reduce early retirement from three years before usual retirement to two years. Also, from 2013 on all early pensions will be reduced. A new pension benefit system has been implemented to reduce the replacement rate and some measures have been put in place to raise employment among people with constrained working capacities.

The **Maltese** Government has agreed upon the gradual rise of the retirement age from 60 years for females and 61 years for males to 65 years for both by 2026. Moreover, the contribution period for full entitlement was extended from 30 to 40 years.

**Poland** introduced a defined contribution PAYG system with notional accounts and a three-pillar pension system plus the early retirement was abolished for those born after 1948. Since 2007 people in **Portugal** are able to postpone retirement beyond legal retirement age. Also, a national strategy for the promotion of active ageing was introduced that aims at encouraging older workers to stay in the labour force.

In **Slovakia** latest reforms aimed at increasing the standard retirement from 60 to 62 for men by 2007 and to 62 for women by 2016. The pension is reduced by 6 % per year in case of early retirement, whereas a bonus of 6 % is paid for those who postpone their retirement. The new Pension and Disability Insurance Act in **Slovenia** in 2000 modernised the defined benefit PAYG system. At the same time, compulsory and voluntary supplementary funded schemes were introduced. The usual retirement age has been increased and later retirement has been encouraged.

Since 2005 a flexible old-age retirement ranging from 63 to 68 years is in place in **Finland** including a bonus concerning the pension for those working longer than 63. Already in 1999 in **Sweden** a pension reform was implemented. If a person postpones retirement until the age of 67 instead of retiring at age 61, yearly pension benefit can increase considerably. Likewise, citizens are informed annually by a statement of account in view of their costs and benefits of retirement. In the **United Kingdom** retirement age will be postponed from 60 to 65 for both men and women between 2010 and 2020. A further increase of the state pension age from 65 to 68 will take place between 2024 and 2046.<sup>2</sup>

## 2.2. Financial situation of public pension schemes

As described in the introduction, the demographic projections imply that the pension costs will increase and thereby constitute a strain on the government budgets. The financial crisis has further aggravated this situation. An increasing dependency ratio will put a strain on the government budget in the sense that it will require relatively more to make ends meet in the future than today. In general there are three possible policies that can be implemented to accommodate for this situation.

First, it is a possibility to scrutinise the public expenses to find items on the budget that can be cut down. Second, it is possible to increase the revenue side of the government budget by increasing the taxes. Finally, an increase in the participation rate at the labour market will have several favourable effects. For example, a person who works longer in the labour market instead of retiring will be a taxpayer instead of receiving retirement income. In this case the government budget will both be affected by a decrease in the expenses and an increase in revenues. Table 1 provides an overview of the pension expenditures divided in old-age and early pension on one hand and disability and survivors' pensions on the other hand in the individual Member States.

For all EU Member States on average, the pension expenditures amount to 10.2% of GDP. Member states such as Austria, Germany, Hungary, Poland and Portugal have higher shares

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<sup>2</sup> European Commission, 2008a.



of pension expenditures than the average level. Old-age pensions and early pensions are the most important items among the pension expenditures disability pensions and survivor pensions only play a minor role. To the extent retirees have to pay taxes from the public pension the net public pension expenditure is lower. The amount of these taxes is, however, small with, on average, about 1.5 percentage points (Annex 7 to Joint Report).

In some Member States (e.g. Hungary and Slovenia), pension benefits are not subject to taxation so gross pensions equal net pensions. The Targeted Socio-Economic Research Programme of the European Commission (CT97-3060) has supported a project to set up a micro-simulation model (EUROMOD) to analyse policy implications of political initiatives.<sup>3</sup> The EUROMOD model can be used to investigate the role of the progressivity of tax to explore the impacts for different groups of people. To further explore how people react on the retirement margin, a UK study uses a dynamic programming framework to consider the effects of a recent policy reform that reduced the marginal tax rates on private income of means tested retirement benefits from 100% to 40%.<sup>4</sup> The dynamic set up makes it possible to compare the optimal decision given the actual policy to the considered policy counterfactual. This is not possible in EUROMOD due to its non-behavioural nature.

**Table 1: Public pension expenditures in 2007, gross in % of GDP**

Country	Old-age and early pension, gross in % of GDP	Other pension (disability, survivors), gross in % of GDP	Total pension expenditures on social security pensions in % of GDP
BE	9.2	0.8	10
BG	6.8	1.4	8.3
CZ	7.1	0.7	7.8
DK	7.0	2.0	9.1
DE	10.4	:	10.4
EE	4.9	0.7	5.6
IE	2.6	1.4	4.0
EL	8.8	2.9	11.7
ES	5.6	2.9	8.4
FR	13.0	:	13.0
IT	13.5	0.5	14.0
CY	4.8	1.4	6.3
LV	4.8	0.6	5.4
LT	5.6	1.2	6.8
LU	5.8	2.9	8.7
HU	9.0	1.9	10.9
MT	4.2	3.0	7.2
NL	4.5	2.1	6.6
AT	9.5	3.2	12.8
PL	9.8	1.7	11.6
PT	9.1	2.3	11.4
RO	5.3	1.3	6.6
SI	7.0	2.8	9.9
SK	4.3	2.5	6.8
FI	7.5	2.5	10.0
SE	7.0	2.6	9.5
UK	5.8	:	6.6
<b>EU27</b>	<b>9.1</b>	<b>:</b>	<b>10.1</b>

**Source:** The 2009 Ageing Report (European Commission, 2008a), Table A53, Table A54 and Table A56.

<sup>3</sup> See for example the articles by Atkinson, A.B. et al. and Immervoll, H et al.

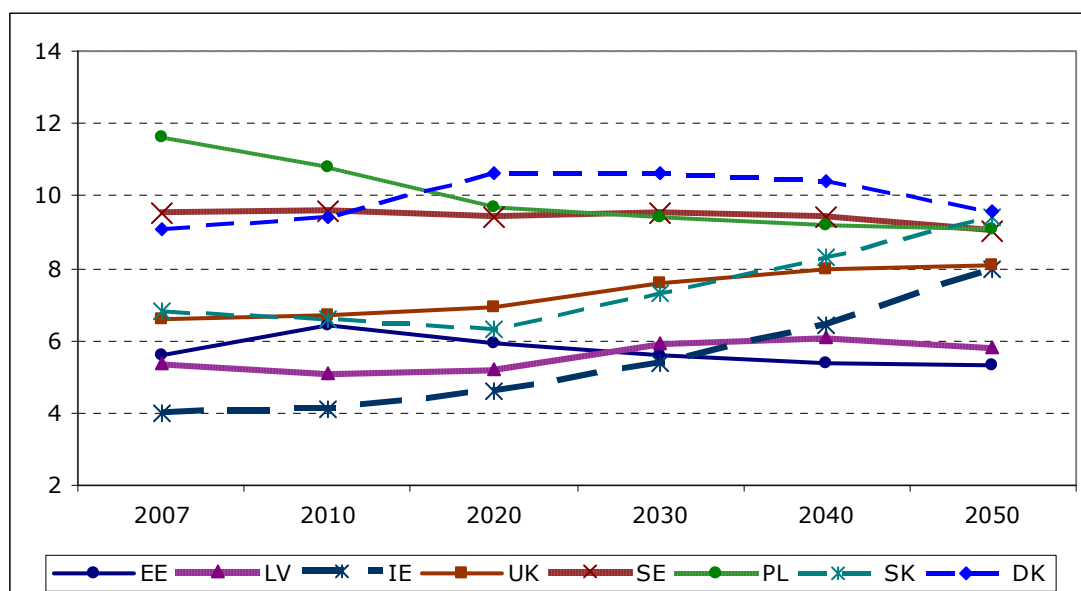
<sup>4</sup> Sefton, J. et al.

The pension costs on the government budget accounts for a considerable amount. In countries where social security pensions are financed mainly through taxes, the link between pension expenditures and government budget is closer than in systems where pensions are financed mainly by contributions of employees and employers. Therefore, it is worth considering how expenditures can be contained. According to the Joint Report, all EU Member States have difficulties not only to live up to the medium-term budgetary objectives based on the 2009/2010 round of stability and convergence programmes (see Annex 18 to the joint report), but also to comply with the Treaty's 3% deficit threshold.<sup>5</sup> Projections of future pension expenditures can be used to evaluate sustainability in each member state. Figure 2 shows the pension expenditures in % of GDP in 2007 together with the projected expenditures in % of the projected GDP between 2010 and 2050.

**Figure 2: Public pension expenditures 2007–2050 (% of GDP) – see Panels A-D**

Member States are sorted into Panels A to D in Figure 2 according to the projections of their projected pension expenditures in percentage of the projected GDP in 2050. Member States in Panel A have the lowest percentages in 2050 — ranging from Estonia with the lowest percentage of 5.3% to Denmark with 9.6%.

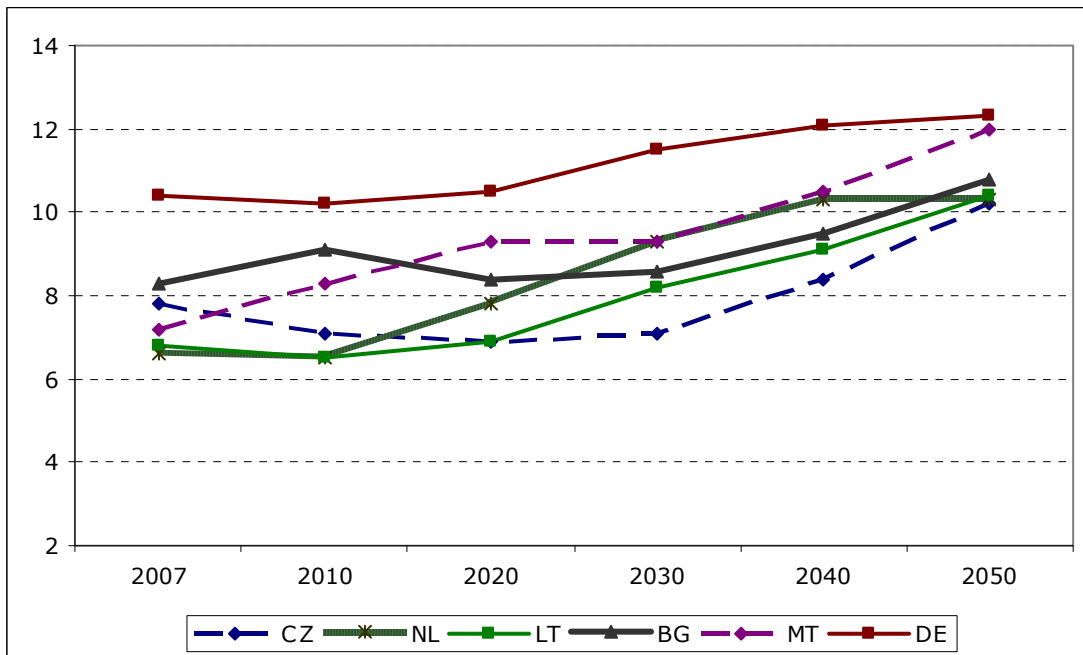
**A: Member States with the lowest percentages in 2050**



Member States in Panel A such as the United Kingdom, Sweden, Poland and Denmark had already introduced pension reforms at the time when the projections were made, which may be the reason why it is possible to keep the projections of the pension expenditures below 10% of GDP in 2050.

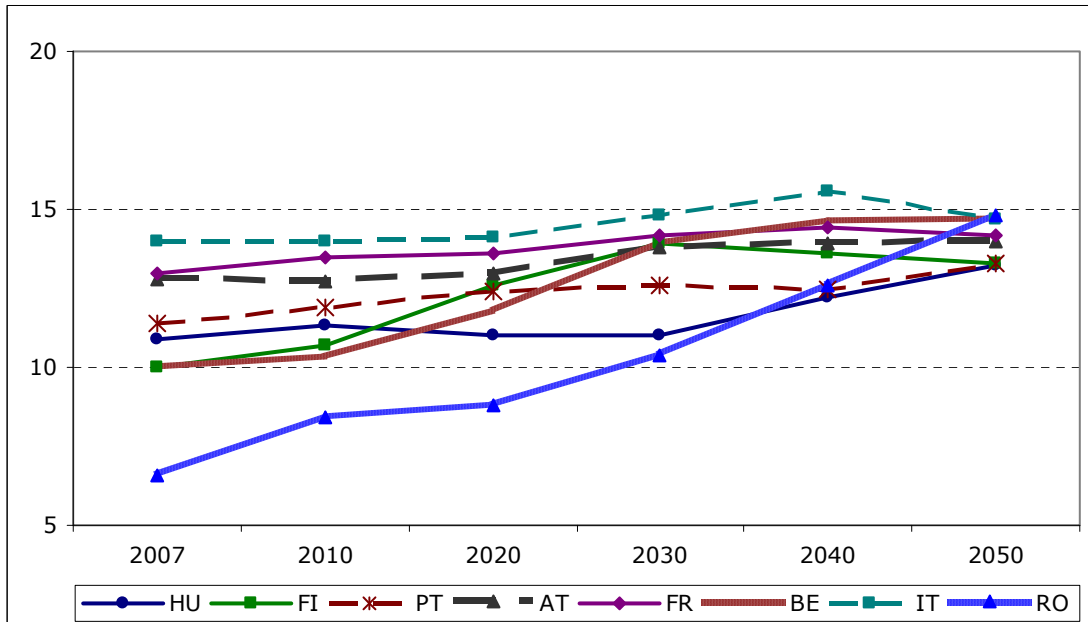
<sup>5</sup> European Commission, 2010c.

**B: Member States with a low percentage in 2050**



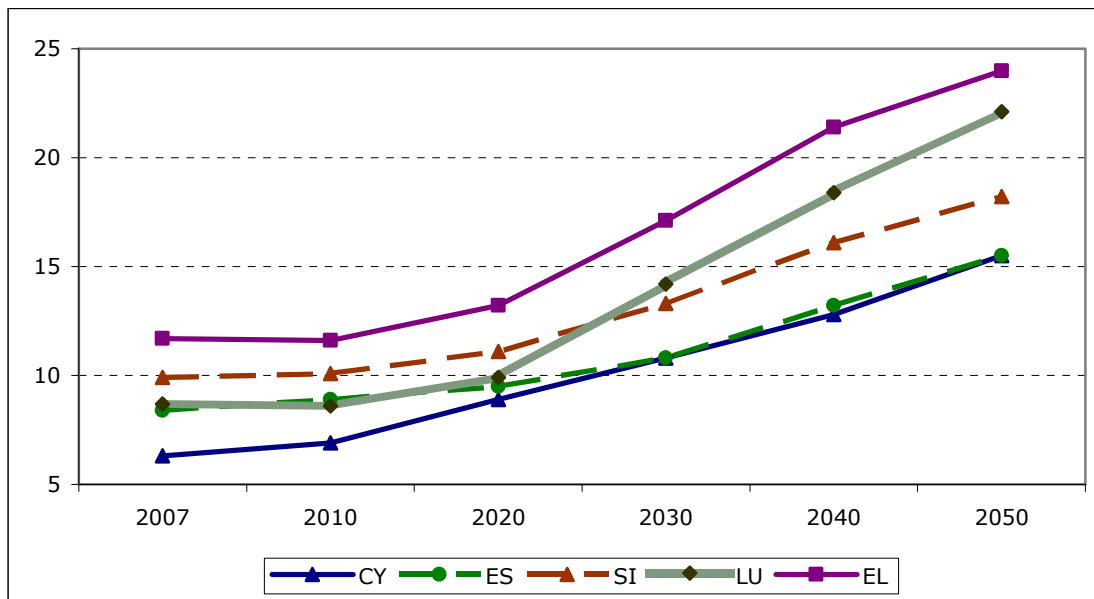
Panel B presents Member States ranging from the Czech Republic ending at 10.2% to Germany at 12.3%. Panel C presents Member States ranging from Hungary ending at 13.2% to Romania ending at 14.8%. Panel D presents member states ranging from Cyprus ending at 15.5% to Greece ending at 24.0%.

**C: Member States with higher percentages in 2050**



Member States in Panel D below (i.e. Cyprus, Estonia, Slovenia, Luxembourg and Greece) may have serious problems. Greece has the highest projections of the future pension expenditures amounting to 24% of GDP.

**D: Member States with the highest percentages in 2050**



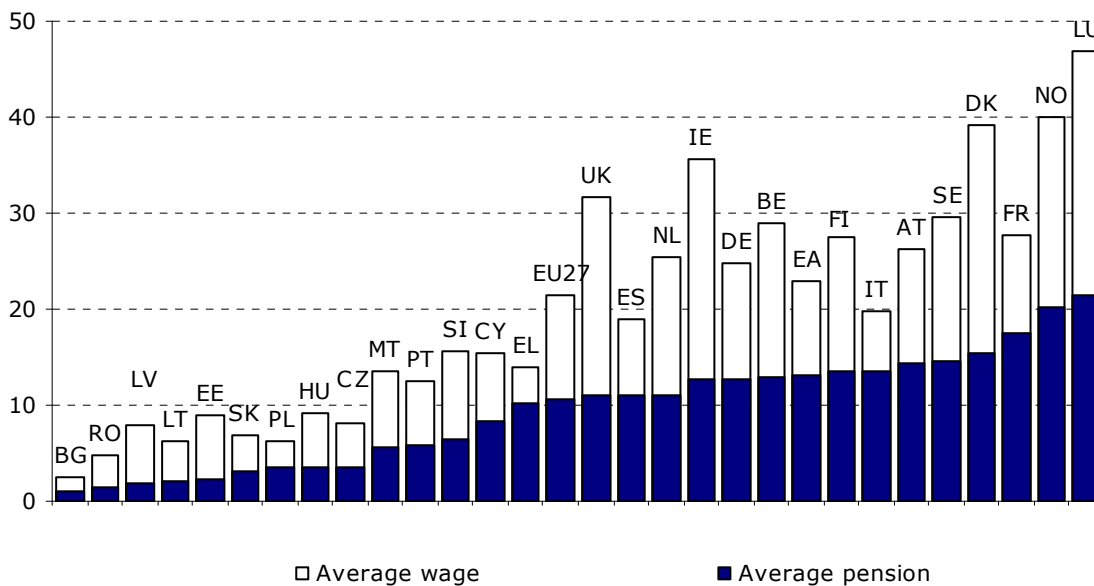
**Source:** Table 50 in Annex 1 on pensions to the 2009 Ageing Report (European Commission, 2008a).

**Note:** The total pension expenditures in % of GDP are decomposed in Table 1 for the year 2007.

The Panels A to D show the different levels of pension expenditures in 2007 which vary between 4.0% of GDP in Ireland and 14.0% of GDP in Italy. Also, the future dynamics of the pension expenditures differ considerably. According to the Ageing Report 2009 the pension expenditures have a spread of 18 percentage points of the respective national GDP. On the one hand, there is a decrease of pension expenditures of 2.8% of GDP in Poland and on the other hand, there is supposed to be an increase of expenditures by 15.2% in Luxemburg and of 12.4% in Greece. The sustainability of pension systems in the future differs among the Member States. The aggregate view on the development of the Member States blurs the country specific situation.

The problems to manage public finances are closely related to the ambitions of how well the public pension benefits should cover the income during retirement. Figure 3 shows some calculations of the average wage levels in the different Member States compared with the average gross public pension benefit.

**Figure 3: Average gross wage and average gross public pension benefit in 2007 (in EUR 1000s)**



**Source:** Commission services, EPC.

**Note:** Calculations of average wages in these ISG projections differ from OECD projections.

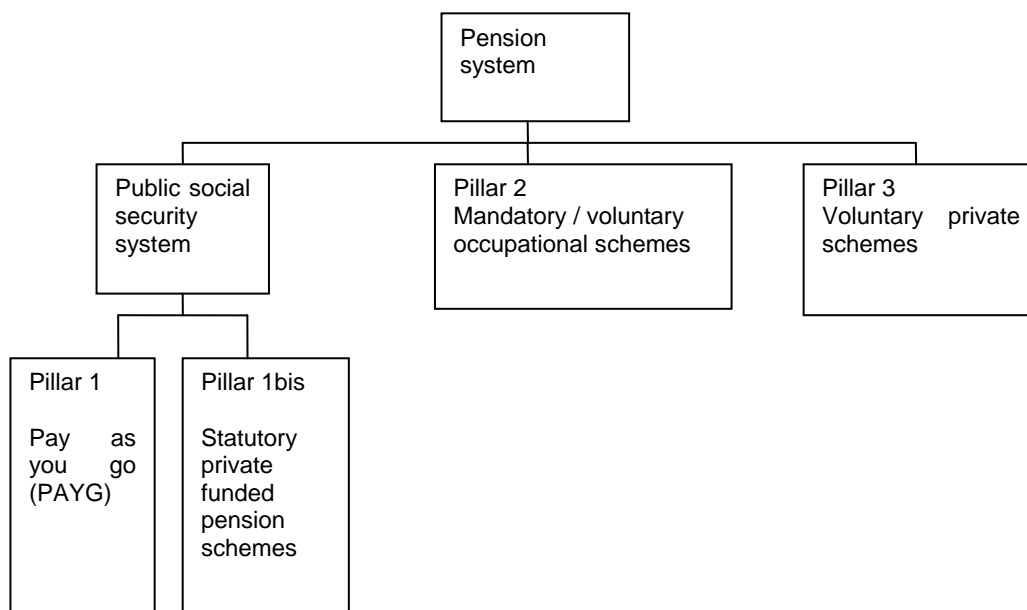
According to Figure 3, many EU Member States seem to have a level of the public pension expenditure corresponding to approximately half of the wage level of an average income. Among the Member States that have a lower coverage of the average income are Romania, Latvia, Lithuania, Estonia, Slovakia, Hungary, Malta, Slovenia, the UK, the Netherlands, Ireland, Denmark and Luxembourg. The absolute level of the public pension benefits are lower than EUR 3,000 per year in Bulgaria, Romania, Latvia, Lithuania and Estonia and higher than EUR 14,000 in Austria, Sweden, Denmark, France, Norway and Luxembourg.

### 2.3. Pension systems – the use of different ‘pillars’

Pension systems are different across the EU-27 and a full analysis of each Member State is beyond the scope of this study. Therefore, this section will provide a general overview of the existing pension systems in the Member States and also sketch the plans of pension reforms. The description will be based on the overview of the pension types in Annex 1 about pensions in the 2009 Ageing Report from the Commission and in Annex 6 to the Joint Report on Pensions.<sup>6</sup>

All Member States have a strong public sector involvement that can provide old-age provision and typically also early retirement, disability and maybe survivors’ pensions. In general, the variation across Member States is more significant with respect to the role of occupational and private pension provisions. Figure 4 presents a general classification of pension types divided in pillars.

<sup>6</sup> European Commission, 2008a; European Commission, 2010c.

**Figure 4: Classification of pension systems**

Pension systems can be represented by the three pillars in Figure 4. The strong involvement by the public sector is represented by the public social security system consisting of pillar 1 and pillar 1bis. Pillar 1 has a redistributive element where persons who have only accrued small pensions can receive a higher benefit. The pension types within pillar 1 are on a PAYG basis, where tax payments and/or contributions to pension funds are used for the payments of current pensions rather than contributions to prevent poverty in old age.

The pillar 1bis has grown recently as some countries have switched part of their social security pension schemes into funded schemes that are generally operated and managed by private institutions. Provision and participation in the pension scheme is usually statutory. Nine of the 27 EU Member States switched part of their social security pension provision into statutory funded private pension schemes.<sup>7</sup>

Among the old EU-15 Member States, statutory private schemes can be found in Sweden and Denmark. Among the new EU Member States, seven switched part of their social security pension provision: Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland and Slovakia. Hungary is, however, not 1bis anymore as its pension system has been brought under Pillar 1 later on.

Savings within the second pillar aim to provide retirees with an adequate replacement rate (i.e. an adequate pension income relative to their previous earnings), which is more advantageous than just a poverty-preventing minimum level of living.

Not all Member States have occupational pension schemes. Where they exist, these pension schemes may be voluntary or mandatory while some Member States have both types. Occupational pension schemes do not exist in the Czech Republic, Estonia, Latvia, Lithuania and Slovakia. In Member States such as Malta and Poland they only exist to a minor extent and in Luxembourg they only exist in for example banking and large foreign companies. The legal framework for occupational pension schemes has been prepared in Greece recently, so their occupational pension schemes are not very mature yet.

<sup>7</sup> Oxera.

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The third pillar represents individual private pension schemes in the private sector. Individual pension schemes do not exist in Cyprus and Luxembourg and they only exist to a minor extent in Austria, Malta, the Netherlands and Portugal. Normally, the private pension schemes are voluntary. As the pension types in pillar 1bis can be regarded as a switched part of the social security pension scheme into a private scheme, it could also have been possible to organise these types of pension schemes into the group of private schemes in Figure 4. This is done by Eurostat data arguing that the switched part of the social security pension scheme belongs to pillar 3 (i.e. the private sector) because the transactions are between the individual and the pension fund.<sup>8</sup> Consequently, they do not have an impact on the government surplus or deficit.

According to Eurostat, the government guarantee for such a fund is not an adequate condition to classify the schemes as social security schemes because it is a contingent liability. Seen from the perspective of the citizens, the private pension schemes in pillar 1bis are often mandatory. In some Member States, the pension is mandatory for younger generations and voluntary for older generations. This is for example the case in Latvia where it is mandatory for persons under the age of 30 and voluntary for persons aged 30-49 and in Romania where it is mandatory for employees of 15-35 years old and voluntary for the 35-45 years old. Table 2 presents a more detailed overview of the pension schemes in the EU Member States.

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<sup>8</sup> European Commission/Eurostat (2004).

**Table 2: Pension Schemes in EU Member States**

MS	Public pensions			Occupational pension scheme	Private pension scheme	
	Minimum pension / social allowance	Old-age pensions	Early retirement pensions		Mandatory private scheme	Voluntary Pension scheme
BE	MT - SA	ER	ER	V*	X	V*
BG	MT - SA	ER / FR	ER (before end 2010)	V*	M - young (1960)	V*
					M* (prof)	
CZ	FR	ER	ER	X	X	V*
DK	FR & MT	FR & MT	V	V	X	V
DE	MT - SA*	ER	ER	V*	X	V*
EE	FR	FR before '99; ER (after)	X	X	M - young (1983)	V - old*
EL	MT	ER	ER	X	X	V*
ES	MT - SA*	ER - priv; FRw - pub.	ER - priv; FRw - pub.	V - priv; M - pub.	-	V
FR	MT	ER	ER	V	-	V*
IE	MT - FR & SA	FR	MT - FR & SA	M - pub; V* -priv.	X	V*
IT	MT & SA	ER	ER	V*	X	V*
CY	SA*	ER	ER	M - pub; V* -priv.	X	X
LV	SA	ER	ER	X	M-young ('71); V-old	V*
LT	SA	ER	ER	X	V	V*
LU	FR - SA*	ER	ER	V*	X	V*
HU	MT - SA	ER	ER	X	M - new (1998)	V*
MT	MT - FR*	ER	-	Exists only to a minor extent*	X	V*
NL	SA*	FR	-	M	X	V*
AT	MT - SA*	ER	ER	M*	X	V*
PL	MT*	ER	ER	V*	M/V	V*
PT	MT - SA	ER	ER	M - prof; V - others	X	V*
RO	SA	ER	ER	-	M	-
SI	MT*	ER	ER	M* - prof; V* - others	X	V
SK	MT - SA	ER	ER	X	M/V	V*
FI	MT	ER	ER	V*	X	V*
SE	MT	ER	ER	V	M	V
UK	FR & MT - SA	ER	X	V*	X	V*

**Source:** 2009 Ageing Report (European Commission, 2009a).

**Note:** Disability and survivor's pensions are excluded as they play a minor role. MT=Means tested, FR =Flat rate, FRw=Flat rate by wage categories, ER=Earnings related, HC=Partly covered by health care expenditure, SA=Social allowance/assistance, X=Does not exist, V=Voluntary participation in the scheme, M=Mandatory participation in the scheme, \*=Is not covered by the projection, public=Public sector employees, private=Private sector employees, new=New labour market entrants, prof=Only for selected professions, other=Other than selected professions, young(X)=Only for people born in year X and after, old=Only for people other than young.



Earnings-related, old-age, public pension schemes exist in most countries, except for Denmark, Greece, Ireland and the Netherlands. The statutory earnings-related old-age pension can be a common scheme for all employees or several parallel schemes in different sectors or occupational groups.

Most Member States also provide a minimum guarantee pension which is usually means-tested where the persons who are entitled to the minimum guarantee pension scheme may not have been qualified for an earnings-related pension scheme or may only have accrued a small earnings-related pension. In other words, the minimum guarantee pension ensures a minimum of adequacy for retired people. In most Member States, it is primarily the general taxes that cover the minimum guarantee pensions rather than contribution revenues.

In a few Member States, such as Denmark, Ireland, the Netherlands and the United Kingdom, the minimum guarantee pension is provided by a flat-rate pension that pays the same amount to every retiree. The flat-rate pension may require certain years of residency in their qualifying criteria and it can be supplemented by private occupational pension schemes. In Ireland and the United Kingdom it is — to some extent — possible to supplement the flat rate pension by public earnings-related pension schemes.

To prevent further increases in the pension expenditures (see figures in Section 2), major reforms of the existing pension systems have taken place. Member States are in different phases of a reform process of their pension systems. For Member States which have undertaken major reforms early on it will be easier — all other things equal — to contain pension expenditures.

It can be difficult to recommend a set of reforms that will suit all the Member States as all the existing pension systems are different. The many different pension rules in both the public and the private sectors impede mobility across Member States. To the extent that reforms have the effect that pension systems are becoming more harmonised, the portability of pension entitlements across Member States can be improved.

Many Member States have already made plans to increase the retirement age, which can be seen in the section on the retirement age. For PAYG schemes the present retirement age can be linked to future increases in longevity. To introduce a component that relates the pensionable age and/or the contribution-benefit to longevity constitutes a self-balancing mechanism in the relation between liabilities and revenues.

To the extent that pension schemes have not been able to adapt to changing demographic conditions, a typical response has been to increase the contribution rates. As an increase in the retirement age will induce people to work longer, there will also be more resources in the workforce if reforms aim at longer working lives by closing or reducing the take-up of early exit benefits.<sup>9</sup> Early exit benefits constitute a pathway out of the labour force different from the flexibility provided within some statutory pension schemes. In some Member States there is still room for generating more resources by work force, in particular by encouraging women to participate in the labour market.

The development of the multi-pillar system where occupational pension schemes and private pension schemes play a larger role will also release the burden on the public liabilities. It can be difficult for a country with a PAYG system to switch to a funded model as current tax payers in a sense have to pay to fund both existing pensioners and again to fund their own pensions. In the recent pension reforms incorporated in the 2009 Ageing Report projections, Germany has introduced a comprehensive promotion of second and third pillar pension schemes. Estonia has set up mandatory occupational pension schemes.

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<sup>9</sup> European Commission, 2008b.

Slovenia introduced a Pension and Disability Insurance Act as of 1 January 2000, which is a three-pillar modernised defined benefit PAYG system plus compulsory and voluntary supplementary funded schemes. Slovakia reformed their three-pillar pension reform from 2004.

The adjustments of the pension system towards longer working lives and higher contributions imply that the burden of the adjustment falls primarily on the current working population. Lowering the benefits on the existing pension schemes for the retirees will affect them. This has happened in Austria, Finland, Germany, Italy, Portugal and Greece. Furthermore, France and Sweden have reduced benefits, but the reforms in these countries have protected low earners.

The reforms have blurred the old dividing lines between PAYG/funded, public/private and voluntary/mandatory schemes by combining elements from all types. Though public pensions still have an important role as the bulk of pension income will continue to be provided by public pay-as-you-go schemes, the role of funded and defined contribution pensions grows. A key feature of the reform process has been the transition from defined-benefit to defined-contribution entitlement formulas since the mid-nineties to secure adequacy and sustainability. This has tightened the link between the contributions paid into the system and the benefits paid out. In general, it is true to say that the pension systems move towards a higher degree of pre-funding.

## 2.4. Defined benefits, defined contributions or hybrid systems

As opposed to the PAYG systems, which are in general unfunded, other pension schemes can be funded. Funded pensions tend to have a link between actual contributions and the eventual pension income. Funded pension schemes comprise pension schemes such as defined benefit pension (DB) schemes, defined contribution (DC) pension schemes and hybrid pension schemes.<sup>10</sup> Similar structures are notional defined contribution (NDC) schemes.<sup>11</sup>

Many Member States established earnings-related, defined benefit schemes in the 1950s and the 1960s. DB schemes have been important in Ireland, Denmark, the Netherlands, Sweden and the United Kingdom. A Norwegian study has investigated empirically why some firms have offered an occupational pension plan, while others did not.<sup>12</sup>

The study has used a linked employer-employee dataset. The scheme was based on tax gains from offering a pension instead of a wage increase cost, based on detailed actuarial calculations to ensure that the cost to the firms of offering an occupational pension is equivalent to the wage increase. They find that there is a joint gain for employers and employees. The employers gain as the occupational pension schemes (only DB schemes in the empirical dataset) moderate the wage requirements and for employees the gain may

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<sup>10</sup> See Glossary.

<sup>11</sup> "Notional accounts are designed to mimic a defined contribution plan, where the pension depends on contributions and investment returns. (For this reason, they are sometimes called 'notional, defined-contribution' schemes). Pension contributions are tracked in accounts which earn a rate of return. However, in notional accounts, the return that contributions earn is a notional one, set by the government, not the product of investment returns in the markets. Like traditional social insurance schemes, they are publicly provided. However, the pension formula differs somewhat from the 'traditional' earnings related model, with the benefit based on the accumulation in one's account at the time of retirement. Pension accounts in this system are called 'notional' because there is no pot of pension fund money, just a series of individual claims on the future public budget. They are pay-as-you-go financed—current contributions pay for current benefits — just like most defined-benefit public schemes. When the individual reaches pension age, accumulated contributions and notional returns — termed notional capital—are converted to an annuity. By adjusting the annuity rate, the government can adjust the pension value to take account of life expectancy." see World Bank Pension Reform Primer, "Notional accounts - Notional defined contribution plans as a pension reform strategy; <http://siteresources.worldbank.org/INTPENSIONS/Resources/395443-1121194657824/PRPNoteNotionalAccts.pdf>.

<sup>12</sup> Hernæs, E. et al.

stem from the fact that pensions are taxed at lower rates than wage income. The authors also find that there is a significant increase in the expected average tenure at firm level if they have occupational pension schemes which they interpret to mean that firms have used the occupational pensions to get a stable workforce.

Nowadays, private-sector employers have largely stopped making DB promises to new employees. This is supported in a study based on private defined-benefit pension schemes in the United States where the authors claim that private DB schemes are a risky proposition for both workers and firms (Love, D. et al.). The authors find a significant shortfall of assets from liabilities among insured single-employer schemes. In addition, the characteristics of the assets that these plans hold are very different from the characteristics of their liabilities. This is the background for the fact that many DB schemes undergo changes as a part of the pension reforms.

A Dutch study estimates the contribution rate under DC that gives equal utility to a DB plan given an initial funding ratio of the DB pension fund.<sup>13</sup> In doing so, the study makes the pension outcomes comparable numerically as much as possible though there are circumstances such as for example the question of portability (straightforward under DC, complicated under DB).

A practical conclusion of the simulations in the study is that the higher the funding ratios of the DB fund, the more expensive it is for the employers who consider switching from DB to DC to retain the same expected utility for the employee. At the funding ratio of 1.3, which is the approximate regulatory target funding ratio for Dutch pension funds, the contribution ratio for DC needs to be between 2.7 and 6.1 percentage points higher than for DB depending on the level of risk aversion (i.e. low level of risk aversion and high level of risk aversion respectively) to achieve equal expected utility.

At low funding rates, however, the average pension contribution by switching to DC can be further lowered for all risk levels. Given the existence of DB funds, the analysis suggests that nominal funding ratios should be at least between 12–20% overfunded (nominally).

Table 3 presents a tentative overview of the pension plans in the individual Member States based on different sources of information. Among these sources there are inconsistencies of how to map the pension schemes available in the Member States. It may also be difficult to classify a pension as either DB or DC as they may coexist in some Member States.

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<sup>13</sup> Siegmann, A.

**Table 3: Overview of funded pension types in the Member States**

MS	Pillar 1 Universal coverage, redistributive	Pillar 1bis Statutory DC-funded pensions <sup>3</sup>	Pillar 2 Occupational pension schemes
BE	DB		DC
BG		NDC	
CZ	DB		DC
DK	Flat rate + means tested		DC
DE	DB		DC
EE	Old: DB	NDC	
EL	DB		DC
ES	Flat rate		DC
FR	DB		DC
IE	Flat rate/DB		DC
IT	Old: DB	NDC	DC
CY			DB
LV	Old: DB	NDC	
LT	Old: DB	NDC	
LU	DB		DC
HU	DB	NDC	DC
MT	DB		
NL	Flat rate		DB
AT	DB		DC
PL	Old: DB	NDC	DC
PT	DB		DC
RO		NDC	
SI	DB		DC
SK	DB	NDC	DC
FI	DB		DC
SE		NDC	DC
UK	Flat rate		DC

**Source:** Annex 1 to the 2009 Ageing Report (European Commission, 2008a), the OECD Report 2009, the OECD Report 2011 and the Joint Report on Social Protection and Social Inclusion (European Commission, 2010b).

The shift from DB to DC or hybrid plans in many Member States implies that the risk will be distributed differently between the employee and the employer. Table 4 provides an overview of how the shift from DB plans to DC plans will affect the risk distribution among the employer, the employee and the tax payers for an occupational pension type.

**Table 4: Risk distribution in pension plans**

Type of risk	Who assumes it in a DB plan?	Who assumes it in a DC plan?
Investment	Employer	Employee
Inflation	Employee/Employer	Employee
Longevity	Employer	Employee
Market timing (temporal)	Employer	Employee
Accrual (portability)	Employee	DC plans are portable
Vesting	Employee	Employee
Employer Insolvency	Employee/taxpayers	DC plans always fully funded
Salary replacement risk	Employer	Employee
Fiduciary/legal risk	Employer	Employer

**Source:** Broadbent, J. et al.: The Shift from Defined Benefit to Defined Contribution Pension Plans — Implications for Asset Allocation and Risk Management.

In a DB pension plan the employer bears all the investment risks in relation to the invested assets and the potential funding shortfalls. DB pension plans also have some risks to the employees who can bear inflation risks, investing risks and the risk that the actual benefit will fall short of the expected salary replacement level at retirement.

Furthermore, there is a risk for the employee if the employer goes bankrupt or if the employee does not remain with the same employer throughout their working career. If the employer goes bankrupt, the Insolvency Directive can provide some protection, but it may be less generous than the pension would otherwise have been.

Employers offering DC plans avoid the financial and longevity risks associated with DB payments. The employer can still retain the potential fiduciary/legal risk facing sponsors of DC pension plans. If employees retire from DC pension plans without sufficient retirement income, this may be grounds for future lawsuits.

Most studies conclude that participants bear the brunt of the risk in DC plans, while sponsoring employers assume most of the risks in traditional DB plans.<sup>14</sup>

Regarding the financial crisis, the impact of the crisis would have been different if the shift from DB to DC pension types had already matured. In the Joint Report on Social Protection and Social Inclusion (European Commission, 2010b) the European Commission states:

*"Fortunately, the crisis came at a time when DC provision was less important than it will be in future. People with DC provision who are some way from retirement may have time for investment falls to recover at least partially. For people who are close to retirement the impact can be real, leading to less affluent, or possibly delayed, retirement."*

The Joint Report on Pensions concludes that "a greater sharing of risks between scheme members and employers [is] needed if the decline in DB provision is to be halted and such schemes are to have a viable future".<sup>15</sup> It would be interesting to know whether citizens in the Member States are aware of the shift of risk. The downside of taking on risk is that the pensioners can not be sure to maintain the pension levels they expect. Among the population in the Member States there seems to be a preference towards the current

<sup>14</sup> As for instance the OECD report, 2011b.

<sup>15</sup> European Commission, 2010c.

pension levels in connection with increased taxes or contributions which is reported in Table 5.

**Table 5: Question to respondents from the EU-15 Member States: Current pension levels should be maintained even if this means raising taxes or contributions.**

	Agree	Disagree	Do not know
Pensioners	76%	14%	9%
Non-pensioners	66%	22%	12%

**Source:** The Future of pension systems (2004). A survey requested by Directorate General Employment and Social Affairs and coordinated by Directorate General Press and Communication. The fieldwork was conducted in September–October 2001.

The question is whether citizens are able to estimate their pension. To be entitled to a full pension, the shift from DB towards DC will make it crucial to have a long career of unbroken contributions, which can affect the pension incentives to retire.<sup>16</sup> Adequacy of the pensions will therefore both require that people respond to the new work incentives given the pension reforms and that there will be possibilities for prolonging working careers at the labour market. An article from the Economist on 9 April 2011 reported that:

*"Shifts in pension provision in themselves can make people want to work longer. Most defined-benefit schemes have either a set retirement age or a mandatory number of contribution years before full pension can be drawn. Once those conditions have been met, there is little financial incentive to keep working. But in a defined-contribution scheme another year of work probably means a better pension. Surveys suggest that people in DC plans retire a year or two later than those in DB schemes."*

The shift from DB to DC may also have some implications from the tax system. The link between policy and budget implications will be affected if a citizen gets a tax benefit. This can have a consequence for the income side of sustainably financed pensions. In EET-systems the contributions are not taxed (exempt), the capital gains of investment are not taxed (exempt) but the benefits are taxed. In the second tax system (ETT) just the contributions of employees and employers are tax deductible (exempt) but the investment results and the benefits are taxed. EET and ETT are most widespread in the Member States, whereas EEE or TTT systems are not.

The fact that pensioners are becoming more and more sensitive to the situation on the financial market during the transition from DB to DC can raise some debate. We have seen that the recent *"crisis has exposed the vulnerability of funded schemes and highlighted the need for policymakers, regulators and supervisors to promote more prudent management of people's retirement savings"*.<sup>17</sup> To conclude, there is a need for initiatives that rebuild public confidence in funded, privately managed pensions.

## 2.5. Entitlement and distribution of pensions

Pension entitlements can be calculated given the demographic projections and under the assumptions that all pension reforms will be phased in. Figure 2 presented the projected public pension expenditures from the EU Ageing Report 2009 showing increasing public pension expenditures in per cent of GDP for most member states.

Concurrently, the replacement rate of public pensions for the pensioner will decrease. Still, the major part of pension income is provided by public pension schemes, but at the same time the role of privately managed pension schemes is increasing.

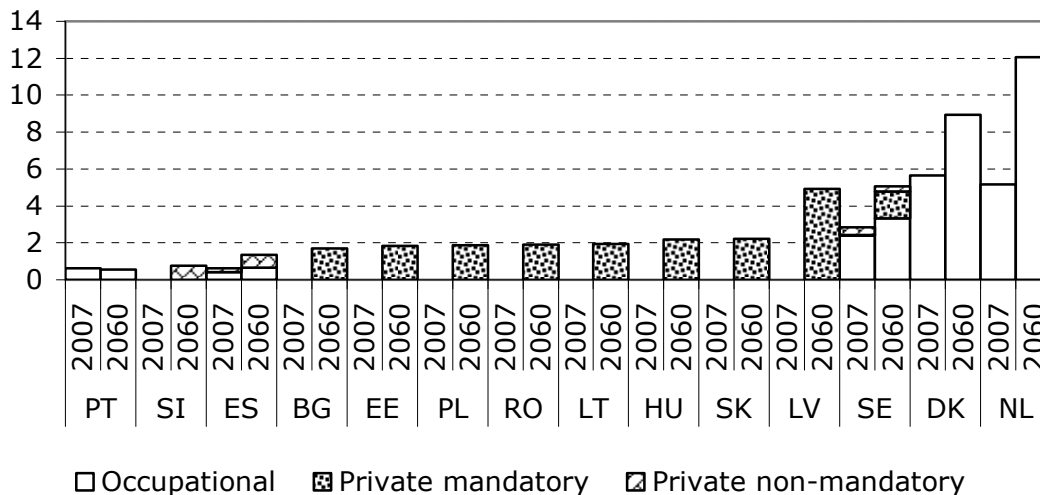
<sup>16</sup> OECD, 2011b.

<sup>17</sup> European Commission, 2010b.

At the time when the EU Ageing Report 2009 was prepared, there was a lack of information concerning the development of the funded schemes in terms of occupational and private schemes as only a few countries provided a projection of relevant variables.<sup>18</sup>

However, based on information from a pension questionnaire, projections for the expenditures and the contributions of non-public occupational, private mandatory and non-mandatory pension in 2007 and 2060 were prepared. They are replicated in Figure 5 and Figure 6:

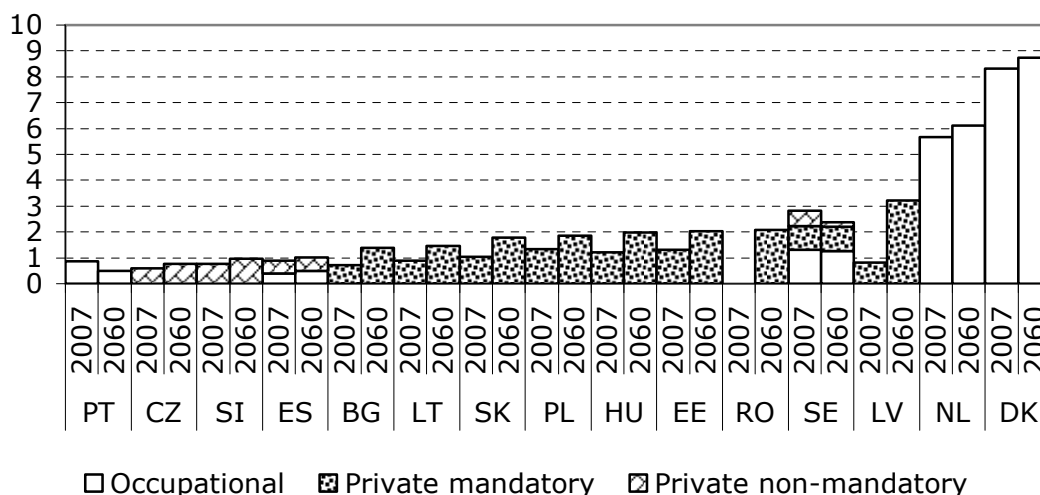
**Figure 5: Expenditure of non-public occupational, private mandatory and non-mandatory pension (% of GDP)**



**Source:** Commission services, EPC; Figure taken from the EU Ageing Report (Graph 48).

**Note:** The graph presents only the countries which provided data for other pension schemes and its value is non-zero. In Slovakia the private pension pillar changed from mandatory to voluntary in 2008.

**Figure 6: Contributions to occupational, private mandatory and non-mandatory pension (% of GDP)**



**Source:** Commission services, EPC; Figure taken from the EU Ageing Report (Graph 49).

**Note:** The graph presents only the countries which provided data for other pension schemes and its value is non-zero.

<sup>18</sup> European Commission, 2008a.

According to Figure 5, private pension provisions will increase from 2007–2060. As these pension types do not yet constitute mature funds, the pensioners in the majority of Member States can only rely on these funded pensions to a minor degree. This is visible by the fact that the contributions to the private funds presented in Figure 6 exceed the drawings from now retired members of the pension funds in Figure 5 — except for the Netherlands, which already has a quite mature pension system.

Higher pensionable age and reduced access to early retirement constitute a tightening of the eligibility criteria for a public pension that is expected to help constrain the growth in public pension expenditure. The vulnerable groups that typically have little room to build up better entitlements to pensions are: 1) people who have received public transfers such as unemployment insurance, social assistance or early retirement during the normal working-age period, 2) women, but especially middle-aged women, 3) migrants and 4) the working poor.

For the first group (i.e. people who have not paid contributions to pensions during their career), Section 6 describes the minimum and maximum of state pensions. The second group concerns women who have not built-up personal pension entitlements and they may not be entitled to survivors' pensions. Though younger women have a stronger affiliation to the labour market there may still be explanations to why women have lower pension savings than men. First, they earn less on average. Second, they have a higher likelihood to receive transfers in the younger cohorts due to maternity leave. Third, they often leave the labour market earlier.

The third group of migrants may have lower pension assets than persons who originate from the country. First, they have a higher proportion of persons who receive unemployment and other benefits. Second, their educational level is generally lower. Third, they have lived for a shorter period in an EU Member State and eligibility for social assistance may depend on a requirement of having lived there for a certain period. Among the working poor in the fourth group, it is quite common that they have also paid a lower percentage of their income as contributions into a pension scheme because of their low earnings than higher income earners.

The OECD calculates pension entitlements using their pension models (OECD, 2011b). The calculations include the full impact of pension reforms that have already been legislated but are currently being phased in. Their calculations are very useful to investigate the distribution of pension entitlements.

This presentation focuses on the gross replacement rate and the net replacement rate as indicators of the pension entitlements. The gross replacement rate shows the level of pensions in retirement relative to earnings when working measured as lifetime average earnings for an individual. The net replacement rate is the individual net pension entitlement divided by net pre-retirement earnings, taking account of personal income taxes and social security contributions paid by workers and pensioners. Table 6 shows calculations of pension entitlements for five different family types in terms of their gross replacement rates and their net replacement rates.



**Table 6: Pension replacement rates for the EU Member States who are also members of the OECD by earnings, single people and couples, 2006 parameters and rules.**

	Gross replacement rate (percentage of total gross earnings)					Net replacement rate (percentage of total net earnings)				
	100	100	50	100	150	100	100	50	100	150
Principal's earnings (percentage of average earnings)	100	100	50	100	150	100	100	50	100	150
Partner's earnings (percentage of average earnings)	n.a.	0	50	50	n.a.	n.a.	0	50	50	n.a.
Belgium	42.0	52.1	58.1	47.4	32.5	63.7	66.9	78.7	63.7	51.7
Czech Republic	49.7	57.3	79.2	59.6	36.4	64.1	73.8	95.3	64.1	49.4
Denmark	80.3	97.4	100.9	78.1	67.5	91.3	116.8	114.2	80.8	82.7
Germany	43.0	43.0	43.0	43.0	42.6	61.3	75.5	59.2	61.3	60.3
Greece	95.7	115.7	115.7	115.7	95.7	110.8	127.7	133.6	127.7	106.7
Spain	81.2	81.2	81.2	81.2	81.2	84.7	91.7	82.1	84.7	85.3
France	53.1	56.3	60.8	56.5	48.2	65.4	74.9	75.0	66.7	59.9
Ireland	34.2	64.4	68.4	45.6	22.8	40.1	75.5	68.4	40.1	30.3
Italy	67.9	67.9	64.2	65.4	67.9	74.8	73.7	74.8	74.8	77.1
Luxembourg	88.1	88.1	99.4	91.9	84.3	96.5	110.4	107.1	96.5	93.5
Hungary	76.9	80.2	80.4	80.2	76.9	105.5	108.0	97.8	108.0	99.2
Netherlands	88.3	118.6	93.4	90.0	86.6	103.2	146.7	105.0	103.2	98.6
Austria	80.1	80.1	80.1	80.1	76.4	90.3	90.3	90.5	90.3	86.3
Poland	61.2	60.4	60.4	60.4	61.2	74.9	73.9	73.5	73.9	75.0
Portugal	53.9	53.9	54.8	54.2	53.1	69.6	69.6	63.7	69.6	72.0
Slovak Republic	56.4	55.7	55.7	55.7	56.4	72.7	71.8	65.5	71.8	74.9
Finland	56.2	61.3	61.3	56.2	56.2	62.4	77.0	73.1	62.4	63.8
Sweden	61.5	82.1	70.3	62.6	75.6	64.1	88.0	73.4	61.6	81.2
United Kingdom	30.8	39.1	50.0	37.2	21.3	40.9	52.3	62.7	40.9	29.2

Source: OECD, Pensions at a Glance 2011.

The first family type in Table 6 is a single person. In the second family type there is a partner, but the partner does not have earned income. In total the income of the two types of households is the same and held constant at 100% of the economy-wide average. The third type of household has the same income, but the income is divided equally between the principal and the partner. In the fourth household the principal earns 100% of the average income and on top of this, the partner owns 50% of the average income. In the fifth household a single person earns 150% of the average income.

A comparison between a single person household earning the average income and a single person household earning 50% more than the average income (i.e. a comparison between the first and the last column of the gross replacement rates), shows that the gross replacement rate typically decreases with income. Some Member States, however, have the same gross replacement rate for a single person household no matter whether it is the average income or 150% average income, which is the case for Greece, Spain, Italy, Hungary, Poland, the Slovak Republic and Finland. Sweden is the only Member State that has a higher gross replacement rate for the higher income.

The net replacement rates in Table 6 are in general higher than the gross replacement rates except for Sweden in the case of the household where there is a principal earner who has an average income and a partner who earns 50% of the average income. This happens because Sweden taxes pension income and earnings at very similar rates. There are two main reasons why the net replacement rates are generally higher. First, the tax progressivity of the income taxes implies that pensioners typically have to pay less in tax when the gross replacement rate is lower than 100%. Second, pensioners often do not pay social security contributions and receive preferential treatment under income tax legislation.

In some Member States, marriage can have an effect on pension entitlements in the sense that the position of a married couple is different from the state of two individual people with the same level of earnings. Most Member States provide a higher gross replacement rate for a couple where there is a single earner as opposed to a single person household. This is, however, not the case in Germany, Spain, Italy, Luxembourg, Austria and Portugal where the gross replacement rates are the same for a household with an average income no matter whether it is a single person household or a household with a couple.

For Poland and the Slovak Republic, the gross replacement rate is even lower for a couple. If the household income increases to a total of 150% of the average income, a comparison between a household with a single person and a household where a principal earns the average income and the partner earns 50% of the average income, the gross replacement rate will also be higher in Germany, Luxembourg, Austria and Portugal. Now, the gross replacement rate is only higher for the single person household in Italy, Poland and the Slovak Republic. In Spain the gross replacement rate is still the same for each of the two households.

Furthermore, Finland that previously had a higher gross replacement rate for the couple (comparing 100% average income households) now has the same gross replacement rate for the single person household and the household with a couple. All these differences can be explained by the fact that there is a significant variation across the Member States in terms of the policy adopted for non-workers within a couple.

The basic schemes in some Member States provide benefits for two persons in a couple although the entitlements are typically less than for two individual persons. In the Netherlands the entitlement to the basic pension depends primarily on the residence in the country, which explains the high gross replacement rate of 118.6 for a couple with an

average income. It is also possible that a Member State has a spousal benefit, a spousal supplement or a resource-tested scheme.

## 2.6. Differences between public and private sector entitlements

Typically, pension schemes in the public sector are based on a PAYG system providing for benefits over the whole retirement period. In principle, it is an insurance financed by contributors and tax payers. Some private schemes are held in pension insurance contracts where there is insurance across scheme members and thus, the private schemes will not leave any bequests in this situation. It has to be emphasised that the focus in this section is not on public sector workers (e.g. civil servants) where many Member States have had some very advantageous pension types which are now being phased out.

Financing the pensioners by the current tax payers (i.e. PAYG) had advantages as the Member States significant experienced economic growth for some decades. This is not to say that the shift from unfunded (i.e. PAYG systems) to funded systems can not be of advantage to the pensioner. Economic growth is a function of the rise in productivity, the amount of capital employed and the size of the workforce. As the latter decreases, it may be harder for the real economy to grow in the foreseeable future. If it is possible to find financial markets that have higher returns than the contribution from the growth in the real economy, citizens who have funded pension schemes can benefit from this.

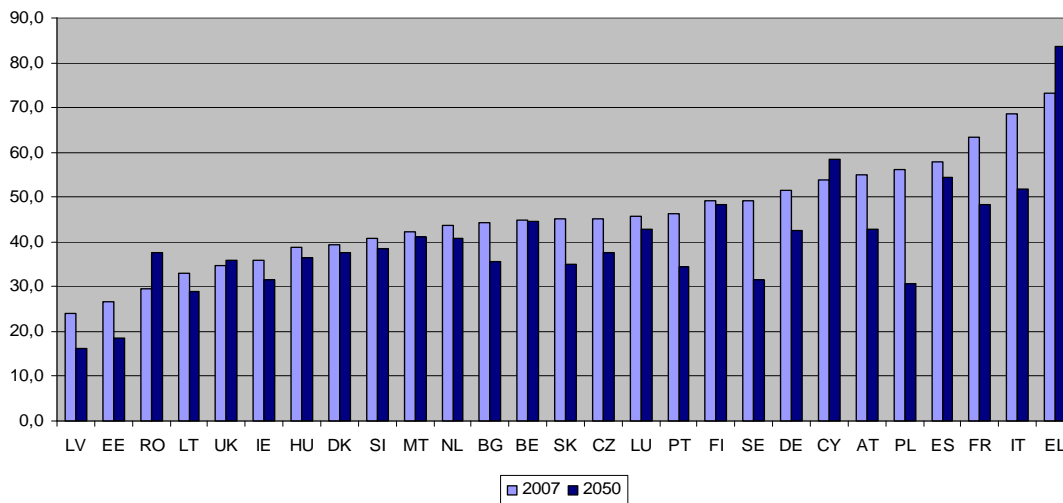
OECD has prepared a classification of public pension plans and private pension plans. According to the OECD classification, they are defined as follows:

*“Public pension plans are social security and similar statutory programmes administered by the general government (that is central, state, and local governments, as well as other public sector bodies such as social security institutions). Public pension plans have been traditionally PAYG-financed, but some OECD countries have partial funding of public pension liabilities or have replaced these plans by private pension plans. Private pension plans are administered by an institution other than general government. Private pension plans may be administered directly by a private sector employer acting as the plan sponsor, a private pension fund or a private sector provider. Private pension plans may complement or substitute for public pension plans. In some countries, these may include plans for public sector workers. The transformation of pension systems into more pronounced multi-pillar systems will imply that it will become more and more difficult for future pensioners to rely on public pensions only. The projections of the ratio between the average pension benefit and the economy-wide average wage (i.e. the benefit ratio) gives an idea of how well the public pension benefits cover the income during retirement. Figure 1 presents the projected values of the benefit ratio for 2007 and 2050.”<sup>19</sup>*

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<sup>19</sup> OECD, 2005.

**Figure 7: The benefit ratio (average gross public pension benefit divided by average gross wage) in 2007 and 2050.**



**Source:** 2009 Ageing Report, Graph 43 and data from the country fiches in the statistical annex.

**Note:** Figure 7 shows the absolute values of the average gross public pension benefit and the average gross wage for the year 2007.

In Figure 7, the Member States are sorted after the benefit ratio in 2007. Back then Latvia had the lowest benefit ratio from social security pensions and Greece had the best benefit ratio which, at the time, was projected to improve further by 2050. The most recent reforms in Greece, however, imply that this figure will probably have to be modified. In 2007 Member States such as Germany, Cyprus, Austria, Poland, Estonia, France, Italy and Greece had benefit ratios above 50% in 2007. Next to Greece, Cyprus, Estonia and Italy have projected benefit ratios above 50% in 2050. The absolute level of the public pension benefits are lower than EUR 3,000 per year in the Member States Bulgaria, Romania, Latvia, Lithuania and Estonia and higher than EUR 14,000 in Austria, Sweden, Denmark, France, and Luxembourg.

All other things equal, the projected decline in the benefit ratio from social security pensions over time will imply that the citizens will adapt to this situation by saving income for their retirement. This is an underlying way of thinking in economic theory where consumers form inter-temporal plans aimed at smoothing their standard of living over their lifetime.<sup>20</sup>

However, data from household panels often show that consumption drops at retirement. This is a phenomenon known as the "Retirement Consumption Puzzle". There may be reasonable explanations why the needs in the retirement age can be more modest during retirement than in the working period. When people retire they cease to have work-related expenses and they can substitute home production for market-purchased goods and services. Therefore, many studies conclude that the drop in consumption at retirement can still be consistent with the life-cycle theory.<sup>21</sup> Battistin et al. find that retirement induces a significant drop in the number of grown children living with their parents that can account for most of the retirement consumption drop. Another study finds that a significant fall in spending can be unanticipated for those who retire involuntarily.<sup>22</sup>

<sup>20</sup> Deaton, 1992.

<sup>21</sup> Battistin, E. et al.; Hurd, M. and Rohwedder, S.

<sup>22</sup> Smith, 2006.

To summarise, the fact that the projected benefit ratios are lower generally will motivate citizens to draw up supplementary pensions (i.e. occupational pension plans and private pension plans) on the one hand. On the other, establishing the more pronounced multi-pillar systems can provide possibilities to do so. Some of the private plans are statutory private schemes for the switched part of the social security pension scheme. Furthermore, some of the supplementary pensions are called “quasi-mandatory” in the OECD report 2011 if they have near-universal coverage.

## **2.7. Minimum levels of state pensions**

This section looks at the minimum levels of state pensions. The question is what the citizens in the individual Member States will be left with if they have not saved anything for their own pension. As it is not straightforward to compare the minimum levels of pension across the EU Member States, Annex A describes carefully how these limits are derived to be able to provide an overview.

To be able to compare the living standard across Member States if citizens are left with the minimum state guarantee, the EUR amounts could be corrected for the purchasing power parity as the purchasing power of a certain amount in EUR can be different across the Member States. Living arrangements in the individual Member States may also be important for how well citizens in the individual Member States perceive their standard of living.

In some Member States, for example, it is more common that parents live together with their children. Such cultural differences of family life can be crucial to the living standard. The SHARE survey has been designed to shed light on the three equally important domains of everyday life: economic circumstances, health and well-being conditions, and the integration into family and social networks. In this section, however, we replicate the exact amounts of the pensions to be able to recognise them in the underlying sources.

Table 7 shows that the pension at safety net level varies greatly across EU Member States as does the percentage of the average wage received at the minimum pension level. Some Member States such as Denmark, Greece, Spain, Luxembourg and Malta reach more than one third of the average gross wage whereas the Czech Republic, Hungary and Slovenia provide for less than 15%.

**Table 7: Minimum state pension for a single person per month in EUR**

	Pension per month at the safety net level	Average gross wage per month	Pension at safety net level in % of average gross wage
BE	885.90	3 308.33	26.8
BG	70.00	218.83	32.0
CZ	85.88	905.28	9.5
DK	1 610.67	4 020.44	40.1
DE	702.00	3 450.00	20.3
EE	128.39	836.17	15.4
EL	846.70	1 991.67	42.5
ES	685.77	1 933.33	35.5
FR	628.11	2 725.00	23.0
IE	1 076.45	3 408.33	31.6
IT	499.38	2 191.67	22.8
CY	348.50	1 775.85	19.6
LV	-	675.80	-
LT	-	-	-
LU	1 436	4 033.33	35.6
HU	99.00	677.37	14.6
MT	473.94	1 306.58	36.3
NL	1 065.96	3625.00	29.4
AT	784.00	3 233.33	24.3
PL	172.00	683.90	25.1
PT	231.86	1 341.67	17.3
RO	81.00	402.07	20.2
SI	178.32	1 316.67	13.5
SK	-	725.00	-
FI	558.46	3 108.33	18.0
SE	498.49	3 059.41	16.3
UK	627.26	3 267.26	19.2

**Source:** MISSOC tables and Pensions at a Glance 2011.

**Note:** The following Member States are not reported in the OECD report: Pensions at a Glance 2011: Bulgaria, Cyprus, Latvia, Lithuania and Romania. The figures in Table 7 are calculated based on the last figures available between 2006 and 2010. Not all benefits are taxable.

### 3. FINANCIAL DEVELOPMENT OF THE PENSION SYSTEMS

#### KEY FINDINGS

- The old-age dependency ratio, calculated as the ratio of people aged 65 or above relative to the working-age population aged 15–64, is projected to more than double in the EU-27. This means that the EU-27 would move from having four persons of working-age for every person aged over 65 to a ratio of only 2 to 1.
- With everything else unchanged this would, under a plausible macro-economic scenario, result in an increase in pension expenditures in the EU-27 from 10.2% in 2008 to 18.9% of GDP in 2060. But many Member States have already decided upon reforms that foresee a gradual adjustment of pension benefits to demographic changes. The 2009 Ageing Report projects that, given these reforms, pension expenditures would rise by 2.4% of GDP until 2060, as lower benefits and the increase in effective retirement ages counterbalance the impact of demographic changes.
- The risks to the projections of the 2009 Ageing Report appear to be tilted towards sharper increases in pension expenditures. The projections assume that pension reforms will result in a substantial increase in labour force participation rates of older workers. However, the extent to which this will materialise depends on the success in implementing a wider range of reforms to foster and support longer working lives, which are still due.
- Two further factors contribute to the upward risks: First, past forecast errors suggest that life expectancy may increase even faster than assumed. Second, the assumptions on labour productivity growth appear optimistic.
- Building up and depleting pension funds is an instrument to distribute the burden of finance across different generations. The build-up of a fund requires lifting current contribution rates above the level necessary to cover benefits. Consequently, accumulating a pension fund corresponds to taxing present workers in order to benefit future workers.
- About half of the OECD member countries accumulate a public pension fund but only Japan, Korea, Sweden and the United States have sizeable funds of about one fifth to one quarter of GDP.
- The investment of pension funds into equity allows a society to diversify risks across different generations and national borders, but clear guidelines on investment policy are necessary to protect beneficiaries from political pressure.

#### 3.1. Introduction

The purpose of this chapter is to discuss the sustainability of pension systems in the EU-27 with a critical assessment of the simulations contained in the Ageing Report 2009 of DG-ECFIN. Clearly, pension systems in the EU will have to be adapted to demographic developments in the forthcoming decades. Current forecasts suggest that the EU-27 would move from having about four persons of working-age for every person aged over 65 to a

ratio of only about 2 to 1 until 2060. A corresponding doubling in pension expenditures from currently about 10% in GDP would put public finances under serious pressure.

To contain this increase, a number of states have therefore implemented reforms aiming at raising the effective retirement age and cutting pension benefits. The Ageing Report 2009 report contains a comprehensive set of simulations to estimate the evolution of public expenditures on pension schemes. The simulations take into account already implemented reforms which will come into effect in the forthcoming decades. Alternative studies of a similar scope and detail do not exist.<sup>23</sup>

In fact, even the OECD in its 2011 Pensions at a Glance Report relies on the 2009 Ageing Report when discussing the sustainability of pension systems in the EU 27.<sup>24</sup> There exist a few academic studies for individual countries. The comparability of the studies is however limited as they rest on different assumptions. Hence, the simulations contained in the Ageing Report 2009 are used as a benchmark for the discussion below. After a brief review of the main findings this chapter will undertake a critical assessment of the assumptions that are used in the simulations. Those assumptions relate to three main factors. First, demographic developments are driven by life expectancy, fertility rates, and migration. Second, obviously, GDP growth is a key factor in financing pension entitlements. Third, another important factor of the old-age dependency ratio relates to labour force participation, in particular among elderly workers.

The various assumptions are subject to some risks which overall appear to be tilted towards possibly higher increases in public pension expenditures than estimated in the report. The uncertainty of forecasts of life expectancy is difficult to assess, but past forecasts have underestimated its increase to a surprisingly large extent. Labour productivity growth is assumed to slow down somewhat, but the declines may be larger.

Perhaps the most significant risks are yet related to labour participation among elderly workers and the effective retirement age. The assumed increases in those factors are achievable, but depend on the success in the realisation of those pension reforms that have been implemented in recent years. The assumed increase until 2020 is particularly large. The tables contained in the 2009 Ageing Report provide relatively little information about one key driving factor of pension expenditures, the actual retirement age. But other data show that in some EU Member States this is currently considerably lower than the official retirement age.

More generally, the policy actions to be taken in order to achieve an increase in the actual retirement age – more precisely, the employment exit age - and to re-organise working environments to adapt to an ageing workforce are at the heart of the political economy of pension reforms. This chapter will therefore conclude with a discussion of possible measures on related issues.

### **3.2. The main scenario of the 2009 Ageing Report**

The 2009 Ageing Report contains a comprehensive set of simulations to estimate the evolution of public expenditures on pension schemes, given the current regulations and already implemented reforms. These simulations are based on a set of assumptions related to demographic factors, economic growth, and labour market participation rates of individual age groups. Furthermore, the simulations assume that the pension reforms that have been implemented in recent years will fully materialise in the future. This includes an increase in the effective retirement age.

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<sup>23</sup> European Commission, 2008a.

<sup>24</sup> OECD, 2011b.



Table 8 summarises the basic assumptions of the simulations. Average annual GDP growth is assumed to drop substantially from 2.4% in 2007–2020 to 1.3% in 2040–2060. The decline reflects entirely a decline in employment input whereas labour productivity growth is assumed to remain unchanged at 1.7%. Employment is assumed to stagnate in 2020–2040 and to decline by 0.4% on annual average thereafter.

**Table 8: Main assumptions of the 2009 Ageing Report**

**Macroeconomic assumptions**

Average annual growth rates	2007–2020	2020–2040	2040–2060	2007–2060
GDP growth	2.4	1.7	1.3	1.7
Labour productivity	1.7	1.7	1.7	1.8
Employment (total hours)	0.7	0.0	-0.4	-0.1

Source: The 2009 Ageing Report, Assumptions (European Commission, 2008a).

**Population**

Cumulative changes in ...	2008–2020	2020–2040	2040–2060	2008–2060
Total population	3.7	0.0	-1.6	2.1
Working-age population (15–64)	-0.4	-4.4	-10.2	-15.0
Old-age dependency ratio	25.4	31.1	53.5	28.1

Source: The 2009 Ageing Report, Assumptions (European Commission, 2008a).

This decline reflects the assumptions on demographic developments which are taken from the EUROPOP2008 projections. Total population would still rise until 2010, stagnate between 2020 and 2040 and shrink modestly by 1.6% between 2040 and 2060. By contrast, due to ageing effects the working-age population would already shrink markedly in the period of 2020 to 2040 and drop by as much as 10% thereafter.

The demographic dependency ratio which is the ratio of people aged over 64 to the working age population between 15 and 64, is projected to increase from 25.4% in 2007 up to 53.2% in 2060. Between 2015 and 2035 the increase will even be above 2% each year. The demographic dependency ratio is a very rough estimate for the development of public finances, as not all working-age people are working and probably not all people over 64 are pension-beneficiaries to the same extent.

The effects of those demographic trends are somewhat mitigated by an increase in labour participation rates. In particular, labour participation notably among older workers (aged 55–64) is assumed to increase by 10 (men) and 20 (women) percentage points until 2060.

Higher labour participation is partly due to a cohort effect, but mostly reflects an increase in the effective retirement age.<sup>25</sup> However, the share of the population 55–64 in the overall working-age population is still relatively small, and the increase in the overall participation rate remains therefore modest.

<sup>25</sup> The cohort effect refers to the lower participation rates of the present generation of elderly women. Due to societal changes, the participation rate of women has in general increased in recent decades. However, this does not fully apply to the elderly generation. As this generation retires, the average labour participation rate will therefore increase.

**Table 9: Labour market indicators**

	2007	2020	2060
Unemployment rate	7.2	5.7	5.7
Labour force participation rate	70.6	73.2	74.1
Labour force participation rate 55–64	47.5	56.0	62.5
- Men	57.3	63.8	67.0
- Women	38.2	50.4	58.1
Employment rate (55–64)	44.9	54.5	60.0
Coverage ratio	140.1	114.7	110.0

**Source:** The 2009 Ageing Report, Projections (European Commission, 2009a).

Based on these assumptions and given the current state of pension regulations, the 2009 Ageing Report projects an increase in public expenditures on pensions by about 2.4 percentage points of GDP until 2060. For the euro area a slightly larger increase of 2.8 percentage points of GDP is projected. The major increases occur in the earlier periods of 2020–2040.

The diversity across Member States is very large, but in most Member States the change of the ratio is projected to remain below 5 percentage points of GDP. Pension reforms implemented in recent years in some Member States are having visible positive impacts. They sharply reduce the projected increase in public pension expenditure.

According to the 2009 Ageing Report, the overall change in public pension spending (as a percentage of GDP) can be decomposed into the following factors (see Table 10):

1. The old-age dependency ratio, defined as the ratio of people aged 65 or above relative to the working-age population aged 15–64;
2. The coverage ratio, defined as the number of pensioners of all ages relative to the population aged 65 or above;
3. The employment rate, defined as the share of employed persons in the working-age population; and
4. The benefit ratio, defined as the level of the average pension relative to labour productivity. Labour productivity is used in place of the real wage per employee;
5. "*Other factors*" not fully explained in the Ageing Report 2009. They appear to include two items:
  - (i) shifts in "*hours per worker*"; and
  - (ii) interaction effects.

The contribution of these first four factors to the overall increase in pension expenditures (as % of GDP) is shown in Table 10. The table demonstrates, first, that demographic factors, as captured by the old-age dependency ratio, result in an increase in pension expenditures (as % of GDP) by 8.7% until 2060. About half of this increase takes place in the period until 2030.

The increase is counterbalanced by the effects of the projected decline in coverage and benefit ratios. Both are largely a result of the pension reforms that have been implemented in recent years.

- The benefit ratio, in turn, accounts for the value pension payments relative to the wage (as proxied by labour productivity). The 2009 Ageing Report does not provide the assumptions for the evolution of the benefit ratio for the EU-27 as a whole. The

results imply, however, that the benefit ratio is assumed to decline by about 25% in between 2007 and 2060. Table 18 in the Ageing Report 2009 shows the evolution of the benefit ratio for individual countries.

- The coverage ratio reflects the evolution of the effective retirement age. As shown in Table 10 the ratio is projected to decline from 140.1 in 2007 to 110.0 in 2060. Unfortunately, the report provides very scarce information on the assumptions for the effective retirement age. As discussed in Section 2.7, the effective retirement age for men is expected to increase by more than three years in some, and by between two and three years in many other countries.

By contrast, the assumed increase in the employment rate contributes only to a very limited extent to reducing the pension-to-GDP ratio (-0.5 pp.). This effect appears to reflect mostly the increase in the level of GDP due to the higher employment and is of secondary importance. The employment effect is discussed in Section 4 in detail.

**Table 10: Pension-related public expenditure for EU-27 (increases compared to 2007 in % of GDP)**

	2007– 2020	2020– 2030	2030– 2040	2040– 2050	2050– 2060	2007– 2060
Public pension expenditure	0.4	0.9	0.7	0.2	0.2	2.4
<b>Contributions from</b> (in percentage points):						
Old-age dependency ratio	2.2	2.3	2.1	1.3	0.7	8.7
Coverage ratio	-1.1	-0.6	-0.4	-0.4	-0.2	-2.6
Employment rate	-0.5	0.0	-0.1	0.0	0.0	-0.7
Benefit ratio	-0.1	-0.6	-0.7	-0.6	-0.4	-2.5
Other factors	-0.1	-0.2	-0.2	-0.1	0.1	-0.5

Source: The 2009 Ageing Report, Assumptions (European Commission, 2009a).

Besides the main scenario which is discussed above in detail, there are several alternative scenarios in the 2009 Ageing Report. The alternatives deal to a certain extent with the spread of possible economic developments arising from uncertain assumptions underpinning simulations over 50 years. In order to clarify the key factors that contribute to future pension expenditures, the Ageing Report 2009 provides additional simulations, the so called sensitivity tests. Each scenario varies one parameter - other factors remain equal - and compares the results with the baseline projections. This presents the elasticity of the modified parameter. The scenarios are:

1. In the high life expectancy scenario the life expectancy at birth is increased by one year. In this case, the baseline assumes an average increase of 8.4 years until 2060 within the Member States.
2. In the zero migration scenario the assumed net migration in the baseline scenario of 0.33% of the EU population in 2008 and 0.16% of the EU population in 2060 is set to zero.
3. In the higher employment rate scenario the employment rate is increased by 1% between 2010 and 2020 compared to the base line scenario (Table 9).
4. In the higher employment rate for older workers the employment rate in the age group 55-64 is linearly increased by 5% between 2010 and 2020.

5. In the higher labour productivity scenario between 2010 and 2020 the productivity growth rate is increased by 0.25% compared to the baseline scenario (Table 8).

**Table 11: Public pensions expenditure for EU-27 (Increases compared to 2007 in % of GDP) among the sensitivity scenarios**

	2007– 2020	2020– 2030	2030– 2040	2040– 2050	2050– 2060	2007– 2060
Main scenario	0.4	0.9	0.7	0.2	0.2	2.4
<b>Alternative scenarios</b>						
High life expectancy	0.4	0.9	0.8	0.4	0.2	2.7
Zero migration	0.8	1.4	1.2	0.6	0.2	4.1
High employment rate	0.3	0.8	0.7	0.3	0.2	2.2
High employment rate 55-64	0.2	0.9	0.7	0.3	0.2	2.2
High labour productivity	0.3	0.8	0.6	0.2	0.1	2.0

**Source:** The 2009 Ageing Report, Assumptions (European Commission, 2009a).

The positive effect on future pension expenditures in the sense of lower pension expenditures and/or a higher GDP growth rate would result in higher employment rates in general and especially among older workers as well as in a higher labour productivity. The future potential GDP growth rate would suffer from a decreasing net immigration where as the pension expenditures increase in case of an increasing life expectancy. But of course this average development in the European Union does not reflect the country specific situation, the country specific sustainability or reform needs.

### 3.3. Risks to the Ageing Report projections

While the assumptions discussed above appear reasonable, they are subject to some risks. Overall, these risks appear to be tilted towards possibly higher increases in public pension expenditures than estimated in the report. Risks to demographic and macro-economic assumptions are discussed in Section 3.1. Higher life expectancy and lower labour productivity growth may put even more strain on pension systems than assumed, with the size of the risks depending on the design of pension systems.

Risks also emerge as regards the implementation of pensions reforms, in particular with respect to labour market participation and the effective retirement age. The simulations assume a pronounced increase in the latter, as reflected in the assumptions on the coverage ratio and the participation rates of workers aged 55–64. Whether these increases will indeed materialise does not only depend on the degree of commitment to the pension reforms that have been implemented in recent years, but also on a broader range of policy actions to support longer work lives. Section 3.2 briefly discusses options to labour market policy and pension reforms to achieve the required transition to longer working lives.

#### 3.3.1. Demographic and macro-economic assumptions

As to demographic and macro-economic assumptions, there arise two specific risks that point towards somewhat stronger increases in pension expenditures than estimated in the report. First, as to demographic assumptions, the uncertainty of forecasts of life expectancy is difficult to assess, but past forecasts have underestimated its increase to a surprisingly large extent.

Whitehouse discusses the revisions to the official UK forecasts of the population aged over 65 years in 2060.<sup>26</sup> In 1992 the forecast stood at about 14 million people, but it increased to above 18 million in 2004. This means an increase by about 30%, which would translate almost one-by-one into corresponding increases in the old-age dependency ratio and — unless automatic adjustment rules are in place to cut the benefit-ratio — into pension expenditures.

Dowd, K. et al. have made an attempt to estimate the uncertainty to the forecasts from statistical simulations. Their central estimate of male life expectancy at 65 in 2050 is at 27 years — somewhat higher than the Ageing Report 2009 assumptions. The upper bound of the forecast is at 31 years, some 15% higher.

Overall, given the historical uniqueness of the current changes the degree of uncertainty in the projections is difficult to assess. It is also unclear whether the more recent forecasts have fully adapted to the earlier biases. Another downward risk in the simulation results of the Ageing Report 2009 arises from labour productivity growth. GDP per hour worked is assumed to grow with 1.7% in the EU27. This is above the rate observed in the last decade. As shown in Table 12, productivity growth has been steadily declining since the 1960s in major EU Member States and has recently been at 1.5% in France and Germany and even lower in Italy and Spain.

Table 12 shows the declines in trend labour productivity growth for the major European countries in recent decades. As the example of the US show, these declines may be reversed in forthcoming decades. However, there are some arguments that the ageing of the population itself may weaken labour productivity growth. A large literature has examined the effects of age on individual worker productivity.<sup>27</sup>

The results of those studies are very mixed: they suggest that the size of the effect depends on economic sectors, organisational matters of the firm and qualification levels. Skribekk, V., for instance, concludes that productivity reductions at older ages are particularly strong for work tasks where problem solving, learning and speed are needed, while older individuals' maintain a relatively high productivity level in jobs where experience and verbal abilities are important. Illmakunas, O. et al. suggest that the way productivity is affected by age is determined more by choice than it is an exogenous phenomenon. Based on model simulations, other authors argue that the overall effect on productivity of the economy as a whole is likely to be small.<sup>28</sup>

The 2009 Ageing Report contains some alternative scenarios to investigate the effects of changes to these assumptions. The first scenario inspects the effects of higher life expectancy. Specifically, life expectancy at birth is assumed to increase more sharply compared to the baseline so that it is one year higher in 2060. This is estimated to increase the pension-to-GDP ratio in the EU-27 by about 0.3%. The second scenario assumes that productivity growth is lower by 0.25% per year over the entire projection period. This would raise the pension-to-GDP ratio by 0.4%.

Overall, the discussion suggests that the risks to the pension-to-GDP ratio arising from the demographic macroeconomic scenario are contained to some 1–2% of GDP, but that they are tilted to the upside compared to the assumptions underlying the 2009 Ageing Report. However, the size of these risks differs across countries as they depend on the design of pension systems. Some Member States have automatic rules to adjust pension benefits to life expectancy so that the risks to the pension-to-GDP ratio remain smaller. As to labour productivity, the size of the risk depends on the indexation of benefits.

<sup>26</sup> Whitehouse, E.

<sup>27</sup> Börsch-Supan, A., 2001; Skribekk, V.; Illmakunas, O. et al.; Werding, M.

<sup>28</sup> Hofer, J. and Url, T.

In many countries pension increases are only partly indexed to wage growth. With full indexation, lower labour productivity growth would result in correspondingly lower pension benefits and no effects on the pension-to-GDP ratio would arise. With partial indexation, lower labour productivity growth would result in a higher pension-to-GDP ratio.

**Table 12: Trend labour productivity growth**

	US	UK	DE	FR	IT	ES
1961–1970	2.7			6.5		
1971–1980	1.6	2.8	3.6	4.3	3.6	4.5
1981–1990	1.3	2.1	2.4	2.8	2.0	2.9
1991–2000	1.8	2.3	2.3	2.0	1.4	1.4
2001–2008	2.1	2.1	1.5	1.5	0.3	0.7

**Source:** Ameco database, WIFO-calculations. The table shows annual growth in trend real GDP per hour worked. Trends have been estimated from the Hodrick Prescott filter.

### 3.3.2. Achieving the transition to longer working lives

The simulations contained in the 2009 Ageing Report assume a pronounced increase in the effective retirement age, as evidenced in the participation rate of older workers in the EU-27 from 47.5% in 2007 to 62.5% in 2060 and the decline in the coverage ratio (ratio of pensioners to the population 65+) from 140 to 110.

The report (European Commission, 2008a) explains that the assumed increase in labour market participation rates stems mostly from the effects of pension reforms. Indeed 13 percentage points of the overall increase of 15 percentage points are due to the effects of pension reforms. Increased participation rates are accompanied, and largely explained, by increases in effective retirement age of about 2–3 years in many countries. Unfortunately, the report lacks a table showing the assumed evolution of the effective retirement age.

The effects of these assumptions are given by the sum of the employment and coverage ratio effects: They are found to reduce pension expenditure in the EU-27 by 3.3% of GDP, about one third of overall pension expenditure (relative to GDP). Longer working lives are essential for avoiding either sharp increases in pension expenditures or reductions in benefits. This applies in particular as postponement of retirement provides a double dividend: It raises pension contributions of employed and reduces pension expenditures.

However, the increases in labour participation and the effective retirement age assumed in the 2009 Ageing Report should not be taken for granted. The assumed increases are of considerable size and there is a risk that some countries may fail to fully achieve them as retirement decisions are influenced by the design of pension systems and by labour market policies. The policy actions to be taken in order to achieve such an increase are therefore at the heart of the political economy of pension reforms.

This is illustrated by a comparison of official and effective retirement ages in Member States. As discussed in Section 4.1, the effective retirement age in the EU-27 of both men and women is by more than two years below the official one. In several countries, the differences are much larger. In fact, with a few exceptions, current pension plans (as underlying the Ageing Report) do not foresee increases in the official retirement ages. That is, the increase that is assumed in the Ageing Report arises predominantly from the convergence of effective to official retirement ages.

Achieving the pension expenditure targets will therefore require a continued focus of economic policy on (i) creating appropriate incentives to increase effective retirement ages;

and (ii) helping older workers to find and retain jobs. The related issues are discussed in detail in Section 4 of this report.

### 3.4. The role of funded pension systems

Funded pension systems have always been strongly advocated by the World Bank as an instrument to avoid the collapse of public PAYG systems under increasing demographic pressure. Within a funded pension system contributions are paid up-front, invested into financial assets throughout the accumulation period and finally distributed to beneficiaries throughout their retirement phase. Funded pension systems have some tradition in Member States with large occupational pension systems. At the moment, a few Member States accumulate public pension reserve funds within their social security system to be distributed during periods of demographic pressure. The 2009 Ageing Report already includes a list and descriptions of funded schemes across Member States.

A social security fund can be used to distribute the burden of financing pensions more equally across generations. A pension fund thus may help to achieve intergenerational equity by appropriately timing the contribution payments. If the rolling long-term forecasts indicate that the pension system is in actuarial balance for every period throughout the projection horizon, building up a social security fund would put an excess burden on currently working generations while benefiting future workers. If, on the other hand, the rolling projections indicate a substantial future deficit in the public pension system, for example due to lower mortality, an actuarial surplus is needed in the present in order to shift the burden of finance towards current generations who benefit from additional future expenses.

The public pension system usually provides a substantial part of retirement income for households in the lower part of the income distribution. Moreover, for most households in the middle and upper parts of the income distribution public pensions are fundamental for retirement planning. Public pensions provide a continuous income flow, allowing private households to smooth their consumption expenditures over time. If long-term projections of the pension system reveal a future deficit, a pension fund will help to avoid frequent adjustments of benefit rules. Hence, a pension fund shields pensioners from sudden income shocks due to political action in order to restore short term balance in the public pension system.

According to data from the OECD Global Pension Statistics about half of the OECD member countries accumulate a public pension fund (Table 13). Of those countries only Japan, Korea, Sweden, and the USA manage sizeable funds in the magnitude of around one fifth to one quarter of GDP. The 2009 EU Ageing Report has roughly similar numbers for those countries covered by both sources. For a few countries the EU Ageing Report states that public pension funds exist, although the OECD assesses in these cases that the concept of a public fund is "not applicable". In the case of Cyprus, Finland, and Luxemburg a sizeable public fund is documented by the report commissioned by the European Commission.

Table 14 compares the size of existing public pension reserve funds in 2009 (for countries where OECD data were available) and 2010 (for countries where European Commission data were available) with projections for the deficit of the public pension system from the 2009 EU Ageing Report. The deficit projections are only shown for base years 2010, 2020, 2030, and so on. A rough comparison of the current size of public pension funds with deficits in the public pension system – as forecasted in the Ageing Report and ignoring interest on existing funds – gives the impression that Member States with a relatively low stock of funds in the beginning (Estonia, France, Portugal, and Slovenia) would deplete their public pension reserve fund within five years. In Germany and Poland public pension

reserves do not even cover the deficit in the public pension system for the first simulation year. In the case of Poland, recently accumulated funds belong to young prospective beneficiaries and cannot be used to finance current outflows to retirees.

On the other hand, there are Member States like the Czech Republic and Latvia with solvent public pension systems; both Member States start with small funds but would not deplete their funds throughout the whole projection period even though interest earnings are ignored in this exercise. Sweden and Cyprus with medium sized funds would be able to cover around ten years of their deficit by running down their public pension reserve funds. The projection for Luxemburg indicates a further build up of the public pension fund until 2020 when the balance in the public pension system turns into a deficit. The fund in Luxemburg will be depleted by 2030 while Ireland and Spain can postpone this turning point until 2040. Finland will also have used up its fund around 2040, although, it will be drawing on reserves from 2010 onwards.

Contributions to occupational pension systems are part of the wage bill; therefore they are subject to the respective national tax code. At the moment, Member States apply different systems of taxation during the three phases of paying contributions, accumulating interest, and receiving benefits. For example, one Member State may exempt contributions from taxation but taxes benefits, whereas another Member State makes contributions subject to taxation but leaves benefits tax free. Perfect labour mobility within the EU would require seamless transferability of individual occupational pension wealth, but at the moment the different timing of taxation among Member States constrains labour mobility. The reason is that it would open substantial opportunities for tax evasion. Consequently, further expansion of occupational pension schemes requires tax harmonisation in this respect in order to keep labour mobility among Member States at the current level.



**Table 13: Pension funds and public pension reserve funds in selected countries, 2009**

OECD members	Pension funds (2)		Public pension reserve funds		
	% of GDP	Millions USD	% of GDP (3)	Millions USD (3)	% of GDP (4)
Australia	82.2	835,886	5.9	51,629	-
Austria	5.1	19,543	n. a.	n. a.	-
Belgium	4.1	19,165	5.0	23,480	5.7
Canada	119.7	1,599,900	8.5	180,627	-
Chile	66.3	106,596	2.1	3420.8	-
Czech Republic	6.0	11,332	n. a.	n. a.	3.4
Cyprus	-	-	-	-	38.2
Denmark	165.8	512,174	n. a.	n. a.	-
Estonia	6.9	1,323	n. a.	n. a.	1.0
Finland	85.9	204,357	n. a.	n. a.	68.0
France (5)	8.7	231,686	4.3	118,669	1.8
Germany	5.2	173,810	n. a.	n. a.	1.3
Greece	0.0	63	n. a.	n. a.	-
Hungary	13.1	16,886	n. a.	n. a.	-
Iceland	125.5	15,174	n. a.	n. a.	-
Ireland	45.2	100,278	13.7	31,049	12.9
Israel	46.9	91,696	n. a.	n. a.	-
Italy	-	-	n. a.	n. a.	-
Japan (1)	-	-	23.2	1,137,737	-
Korea	9.6	80,059	26.1	217,768	-
Latvia	-	-	-	-	5.2
Luxemburg	2.3	1,171	n. a.	n. a.	28.0
Mexico	13.0	114,690	0.3	3,605	-
Netherlands	125.6	997,922	n. a.	n. a.	-
New Zealand	11.7	13,755	7.1	8,265	-
Norway	7.4	27,852	5.0	18,963	-
Poland	-	-	0.5	2,343	0.4
Portugal	13.9	32,477	5.7	13,068	6.6
Slovak Republic	6.3	5,508	n. a.	n. a.	-
Slovenia	5.1	2,489	n. a.	n. a.	6.7
Spain (5)	9.4	138,084	5.7	83,387	4.4
Sweden	55.8	225,160	27.2	108,785	30.4
Switzerland	112.1	551,450	n. a.	n. a.	-
Turkey	2.3	14,017	n. a.	n. a.	-
United Kingdom	80.7	1,753,016	3.8	83078.9	-
United States	112.3	15,770,595	17.9	2,540,348	-

**Source:** OECD Global Pension Statistics, the 2009 Ageing Report (European Commission, 2009a).

**Note:** – 1) Public pension reserve funds' data refer to 2008. ii) Public pension reserve funds' data refer to June 2009. – 2) The pool of assets forming a legal entity that are bought with the contributions to a pension plan for the exclusive purpose of financing pension plan benefits. – 3) Size of public pension reserve funds as published in the OECD (2011) Pensions at a Glance. – 4) Size of public pension reserve funds as published in the 2009 Ageing Report. – "n. a." means not applicable. – 5) Data concerning the public pension reserve funds' (in % of GDP) refer to 2007.

**Table 14: Comparison of Public Pension funds with projected deficits in the old age pension system**

	Size of public pension fund	Deficit in the public pension system						
	2009/2010	2007	2010	2020	2030	2040	2050	2060
		% of GDP						
Belgium	5	-	-	-	-	-	-	-
Bulgaria	-	-3.3	-1.5	-0.9	-1.2	-2.2	-3.5	-3.9
Czech Republic	3.4	0.5	1.2	1.4	1.2	-0.1	-1.9	-2.7
Germany	1.3	-3.2	-3.1	-3.6	-3.7	-3.8	-3.9	-4.2
Estonia	1	0.5	-0.3	0	0.1	0.2	0.3	0.7
Ireland	13.7	0.6	0.5	-0.1	-0.9	-1.9	-3.5	-4.1
Greece	-	-3.2	-2.8	-4.1	-7.7	-13.1	-15.7	-15.6
Spain	5.7	2.3	1.8	1.2	-0.1	-2.6	-5	-4.7
France	4.3	-0.4	-0.9	-0.9	-1.5	-1.7	-1.5	-1.3
Italy	-	-3.6	-3.4	-3.5	-4.2	-5.1	-4.1	-3
Cyprus	38.2	-2.1	-2.6	-4.4	-6.3	-8.2	-10.9	-13
Latvia	5.2	1.4	1.1	0.8	-0.1	-0.3	-0.1	0.7
Lithuania		-0.2	0.1	-0.4	-1.8	-2.7	-4.1	-5
Luxemburg	28	0.9	1	-0.1	-4.3	-8.6	-12.3	-14
Hungary	-	-2.3	-2.4	-2.4	-2.4	-3.5	-4.6	-5.2
Malta	-	-1.3	-2.5	-3.3	-3.3	-4.5	-6.1	-7.6
Austria	-	-3.8	-3.7	-4	-4.8	-4.8	-4.9	-4.5
Poland	0.5	-4.7	-5.2	-4.3	-4.3	-4.1	-4.1	-3.7
Portugal	5.7	-1.5	-1.6	-2.7	-3.6	-3.8	-4.7	-4.9
Romania	-	0.1	-2.1	-2.6	-4	-6	-7.9	-8.6
Slovenia	6.7	-1.2	-1.9	-2.6	-4.7	-7.5	-9.6	-10.1
Slovak Republic	-	-2.2	-1.9	-1.7	-2.8	-3.9	-5.1	-6
Finland	68	-0.7	-1.1	-2.1	-2.6	-2.2	-1.9	-1.9
Sweden	27.2	-3.2	-3.4	-3.3	-3.4	-3.4	-3	-3.4
United Kingdom	3.8	-	-	-	-	-	-	-
Norway	5	-	-	-	-	-	-	-

**Source:** OECD Global Pensions Statistics and the 2009 Ageing Report, European Commission (2009a), Tables 50 and 54, own computations. A negative number shows a deficit in the public pension system, whereas a positive number shows a surplus.

### 3.4.1. Portfolio allocation in public pension funds

Pension funds accumulate wealth which has to be invested into assets. Financial theory suggests a portfolio choice that reflects the risk-return trade-off between available assets rather than concentrating investment in government bonds. This strategy allows pension funds to benefit from the risk premium embodied in higher yielding asset classes but keeps the fluctuation in the realised rate of return small. The portfolio choice is not only a question of the risk-return trade-off but also a question of diversifying risk across different generations.

Diamond, P. A. points to intergenerational risk sharing facilitated by public pension funds invested into equity. The equity investment by a public pension fund means that future wage earners share the risk in the rate of return with contemporaneous workers. As the

yield on capital varies over time, investment into equity allows risk sharing between today's and tomorrow's generations. Taxes which adjust to variations in the return of capital pose an alternative instrument with similar characteristics. Additionally, funded systems allow for some degree of risk diversification between wage and interest income because the correlation between yields on securities and domestic wage growth is not perfect.<sup>29</sup> This argument is based on the fact that past contribution payments in PAYG systems are usually valorised at the growth rate of per-capita wages between the date of the contribution payment and the retirement date. The rate of per-capita wage growth is thus the implied return on contribution rates.

Furthermore, funded systems allow for international consumption smoothing because building up and running down securities issued in foreign countries decouple domestic consumption from domestic production. Holzmann, R. stresses the fact that cross-border investments within OECD member countries will not serve this purpose as all OECD economies are confronted with similar demographic trends. He argues that investing in emerging markets allows for better risk diversification, arising from potentially low correlations of returns between emerging and developing market assets. At the same time, the return on capital in countries with low capital-labour ratios should be higher. The diversification of assets into emerging markets, however, needs reasonably well developed financial markets in the receiving countries and a high security of repayment. At the moment, both requirements are violated in many of the potential destination countries.<sup>30</sup>

#### 3.4.2. Survey of portfolio allocation in pension funds

The portfolio choices of pension funds from a sample of OECD countries are summarised in Table 14. The assets of pension funds have to be distinguished from those of life insurance companies. In most EU Member States life insurance companies cover private pension claims only (third pillar), whereas pension funds administrate occupational pension plans. The variation of the portfolio with respect to cash and deposit holdings across countries as measured by its standard deviation is large.

Among European countries Luxemburg, Greece, the Slovak Republic and Slovenia stand out with relatively high holdings of cash and deposits. Pension funds in Denmark and the Czech Republic show very high ratios of bills and bonds in their asset allocation whereas only funds in Finland and the United Kingdom hold more than one third of their assets in equity.

Table 14 shows the portfolio allocation for public pension reserve funds. The countries in the upper part of Table 14 invest dominantly in bills and bonds whereas those in the lower part use equity investments in listed stock market companies as well as private equity. The share of equity investments in those countries ranges from 40% in New Zealand up to 72% in Ireland. Canada and New Zealand additionally allocate around 30% of their assets towards private equity.

#### 3.4.3. Corporate governance in public pension funds

Investing a social security fund in private securities always raises the question of corporate governance. As the public pension fund can be seen as an agent acting on behalf of the beneficiaries, investment guidelines have to be established in order to protect the fund's investment decisions from political influence. At the same time, private firms have to be protected from political control.

The allocation of funds across different corporations and the use of voting rights are critical issues as long as the fund is not protected from political influence. An independent investment board with fiduciary duties towards the workers' interest or mandatory

<sup>29</sup> Holzmann, R., 2000a.

<sup>30</sup> Holzmann, R., 2000b.

investment in index funds are suitable instruments to insulate portfolio managers. With respect to the voting rights, the social security fund may completely waive those rights. For small investments this would not bring about problems, for large investments both management support and control of the board of directors will suffer from the absence of large owners in the voting process. Voting guidelines for portfolio managers or the removal of voting rights with respect to proxy fight movements are useful alternatives. Another aspect is the higher likelihood of failing minority protection under the absence of large owners from the voting process.<sup>31</sup>

Financial corporate restructurings may be especially disadvantageous for small investors and many of the minority rights for equity holders are designed to avoid such moves.

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<sup>31</sup> Diamond, P.A.

**Table 15: Occupational pension funds' asset allocation for selected investment categories in selected OECD countries, 2009**

OECD country	Cash and deposits	Bills and bonds	Equities	Other (1)	Total
	As a % of total investment				
Czech Republic	10.7	82.4	2.3	4.6	100
Korea	40.2	33.8	2.7	23.2	100
Slovak Republic (2)	25	67.5	3.2	4.3	100
Estonia (7)	15.3	34.1	3.8	46.7	100
Germany (6)	3.3	40.8	6.1	49.9	100
Israel (5)	6.7	77.3	7.8	8.2	100
Greece	32.1	55.6	7.9	4.5	100
Slovenia	20.7	65.3	8.8	5.2	100
Italy	6.4	49	11.1	33.5	100
Spain	18.5	59.2	12.1	10.2	100
Japan (4)	6.4	47.7	13.7	32.2	100
Luxembourg	42.6	29.4	14.6	13.4	100
Mexico	1	80.6	14.9	3.5	100
Denmark	0.6	72.3	16.2	10.9	100
Hungary	11.6	64.5	17.7	6.2	100
Switzerland (2,3)	8.7	40.8	21.5	28.9	100
Iceland	8.8	50.7	21.8	18.8	100
Portugal	5.8	56.2	22.2	15.7	100
Sweden (2)	4	62.4	24.3	9.2	100
Turkey	27.8	30.8	26.5	14.8	100
Austria	9.8	54.9	26.8	8.5	100
Poland	2.3	66.5	30.2	0.9	100
Norway	3.9	58.9	30.9	6.4	100
Netherlands	3.6	46.5	32.2	17.6	100
Belgium (2)	8.5	42.3	32.8	16.4	100
Canada	3.9	35.2	33.9	27	100
United Kingdom (2)	3.6	30.6	39.7	26.1	100
Finland	3.5	37.5	40.6	18.4	100
United States	2.2	31.4	45.4	20.9	100
Chile	0.5	47.5	46.3	5.7	100
Australia	16	12.8	54.4	16.8	100
Weighted average	3.9	34.7	39.3	22	100
Simple average	11.4	50.5	21.7	16.4	100

Source: OECD Global Pension Statistics.

**Note:** The asset allocation data in this Table include both direct investment in shares, bills and bonds and cash and indirect investment through mutual funds. — 1. The "Other" category includes loans, land and buildings, unallocated insurance contracts, private investment funds, other mutual funds (i.e. not invested in cash, bills and bonds or shares) and other investments. — 2. Data refer to 2008. — 3. The high value for the "Other" category is mainly driven by land and buildings (11%) and other mutual funds (8%). — 4. The high value for the "Other" category is mainly driven by outward investments in securities (26%), for which the split between various securities is not available. — 5. The "Shares" category includes all mutual funds' investments, as the split between various securities is not available. — 6. The high value for the "Other" category is mainly driven by loans (30%) and other mutual funds (16%). — 7. The high value for the "Other" category is mainly driven by private investment funds (46%).

**Table 16: Public pension reserve funds' asset allocation for selected investment categories in selected OECD countries, 2009**

	Cash and deposits	Bills and bonds	Equities	Other (1)	Total
	As a % of total investment				
United States	0	100	0	0	100
Belgium	0	100	0	0	100
Spain	3.3	96.7	0	0	100
Mexico	11	74.8	0	14.3	100
Poland	8.7	81.4	9.8	0	100
Portugal	0.4	70.1	16.4	13.1	100
Japan	0.1	82.5	17.4	0	100
New Zealand (3)	8	15.7	39.9	36.4	100
Canada (2)	0	29.9	43.8	26.4	100
France — FRR	7	47.3	44.2	1.5	100
Australia	14.5	23.7	44.2	17.6	100
Sweden — AP3	0	35.6	50.2	14.2	100
Norway	1.8	33.9	61.4	2.9	100
Ireland	12.1	5.5	72	10.4	100

**Source:** OECD Global Pension Statistics.

**Note:** — 1. The "Other" category includes structured products, land and buildings, private investment funds, loans, unallocated insurance contracts, and other investments. — 2. The high value for the "Other" category is mainly driven by private investment funds (17%). — 3. Data refer to June 2009. The high value for the "Other" category is mainly driven by private investment funds (27%).

## 4. WORKING LONGER

### KEY FINDINGS

- The postponement of the labour market exit age is crucial for the financial stability of pension systems. The example of Austria shows that working longer for one year can decrease public expenditure by at least 0.5%.
- Working longer generates a double dividend: A longer working life leads in nearly all Member States to increased individual pension benefits. For every year the retirement age is postponed, persons who work one year longer earn an income and pay taxes instead of drawing on pension entitlements.
- Future development of pension expenditures is one side of the financial sustainability coin. The pension contribution side is as important as the expenditure side for current and future sustainability of public pension systems. High participation rates, longer working lives and decent wages are important preconditions for fiscally sound pension systems and adequate pensions.
- The impact of increased employment rates among older employees in the calculated scenarios as well as in the Ageing Report and of increased retirement ages on the financial sustainability of the pension system is just one side of the coin. The other side is the influence on the amount of pension contributions. If the postponed pension payments are accompanied with longer pensionable and taxable employment, the effect on pension finance is even bigger.
- An overall increase of labour force participation rate of 3.5 percentage points decreases — through a higher GDP due to more employment — the public pension expenditures by 0.5 percentage points in Europe. The effect on pension finance is even higher if postponement of retirement (decrease in pension expenditures) as well as additional benefit and tax revenues are considered.
- Within the EU the ratio of all pensioners to population 65 and more is projected to decrease by 30 percentage points. A stronger increase in employment rates would go hand in hand with a further decreasing number of pensioners and pension expenditures.
- The main reasons for inactivity in the group aged 50–64 are premature retirement, illness and disability and, among women, care responsibilities. Employment policies and pension reforms have to differ among the different employment groups, among insiders and outsiders of labour market, among employed and unemployed. To bring back outsiders of the labour market into employment special measures has to focus mainly on persons with health problems and persons with family care duties.
- The simulations and evaluations of the European Commission concerning future pension expenditures should also enclose all direct and indirect expenditures. Tax treatment or public subsidies of occupational and private schemes are not considered up to now.

#### **4.1. Retirement age**

The retirement age is one of the key parameters to balance revenues and liabilities. For every year the retirement age is postponed by a pension reforms, persons from the respective cohort will work one year longer where they earn an income and pay tax instead of drawing on pension entitlements. Therefore, the postponement of the retirement age is an important aspect of securing the adequacy of pensions. Furthermore, the government budget will be relieved if there will not have to be paid public pension disbursements for the cohort in question. Thus, the postponement of the retirement age is also crucial for stability. Table 17 lists the official retirement age and the average actual retirement age for each country.



**Table 17: Standard pension eligibility age and labour market exit age**

Member State	Average exit age from labour force in 2001	Average exit age from labour force in 2008	Statutory retirement age in 2009 (m/f)	Statutory retirement age in 2020 (m/f)	Further increases in the statutory retirement age after 2020 (m/f)	Life expectancy at 65 in 2008 ****	Projected increase in life expectancy at 65 between 2008 and 2060 *****
Belgium	56.8	61.6*	65/65	65/65		18.3	15.1
Bulgaria	58.4	61.5	63/60	63/60		14.6	6.9
Czech Republic	58.9	60.6	62/60y8m	63y8m/63y4m	65/65	16.4	6
Denmark	61.6	61.3	65/65	65/65	67+/67+***	17.5	5.5
Germany	60.6	61.7	65/65	65y9m/65y9m	67/67	18.5	5.1
Estonia	61.1	62.1	63/61	63/63		15.6	6.5
Ireland	63.2	64.1**	65/65	65/65 (66/66)	(68/68)	18.2	5.6
Greece	61.3°	61.4	65/60	65/60	65/65	18.4	4.9
Spain	60.3	62.6	65/65	65/65		19	4.8
France	58.1	59.3	60–65	60/60		19.9	4.5
Italy	59.8	60.8	65/60	66y7m/61y7m* ***	***	19.5	4.7
Cyprus	62.3	63.5*	65/65	65/65		18	5.2
Latvia	62.4	62.7	62/62	62/62		14.9	7.1
Lithuania	58.9	59.9**	62y6m/60	64/63	65/65	15.3	6.7
Luxembourg	56.8	:	65/65	65/65		18.3	5.1
Hungary	57.6	:	62/62	64/64	65/65	15.5	6.8
Malta	57.6	59.8	61/60	63/63	65/65	17.5	5.6
Netherlands	60.9	63.2	65/65	65/65 (66/66)	(67/67)	18.2	5.1
Austria	59.2	60.9*	65/60	65/60	65/65	18.7	4.9
Poland	56.6	59.3*	65/60	65/60		16.5	6.2
Portugal	61.9	62.6*	65/65	65/65		18.1	5.1
Romania	59.8	55.5	63y8m/58y8m	65/60 (65/61y11m)	(65/65)	15	6.8
Slovenia	56.6°	59.8**	63/61	63/61 (65/65)		17.6	5.5
Slovakia	57.5	58.7*	62/59	62/62		15.2	6.8
Finland	61.4	61.6*	65/65, 63–68	65/65, 63–68		18.6	4.9
Sweden	62.1	63.8	61–67	61–67		18.9	4.8
United Kingdom	62.0	63.1	65/60	65/65	68/68	18.2	5.4
EU average <sup>27</sup>	59.9	61.4				18.2	5.3

Source: Eurostat, MISSOC, The 2009 Ageing Report (European Commission, 2008a).

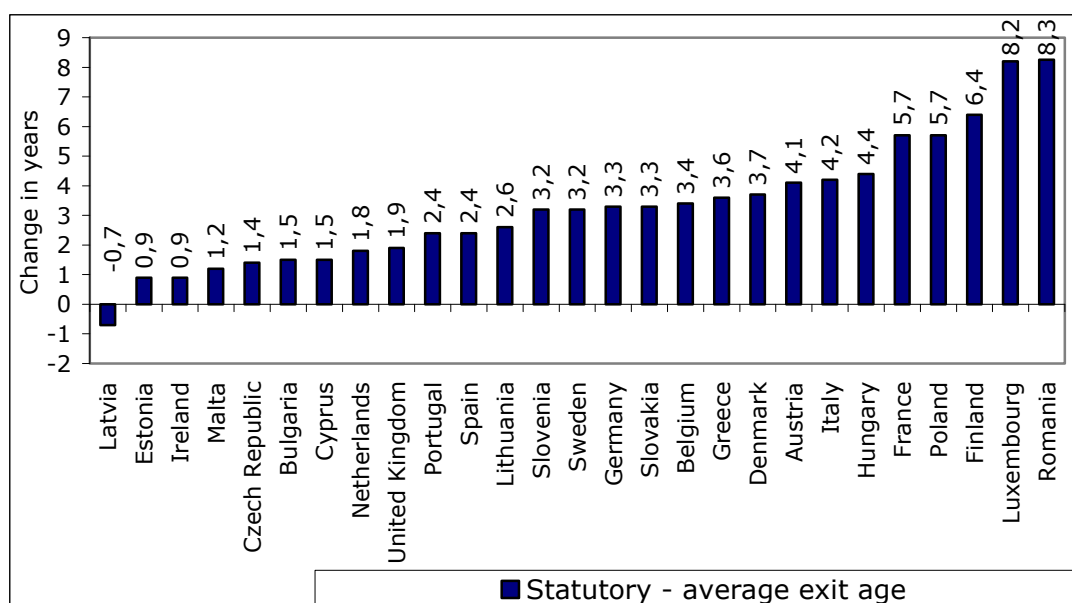
Note: °-2002, \*-2007, \*\*-2006, in brackets — proposed, not yet legislated, \*\*\* retirement age evolves in line with life expectancy gains over time, introducing flexibility in the retirement provision. \*\*\*\* Italy: The age requirement is half a year higher for self-employed; for civil servants, the statutory retirement age of women equalises that of men, starting from 2012; further increases in the retirement age after 2020 accounts for about 4 months every three years. Sweden: Guarantee pension is available from the age of 65. Romania: The National House of Pensions and other Social Insurance Rights. \*\*\*\*\* Unweighted average for both genders.

From 2009 to 2020 the statutory retirement age is planned to increase in the Czech Republic, Denmark, Germany, Italy, Lithuania, Hungary, Malta and Romania. Furthermore, Estonia, Slovakia and the United Kingdom see increases in the statutory retirement age stemming from adjusting the retirement age of women to that for men. In 2048 the

retirement age for women will still be different to that for men according to current legislation in Belgium, Italy, Lithuania, Poland and Romania. Only in France is the statutory retirement age planned to be at the lower end of what it is today as the planned retirement age is 60 years in 2020 whereas the statutory retirement age of today lies between 60 and 65 years. Some Member States such as Finland and Sweden have flexible retirement ages in the sense that they have built-in incentives to remain active in the labour market.<sup>32</sup>

The average effective exit age from the labour market is, however, lower for most Member States. The actual exit age may be pulled downwards by early exit benefits such as retirement schemes for certain professions, unemployment and disability benefits, long-term sickness benefits, supplementary pensions and survivors' pensions. As described under the pension reforms of early exit routes, the reforms have aimed at increasing the employment rate for the cohorts who are about to retire. Figure 8 plots the difference between the statutory retirement age and the average exit age from the labour market.

**Figure 8: Average exit age subtracted from the statutory retirement age**



**Source:** Figure 8 is based on figures from Table 1 of the statutory retirement age in 2009 and the average exit age from the labour force around 2008. In the situations where a country has a lower statutory retirement age for women and a varying retirement age interval (i.e. France (60–65), Finland (63–68) and Sweden (61–67), the maximum retirement age is depicted in Figure 8 (European Commission, 2010c).

In all Member States but Latvia, the statutory retirement age is higher than the average exit age from the labour market. The largest gaps up to the statutory retirement ages are found in Poland, Luxembourg and Belgium. To actually achieve the expected effects of the pension reforms where the statutory retirement age is increased, it is crucial that the average exit age from the labour market increases, too. There has already been some adaption (see Table 17).

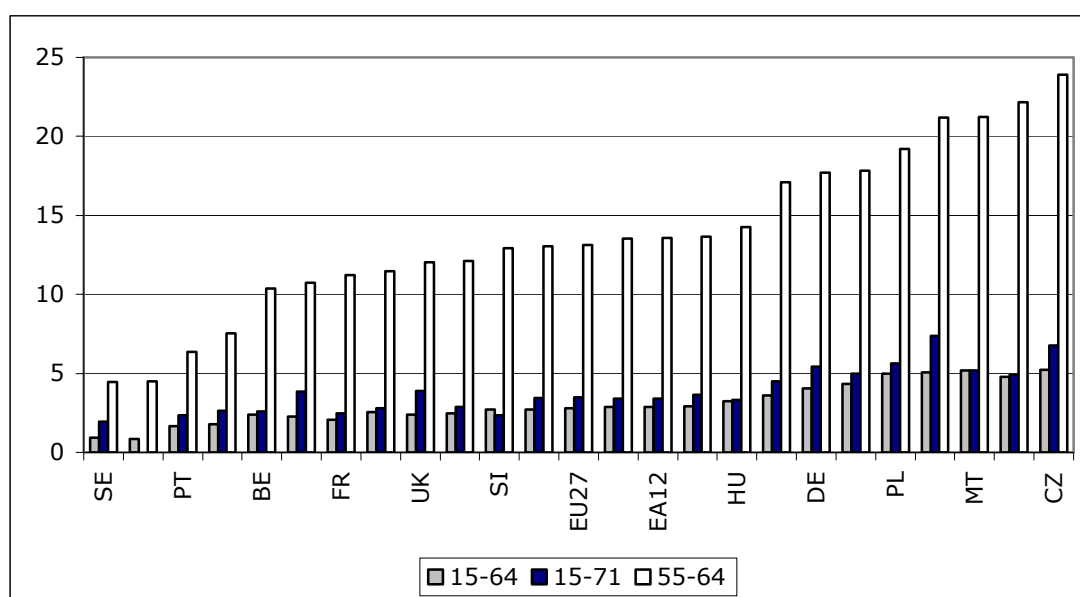
Many Member States have managed to increase the average exit age from the labour market between 2001–2008 by at least one year (i.e. Belgium, Bulgaria, the Czech Republic, Germany, Estonia, Spain, France, Italy, Cyprus, Lithuania, Malta, the Netherlands, Austria, Poland, Slovenia, Slovakia, Sweden, and the United Kingdom).

The 2009 Ageing Report projects the impact of the enacted pension reforms on the average exit age from the labour market in 2060. In these projections the effective retirement age for men is expected to have increased by more than three years in Germany, Italy, Malta

<sup>32</sup> European Commission, 2008a.

and Poland and by between two and three years in Austria, Denmark, Slovenia, and Spain. The expected increase in the effective retirement age for women is similar or higher as the gap between male and female participation rates is projected to narrow down gradually. Expectations of the effective retirement age in the future are crucial for the projections of the financial expenses. Given the assumptions of the projections, the participation rate at the labour market in 2060 with and without the planned pension reforms is projected. These projections are depicted in Figure 9.

**Figure 9: Estimated impact of pension reform on participation rates (2060), in percentage points**



Source: Commission Services, EPC.

In the EU-27 the participation rate of people between 55–64 years-old will increase by 13% with planned pension reforms compared to a situation without any reforms in 2060. This change covers different changes in individual Member States where Sweden and Estonia have changes a little less than 5% and Slovakia, Malta, Italy and the Czech Republic have increases greater than 20%. The fact that the participation rates will increase more for the 55–64 age group reflects the focus of pension reforms on this age group strengthening incentives for them to stay longer in the labour market. Increasing the participation rate of older workers will also increase the overall participation rate, but the effect will be attenuated as the majority of persons are between 15 and 54 years old. In total, the participation rate for the EU-27 15–64 age group is expected to increase by 2.8%.

#### 4.2. Working until retirement age: Effect on the present pension systems

Participation rates differ among Member States, women and men, age groups or qualification levels as there are considerable differences in the labour market situation of different groups. The diversity in the participation rate reflects macroeconomic, institutional and cultural circumstances. Since around 1970 most European countries have experienced a fall in the employment rate of men (mainly due to early retirement) and an increase in the rate of women. This reflects a general trend towards higher participation in successive cohorts of women. Especially the participation rate of older women in virtually all European countries increased. The second trend towards a longer education period resulted in lower employment rates among young cohorts.

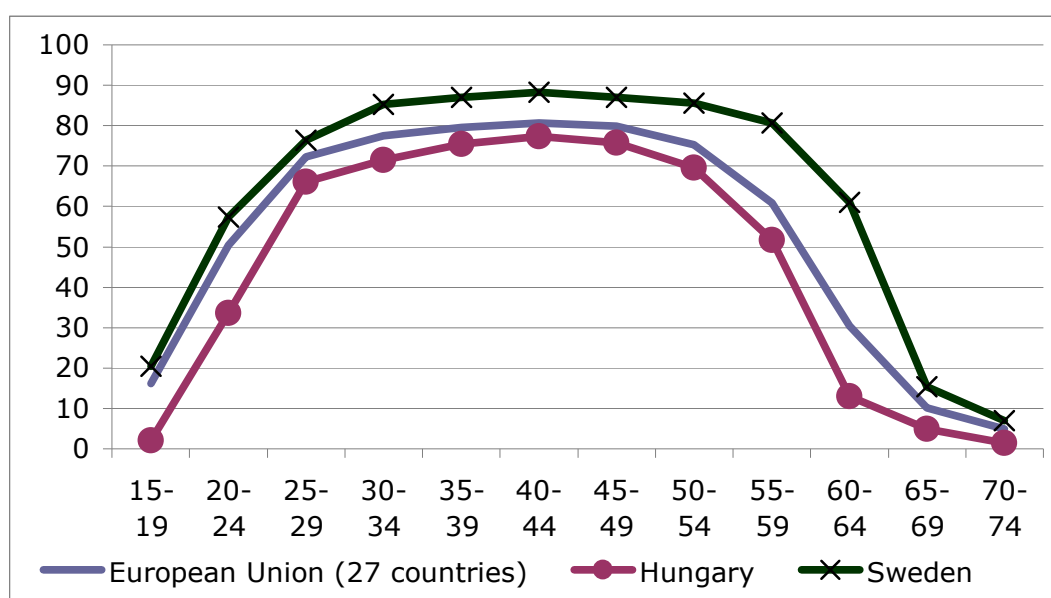
Although European countries have statutory retirement ages between 58–68 years, the age of labour exit is clearly below that line (see Figure 8: Average exit age subtracted from the statutory retirement age.) The employment rates of the working-age population between 15 and 64 years shows the typical turn around U-shaped curve. On average in the European Union the rate is lowest in the age bracket in which secondary and tertiary education takes place. The rate between 25 and 44 is increasing with the highest level in the age group 40–44.

At 45 and older the employment rate throughout Europe starts to fall slowly and to a greater extent from 55 years onwards. Even though the tight labour market situation in the after-crisis year 2010, the decrease of employment rate in older age groups is a common trend over the years and also over the European countries. The highest (lowest) employment rates among age groups are in Sweden (Hungary), the decline in the employment rate starts later than in average of the Member States (see Figure 10). The average exit age of 63.8 years in Sweden (2008) is one of the highest.

There is a strong difference in participation rates among older women and men. In the age group 50–64 the employment rate of woman (EU27) is 15 percentage points below that of men. According to the OECD there is a statistically significant positive correlation between the participation rates of age group 25–49 and age group 50–64.<sup>33</sup>

This suggests that lower participation rates of older women reflect not only differences in retirement behaviour but also lower participation rates for women more generally. Only in Estonia, Latvia and Finland the participation rate of men is below those of women. Besides work disincentives and obstacles to employment explanations of low participation rates among older women, one also needs to take into account the reasons for low participation rates of women in the younger age groups.

**Figure 10: Employment rates 2010 of different age groups, European Union, Hungary, Sweden in comparison**



Source: Eurostat, LFS, WIFO calculations.

Besides the employment rate there is the unemployment rate, which also varies among age groups and countries. In 2010 the unemployment rate of the 50–64 year old was lower than the total unemployment rate. Also the age group 60–64 the unemployment rate

<sup>33</sup> OECD, 2006.

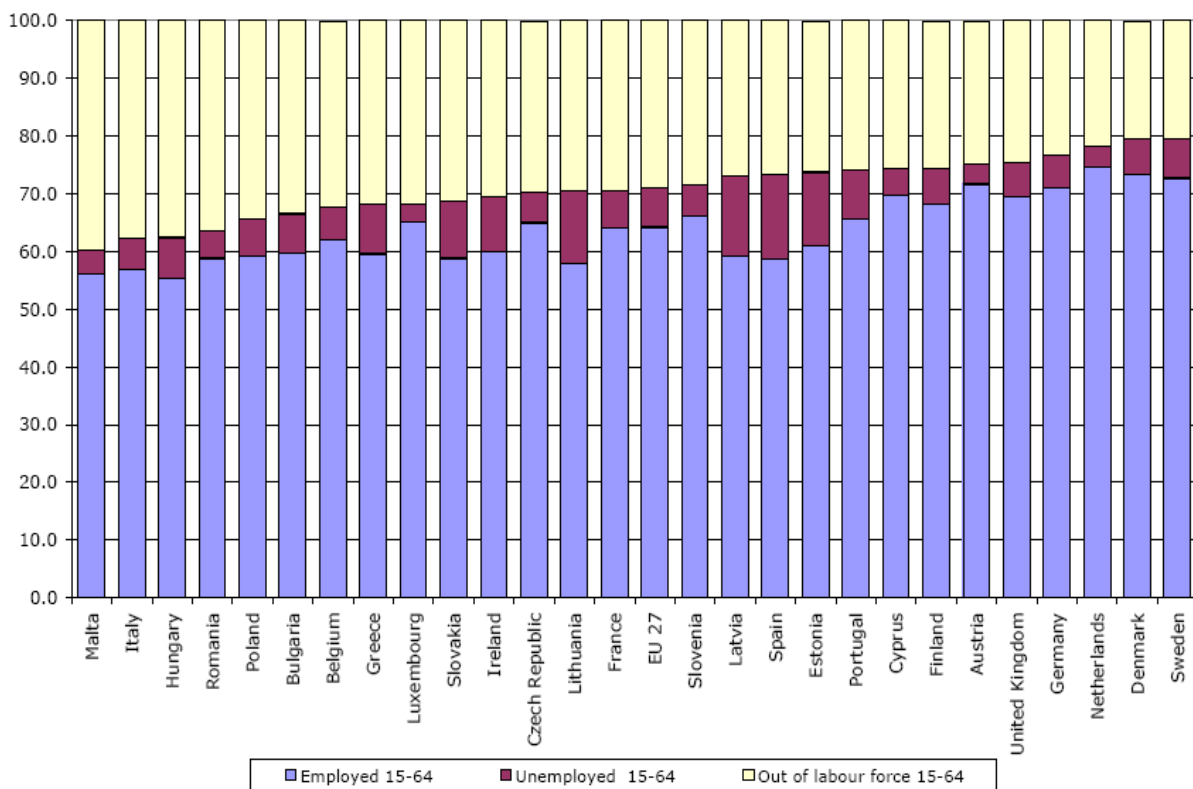
decreased compared to the five-year age group before, only Germany and Cyprus was an increase compared to the 55–59 year olds. The third group of working-age people is that out of labour force.

The size and, more importantly, the composition of the economically inactive along different age groups also varies substantially between men and women, between people with different qualification levels and across countries. This reflects not only the varying retirement ages and early retirement schemes, but also the nationally distinct social protections systems as such.

Inactivity/retirement before retirement age is not only linked to the rules of the pension systems and labour market situation of older workers but also to other branches of the social protection system such as sickness and disability benefits.

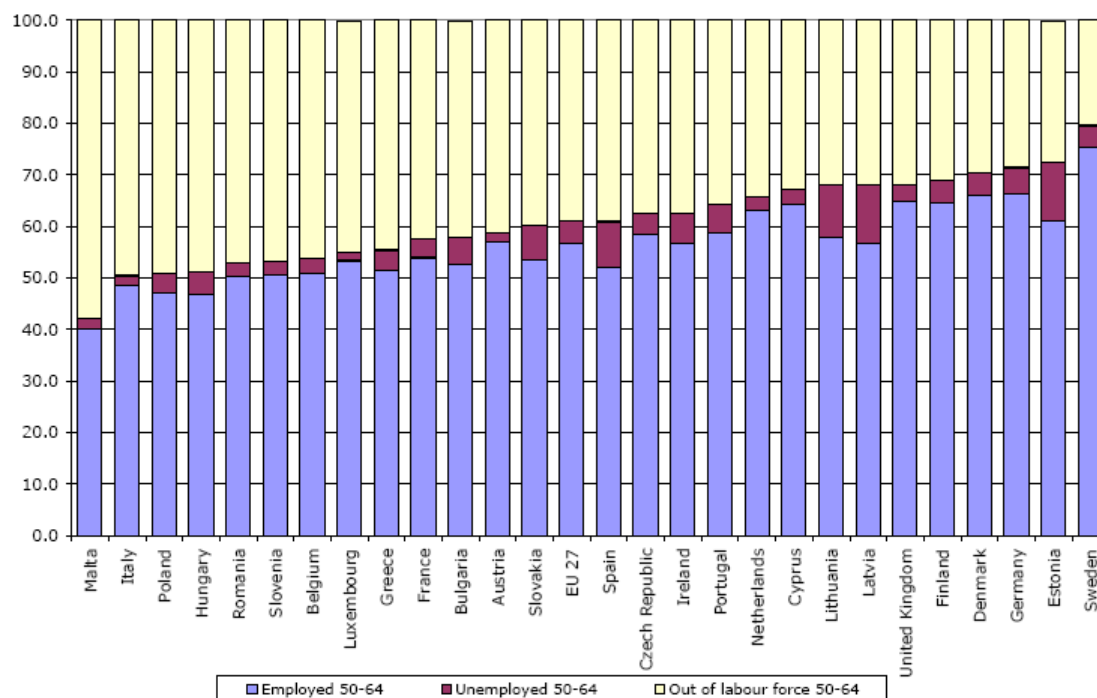
There is a negative relation between the employment rate, the unemployment rate (activity rate) and the out-of-labour-force rate ("OLF-rate"): the higher the activity rate, the lower the OLF-rate (see Figure 11). The OLF-rates of the European countries varies between 20.5% in Sweden and Denmark and 33–40% in Malta, Italy, Hungary, Romania, Poland and Bulgaria. The average of the EU-27 Member States is 29%.

**Figure 11: Employment rates, unemployment rates (in % of population), out-of-labour-force rates (in % of population) of 15–64 year olds among Member States, 2010.**



Source: Eurostat, LFS. WIFO calculations.

**Figure 12: Employment rates, unemployment rates (in % of population), out-of-labour-force rates (in % of population) of 50–64 year olds among Member States, 2010.**



Source: Eurostat, LFS, WIFO calculations.

Within the group of the 50–64 year old the inactivity rate is quite high (Figure 12). The only exception is Sweden with an inactivity rate in line with the average inactivity rate among all age groups. Member States with moderate employment rate but high unemployment rate are having also low inactivity rates. The inactivity rates of Estonia and Germany are low. Half of the population aged 50–64 are inactive in Hungary, Poland, Italy, in Malta 58% within this age group is inactive. On average within the European Union 40% of people aged 50–64 are out of labour force.

#### 4.2.1. Reasons of being out of labour market

There are several pre-requirements to foster employment until the statutory retirement ages. First of all, it is important to see the reasons of being not employed among people getting older. The Eurostat labour force survey (LFS) allows for a decomposition of economically inactive women and men aged 50 to 64 years in quantity and quality.<sup>34</sup>

With data of EU LFS, a survey on members of private households carried out in all EU Member States, we can distinguish between employment, unemployment and inactivity for different age groups. The survey has eight questions about the main reasons of being out of employment. They are: (1) participation in education or training, (2) looking after children and incapacitated adults, (3) other family or personal reasons, (4) retirement, (5) illness or disability, (6) awaiting recall to work, (7) thinking that no suitable work is available, and (8) other reasons. Comparisons however show that individuals in similar circumstances will be categorised differently in each country.<sup>35</sup>

Variations in classification hamper international comparison in terms of the actual labour market situation (e.g. unemployment) of older members of the workforce and the priority of reform measures. Reasons of inactivity for the age group 50–64 are shown in Figure 13 for men and in Figure 14 for women. The main reason is – as expected – retirement.

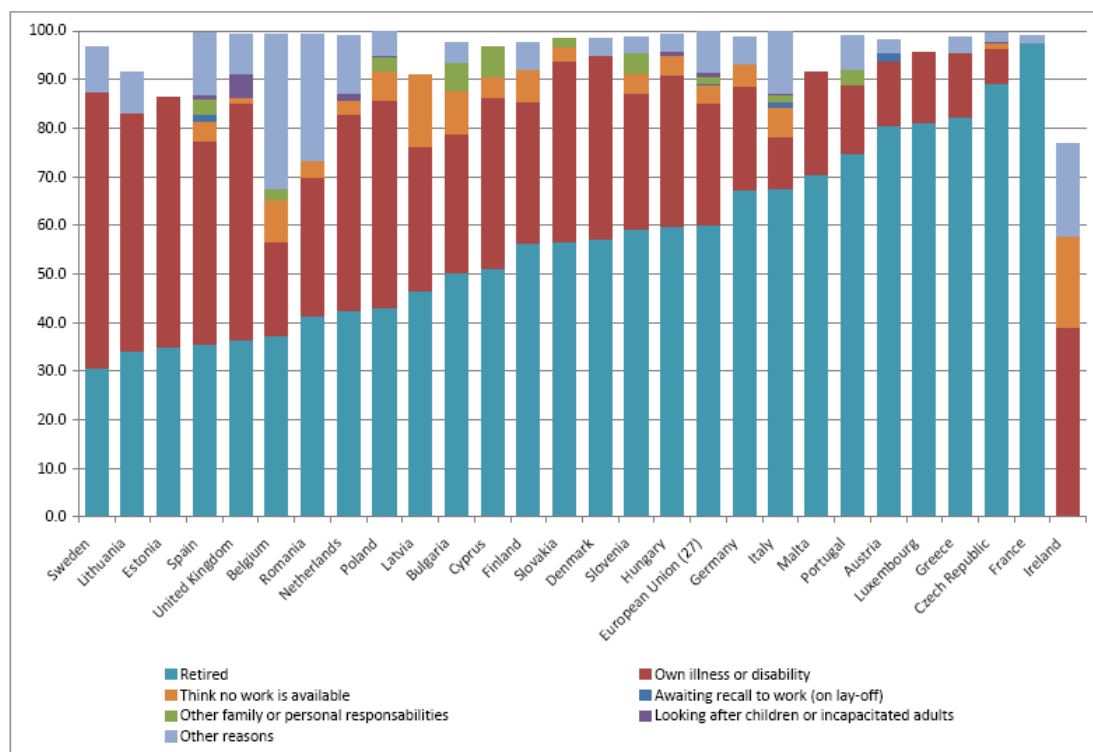
<sup>34</sup> Konle-Seidl, R. and Lang, K.; Erlinghagen, M. and Knuth, M.

<sup>35</sup> Erlinghagen, M. and Zink, L.; Börsch-Supan, A. et al., 2008.

Especially in France for nearly all of the 50–64 inactive men and women retirement is the first reason being inactive. On the other end there is Sweden. Although the fraction of inactive men is small and the fraction of retired men is lowest in Sweden, within the group of inactive men 57% are out of labour force because of “own illness or disability”. For 25% of inactive men in the European Union health problems are the main reason of being out of the labour force.

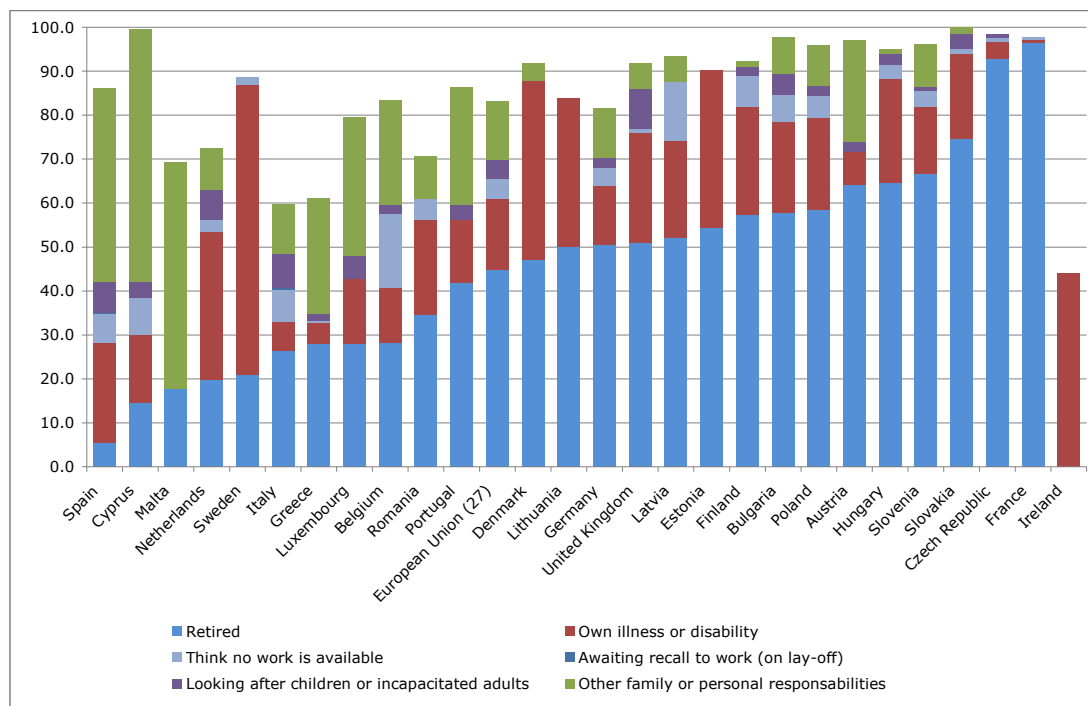
Among women Spain has the smallest fraction of retired between 50–64 years but more of half of them are inactive because of family or personal responsibilities. In general reasons of being inactive differ more between men and women than between countries. First, women in the age group 50–64 receive retirement benefits less often, and they are less often ill or disabled as men of the same age. In contrast to men, on the third most important reason for inactivity reasons women rank “other family or personal responsibilities” and “looking after children or incapacitated adults”. Men rank “think no work is available” more often than women do.

**Figure 13: Reasons of inactivity for inactive men aged 50–64, 2010**



**Source:** Eurostat, LFS, WIFO calculations.

**Note:** Due to a lack of data the sum is not 100% of inactive persons.

**Figure 14: Reasons of inactivity for inactive women aged 50–64, 2010**

**Source:** Eurostat, LFS, WIFO calculations.

**Note:** Due to a lack of data the sum is not 100% of inactive persons.

#### 4.2.2. Prerequisites to work longer

Working until statutory retirement age has some important prerequisites: First early retirement schemes provide incentives to retire early, so that they need to be phased out systematically in order to achieve later retirement. Second, illness and disability are a prior policy area. Among women care responsibilities decrease employment rates quite early so that professional care arrangements seem essential to remain in employment. Third, the over all labour market situations could also lead to early withdrawal from the labour market. Empirical research shows a strong relationship between the number of early retirement and the business cycle.<sup>36</sup>

In a recession, the number of new disability benefit recipients also increases, because employees with health problems consider retirement as an alternative to unemployment.<sup>37</sup>

In sum there are “push” and “pull” factors for the retirement decision. The first factor which pulls older workers into retirement poses financial incentives. Some authors show that the replacement level of pension income plays an important role in the retirement decision.<sup>38</sup> Others used aggregated national data and showed that public as well as private pension schemes<sup>39</sup> are important pull factors.

Early retirement schemes or other schemes like special unemployment or long-term sickness and disability schemes also foster early retirement. Early retirement schemes phase out in most European countries so that mainly long-term sickness leave remain also in the future as pull factors. The labour market status of the partner can also play a pull factor if couples make a joint retirement decision.<sup>40</sup>

<sup>36</sup> Darby, J., et al.

<sup>37</sup> Fahr, R., Frick, B.

<sup>38</sup> Raab, R.; Gruber, J. and Wise, D.A.; Schils, T.

<sup>39</sup> Burniaux, J-M. et. al., Duval, R.

<sup>40</sup> Büttler, M.; Gustmann, A. and Steinmeier, T.



Circumstances on the labour market are push factors into retirement, too. From the employer's point of view, the negative perception about the capacities of older workers, the age profile of labour cost as well as obsolete skills and limited employability of older workers can push workers into retirement before statutory retirement age. From the employee's point of view, technological and structural changes, changes in labour demand, a depreciation of individual skills go hand in hand with the very low participation rate in education and training in the age group of 50–64. Furthermore, working conditions on the firm level can push retirement or held employment.<sup>41</sup>

The push factors vary among workers: Blue collar and low skilled workers are more likely to retire early than white collar workers and highly-skilled workers (OECD, 2006). Health problems are the second mayor reason why workers retire before statutory retirement age. Heavily demanding working conditions are responsible for health problems.<sup>42</sup> A number of studies emphasised the importance of working hours as changing working hours or shift work may push workers into early retirement.<sup>43</sup>

Not only the legal framework of retirement schemes (pension rules), but also macroeconomic circumstances as well as circumstances at the firm level and incentives on individual level influence the inactivity rate. An increase in activity rates is a multidimensional reform objective which has to focus on person aged 50–64 years with health problems.<sup>44</sup>

#### 4.2.3. Incentives to work longer

Knowing the main groups and main causes of inactivity (retirement, illness or disability, looking after children or incapacitated adults, other family or personal responsibilities), an increase in activity rates has to consider interrelations between the pension system and other social protection systems which possibly conflict with employment until retirement age.

Increasing the statutory retirement age and stronger active labour market policies are two possible ways to increase the actual retirement age. A double dividend (European Economy, 2010) for the individual pension level as well as for pension finances is an increase in the labour exit age which means an increase in employment rates of the 55-64 year olds.

The reform or future increase of the statutory retirement age can lead to this double dividend if reforms are accompanied by (1) active labour market policies via improving employability, (2) a transformation of manpower policy among employers towards age management in workplaces and a change in employers attitudes, (3) promoting working conditions, and (4) lower disincentives to employment for older workers.<sup>45</sup>

Active labour market policies (ALMP) can increase participation rates to a certain extent. The macroeconomic outcome of ALMP shows a negative impact of ALMP on the unemployment rate<sup>46</sup> but no significant impact on the employment rate.

Other authors show that expenditures on labour market training have the largest positive impact on labour market outcomes.<sup>47</sup> Other experts find that an increase of ALMP spending on training programmes per unemployed as a percentage of GDP per capita by 4

<sup>41</sup> Bound, J. et. al.

<sup>42</sup> Leoni, Th.

<sup>43</sup> Gustmann, A. and Steinmeier, T.

<sup>44</sup> Börsch-Supan, A., 2007; OECD, 2009.

<sup>45</sup> OECD, 2006.

<sup>46</sup> Elmeskov, J. et al.; Nickell, S. and Layard, R.

<sup>47</sup> Boone, J. and van Ours, J.C.

percentage points would reduce unemployment by between 0.2 and 0.6 percentage points.<sup>48</sup>

Kluve, J. finds that qualification measures have a small positive effect on employment.<sup>49</sup> Compared to these, employment incentives and subsidies and services and sanctions have a higher probability of yielding positive outcomes especially among older age groups.

### **4.3. Scenarios for working until retirement age**

Ongoing and planned pension reforms are going to increase the overall participation rate and especially the participation rate of those aged 55–64 in the next 50 years. The financial situation of the public pension systems depends on the employment rate. Hence, the more people work the more pension contributions arise. The longer people work, the shorter is the retirement period with pension payments.

Thus, increasing employment rates leads to a “double dividend”. First, more pensions contribute to the public pension system and less pensions due to an increased retirement age have to be paid. Second, higher monthly pension payments arise for those who work longer and therefore increase their pensionable earnings.

According to the 2009 Ageing Report the participation rate of women (55–64) is expected to increase by percentage points up to about 58%, the participation rate of men by about percentage points up to 67% in 2060.

The employment rate for 55–64 year olds is projected to increase from 55% up to 64% among men and from 37% to 56% among women in 2060. This average increase is smaller than the projected life expectancy at the time of withdrawal. Nowadays women (men) spent 27% (23%) of their lives in retirement on average of the EU-27. In 2060 this will be about 30% among women and 26% among men. To keep the lifespan in retirement at the level of 2008, the exit age among women should increase by 2.1 years and those of men by 3 years which is much more than the projected increase in retirement age due to pension reforms.

The Ageing Report also provides a decomposition of the main factors to the changes in the pension/GDP ratio. The main contributor is the demographic dependency ratio which contributes most strongly to increases in pension expenditures up to 2060. The effect of the ageing population on the public pension spending is only partly offset by other components such as a lower benefit rate, a lower coverage rate and higher employment.

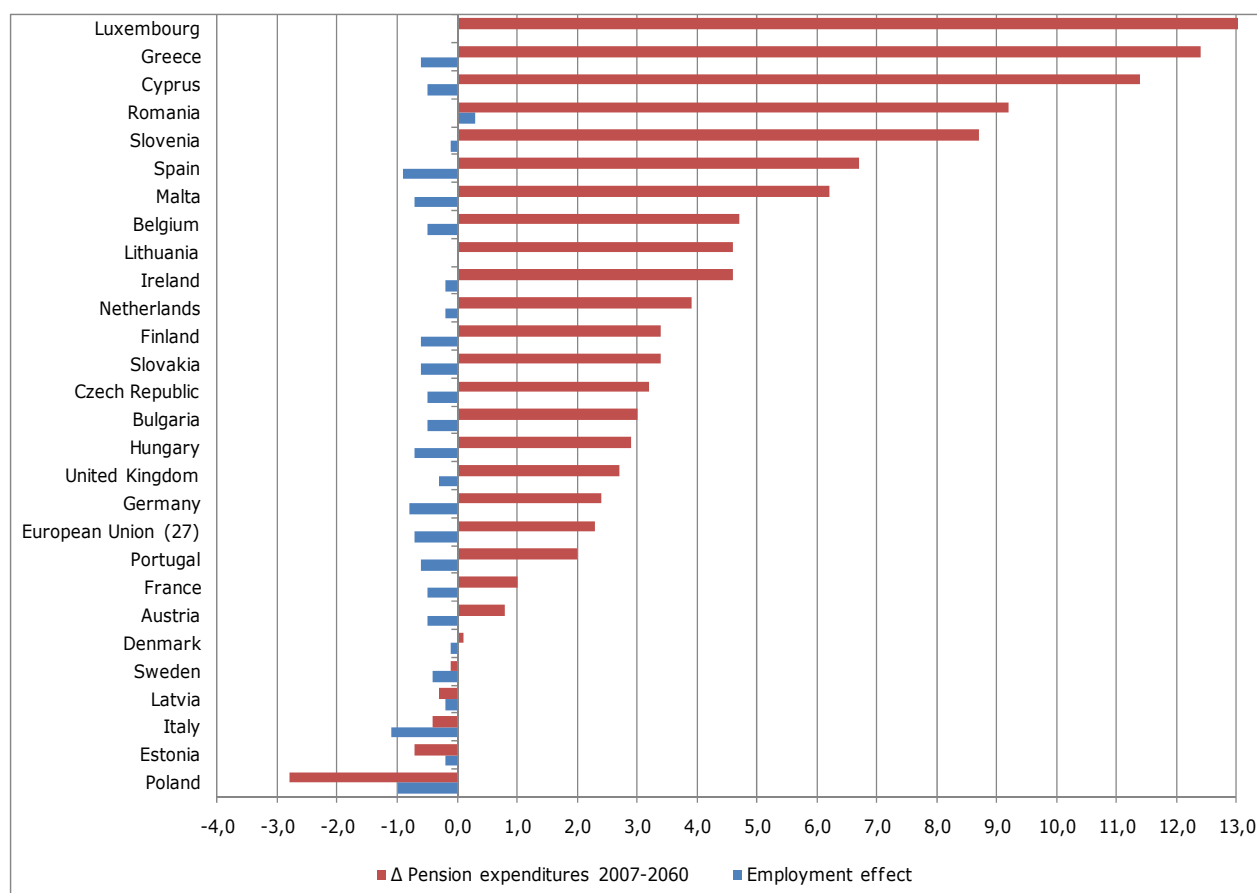
The projected employment rates range from a decrease in Romania (-1%) to an increase of more than 5% in Cyprus, Germany, Italy, Poland, Slovakia and Spain. On average in EU Member States the employment rate will rise from 65.5% in 2007 up to 69.6% in 2060. The increase differs in sub-periods: between 2007 and 2020 we will see a significant employment contribution to lower the increasing public pension expenditure by 0.5% points. From 2020 onwards employment rates as well as the derived pension expenditure are almost zero for the Member States.

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<sup>48</sup> Bassanini, A. and Duval, R.

<sup>49</sup> Kluve, J.

**Figure 15: Changes of public pension expenditures (percentage of GDP) until 2060 and contribution to that change of the employment rate in percentage points of GDP**



Source: Commission services, EPC.

There are three countries where employment does not contribute to a decrease in pension expenditures: Lithuania, Luxembourg, and Romania. In countries with a clear increase in employment rate (Germany, Italy, Poland, and Spain), the employment effect is significantly higher than in other countries.

The overall employment effect within the European Union is -0.7% percentage points; to sum up according to the simulations within the 2009 Ageing Report, public pension expenditures in the European Union are expected to increase from 10.1% of GDP in 2007 to 12.5% in 2060. First, the demographic factor would enlarge the expenditure by 8.7% of GDP. Second, the number of pensioners of all ages to population over 65 years, the coverage ratio, is expected to decrease from 140 to 110 until 2060, so that the future development of the coverage ratio contribute to decreasing pension expenditures by 2.6% of GDP. Third, the reduction in the relative value of pension benefits (benefit effect) limits the pension-to-GDP-ratio until 2060 about -2.5% of GDP. Fourth, the employment effect decreases the pension expenditures by 0.7% of GDP. The demographic effect on public pension expenditures (+8.7%) is downsized by the other factors (-6.4% including the interaction effect) so that on average the pension expenditures go up by 2.4% of GDP.

What would happen in the pension system if people worked until the statutory retirement age? As shown above, there are several reasons why people do exit the labour market before retirement age. The main reason is that workers fulfil current requirements for pensions and therefore quit their jobs. Health problems are the second important reason for exiting the labour market followed family or personal reasons. At this point, some

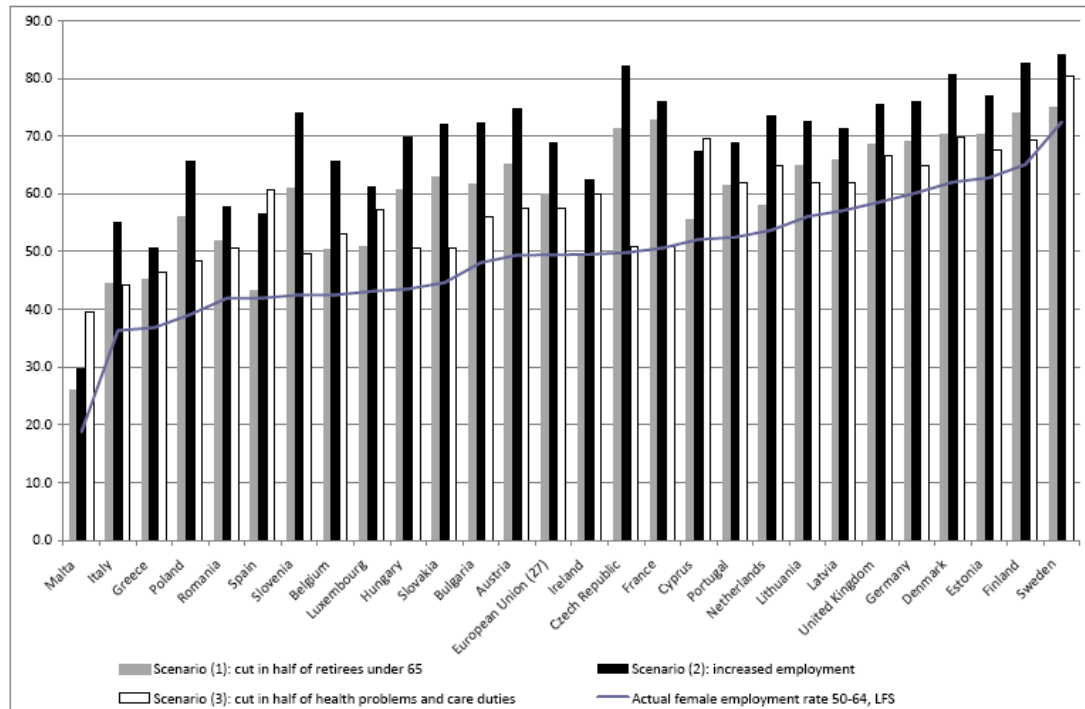
scenarios are developed to analyse the question, what would happen if people worked until retirement age and what effects would this mean for the pension finance.

1. In the first scenario we assume that half of the people in retirement go back into work. This means that half of the people aged 50–64 who got retirement benefits in 2009 are employed again. This situation needs heavy reforms of pension entitlements and pension age to reduce the size of the inactive workforce.

2. In the second scenario, we increase the employment rate of 50–64 year olds to the rate of 50–54 year olds. On average in the European Union employment rate among women and men is highest in the age group 40–44 and declines afterwards. Only in Czech Republic, Estonia and Ireland the employment rate of women in the age group 45–49 exceeds the rate in the earlier age group and in France for women and men and decreases afterwards. On European average the employment rate in the age group 50–54 (55–59) is 5.5 percentage points (20 percentage points) below the rate of the 40–44 year olds. The rise of the employment rate to the level of the age group 50–54 is a rather optimistic and less realistic scenario which emphasised the importance of the labour market not only for the individuals but also for the pension finance as such.

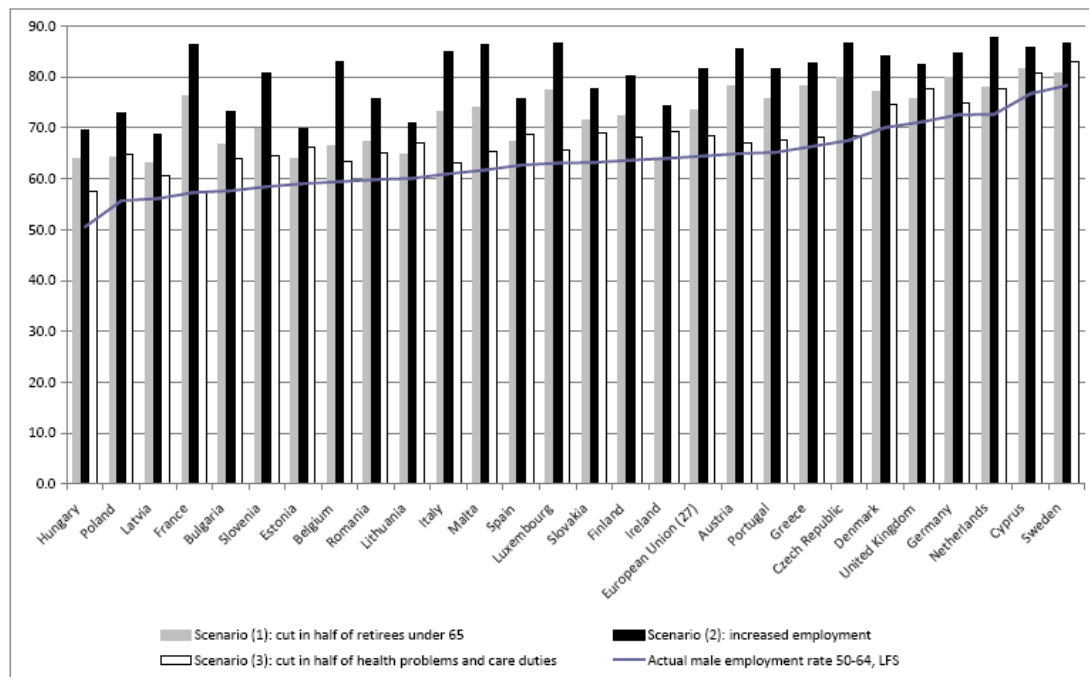
3. In the last scenario, we assume that health problems, family and personal responsibilities are reduced: Only half of the above documented inactive (sick, family reasons) aged 50–64 are out of labour force compared to the LFS data 2009. Here reforms have to focus on health, working condition which affects health and division of non-paid work between women and men.

**Figure 16: Employment rates of women in the age group 50–64 according to three different scenarios**



**Source:** Eurostat, LFS, WIFO calculations. Scenario 1: Cut in half of retired persons under age 65; scenario 2: Increased employment rates of the age group 50–64 to the level of the 50–54 year olds; scenario 3: Cut in half of inactive persons with health problems and care duties, aged 50–64.

**Figure 17: Employment rates of men in the age group 50–64 according to three different scenarios**

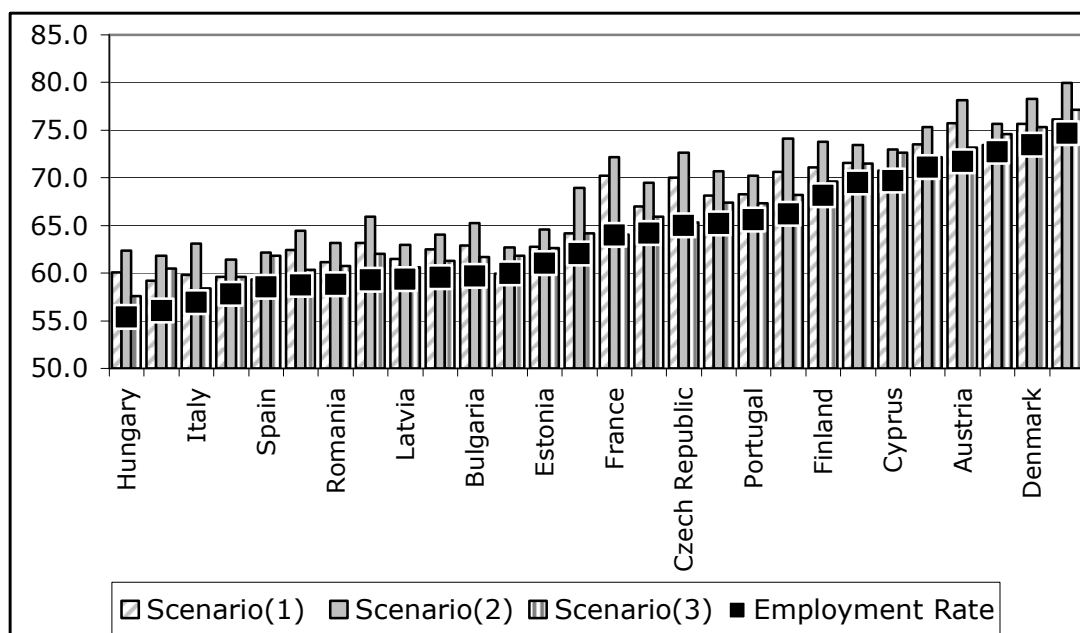


**Source:** Eurostat, LFS, WIFO calculations. Scenario 1: Cut in half of retired persons under age 65; scenario 2: Increased employment rates of the age group 50–64 to the level of the 50–54 year olds; scenario 3: Cut in half of inactive persons with health problems and care duties, aged 50–64.

As shown in Figure 16 and 17 employment rates are — as expected — highest in scenario 2, where employment rates of the age group 50–64 is increased to the level of age group 50–54. On average employment rate of older workers in the EU-27 goes up by 19.5 percentage points among women and 17.3 percentage points among men.

But also halving the number of younger retirees below the age of 65 constitutes a potential for the labour market. In France, the Czech Republic, and Slovenia employment rates increase about one quarter. In countries like Sweden, Spain, and Cyprus employment rate would increase by 2–4 percentages points if employment rate of older worker would reach the level of the 50–54 year olds.

Scenario 3 estimates employment rates if inactive persons aged 50–64 with health problems and care duties are cut by 50%. On average this would increase the employment rate among older female workers by 8 percentage points and among older men by 4 percentage points.

**Figure 18: Total employment rates 15–64 according to three different scenarios, 2010**

**Source:** Eurostat, LFS, WIFO calculations. Scenario 1: Cut in half of retired persons under age 65; scenario 2: Increased employment rates of the age group 50–64 to the level of the 50–54 year olds; scenario 3: Cut in half of inactive persons with health problems and care duties, aged 50–64.

The effect on the total employment rate is shown in Figure 18. In EU-27, the cut in health problems and care duties of 50–64 year old workers will raise the total employment rate by 1.8%. A reduction of retirees aged 50–64 by 50% can increase the total employment rate by 2.8%. To stabilise the employment rate of older workers at the level of age group 50–54 would result in an increase of total employment rate by 5.3% up to 69.5%.

#### 4.4. Definition of fiscal sustainable pension systems

The literature does not provide one straightforward analytical definition of fiscal sustainability. There are different concepts which use different variables for the assessment of sustainability. Besides the conceptual framework the statistical definition<sup>50</sup> of the variables plays an important role for the calculation. The European Commission (2005) developed several synthetic sustainability indicators.

They consider public pension expenditures and they do not distinguish between those parts which are financed through both employees and employers contributions as well as those funded through taxes.

Financial sustainability of pensions systems is the result of pension expenditures and pension contributions. Public pension expenditures are financed by contributions or by taxes. Most countries have a mixed form of pension contributions out of pensionable earnings and general taxes.

Financial constrains can be considered in two aspects: (1) Differences in pension expenditures compared to pension contributions in the insurance systems itself and (2) differences in pensions expenditures which are financed directly out of the federals state budgets. The Ageing Report concentrates on the pension expenditures side and not

<sup>50</sup> From the theoretical point of view, sustainability of public finance should deal with the concept of net government debt. Net debts are government liabilities minus government assets. Since very few data are available on government assets, gross debt is used as a proxy (Kneil et. al. 2006).

on the development of increasing pension expenditures on the general government budget deficit and its accumulated debt. The influence of ageing population on the Stability and Growth Pact (SGP) would depend on the size of pension expenditures that are financed through general taxes.

The amount of general taxes itself within the public pension expenditures vary among the different pension systems.<sup>51</sup> Is the pension system mainly financed through pension contribution of employees and employers like in Bismarckian systems (Austria, France and Germany), the influence of ageing population on the SGP is smaller than more tax-financed systems like in the Northern Member States.

Also the different weight of the three pension pillars has an influence on the amount of the public pension expenditures. An extensive first pillar like in Austria or Finland goes hand in hand with higher public pension expenditures than systems with a strong occupational pillar like in the Netherlands.

Besides the public pension systems and its impact of ageing societies on general government budget, there are also direct or indirect expenditures in the second (occupational systems) or third (private pension systems) pillar. These are financial supports of occupational systems and tax reliefs of some insurance products.<sup>52</sup> Some authors calculated that in 2000 the present value of overall budgetary cost of tax-favoured private pension schemes vary between 1.7 (Ireland, UK) and 0.2 (Japan, Slovak Republic) % of GDP.<sup>53</sup>

#### 4.5. Effects on pension sustainability

The effect of higher employment rates on the average labour market exit age cannot be calculated with the LFS-Data as details about the retirement age of different cohorts among Member States are not available in the Ageing Report.

As seen above, the Ageing Report assumes the labour force participation rate to increase by 3.5% until 2060. Employment effects of scenarios 1 and 3 are lower than the assumptions of the Ageing Report. In the third scenario the increase of the average participation rate within the European Union in the age group 50–64 from 60.9% (2010) to the level of the age group 50–54, i.e. 75% (2010), leads to an overall employment rate of 70%. This is 2.3% higher than the Ageing Report documents. The influence of higher participations rates on pensions finance also depends on the quality of work: It makes a certain difference if part time workers, low wage or high wage earners work longer.

An overall increase of the labour force participation rate of 3.5% decreases the public pension expenditures by 0.5%. This can give some evidence for future expenditures if employment rates are higher. Other things equal, the simulated increase in participation rate in scenario 3 by 5.3% would decrease pension expenditures by 0.7%.

At this point, a closer look at this rather small employment effect on the pension expenditures is taken. First of all in the Ageing Report the effect arises concerning the increasing GDP which stems from the additional employed of older employees. The decreasing number of recipients in the age group 50–64 is part of the coverage ratio. Within the Member States coverage ratio is projected to decrease by 30%. A further division of this effect on (1) increasing employment rate and (2) pension reforms on the basis of the Ageing Report is not possible.

<sup>51</sup> Beveridgean model, Bismarckian model, Nordic model, Mediterranean model.

<sup>52</sup> Antolin, P. et al.

<sup>53</sup> Kwang-Yeol, Y. and de Serres, A.

Country specific data shows that the effect of increased employment participation among older and the postponement of retirement reduce the number of retirees. This has a considerably impact on pension expenditures. In the case of Austria, the increase in the average retirement age by about one year leads to a decrease of pension expenditures between 2.4 to 3.0% of overall pension expenditures; this is 0.5% of public expenditures in percentage of GDP (Austrian Pensions Commission, 2010). The increased GDP due to the increased work force is not included in this number. So the employment effect is supposed to be bigger in the case of Austria and, of course, for the Member States of the European Union.



## 5. CONTINGENT LIABILITIES

### KEY FINDINGS

- Pension liabilities are the present value of the difference between projected contributions and expenditures of the social security pension system. The variety of methods and assumptions available for doing the projections impedes comparison between different estimations.
- Pension liabilities are also called implicit pension debt as they result implicitly from entitlements against the pensions system rather than explicitly from claims backed by a debt contract, e.g. government bonds.
- A high implicit pension debt signals future deficits in the social security pension system and reveals need for political action, unless there is a public pension fund big enough to cover the pension liability. All published estimates indicate substantial levels of implicit pension debt throughout the European Union.
- Generational Accounts compute present values but link contributions and benefits to individual generations. Thereby, they display possible imbalances between generations. Usually, Generational Accounts comprise total government revenues and expenditures and do not separately present the financial flows of the pension system.
- Some pension reforms will induce front loaded costs which will be accounted as Maastricht relevant government debt. As such they represent a switch from implicit to explicit public debt while leaving the overall public debt level unchanged. This discrepancy may obstruct further pension reforms in countries with already high Maastricht debt level.
- The 2005 revised Stability and Growth Pact takes into account this discrepancy and requires accounting for implicit pension debt in the computation of the medium term objective. Member States with high implicit debt will have to run budget surpluses in the medium term. Successful pension reform reduces the medium term objective towards a balanced budget.
- If the 2005 Stability and Growth Pact would account for longer transition periods of pension reforms and fully recognise frontloaded costs further incentives to delay pension reforms would be removed.

As public pension systems mature, cohorts of pensioners with full pension entitlements enter the retirement age and shift the balance between contributions and benefits into a deficit. Demographic ageing already aggravates this development, but it is generally expected to put further strain on future balances. This bleak picture is reflected in several projections of member countries' pension systems made e.g. by the European Commission.<sup>54</sup> Alternative estimates for future revenue and expenditure paths have been made by national organisations.<sup>55</sup>

<sup>54</sup> European Commission, 2009a.

<sup>55</sup> e.g. for Belgium the Comité d'Etude sur le Vieillessement, for Canada the Office of the Chief Actuary, for Switzerland the Bundesamt für Sozialversicherungen plus for the United Kingdom HM Treasury.

These estimates incorporate national pension systems in great detail but they use different assumptions about macroeconomic variables, labour market conditions, and they apply different methods. Due to the high burden of collecting national data and the need to implement diverse and constantly changing pensions laws into a simulation model, only a few and one-time efforts to make comparable projections have been undertaken by international organisations.

Notably the OECD,<sup>56</sup> the IMF,<sup>57</sup> and the World Bank<sup>58</sup> published projections on subsets of their members. The only academic institution involved in an international assessment of pension system budget balances was the National Bureau of Economic Research.<sup>59</sup> At the moment, the European Commission remains the only international organisation undertaking regular projections for national pension systems under a mandate by the ECOFIN Council. This section uses technical expressions, of which some are explained in the glossary at the end.

Most of the social security pension systems are on a PAYG basis and up to now only a few countries accumulated sizeable public pension funds which could cover future deficits in the pension system. The future actuarial imbalances are sometimes presented as difference between pension outlays and contributions, i.e. the future path of the deficit in the social security pension system. An example for this approach is the 2009 Ageing Report (European Commission, 2009a). From Tables A53 and A60 one can infer the difference between contributions and gross benefits and thus construct the net deficit measured in percent of GDP for decade-wise steps up to 2060.

The measurement of pension liabilities is central to the assessment of the sustainability of European pension programs. Improving the data and simulation models and achieving common standards in assumptions is crucial to achieve comparable results and draw correct policy conclusions.<sup>60</sup>

Nevertheless, one has to bear in mind that estimates of pension liabilities are always subject to measurement errors, wrong assumptions, and the interactive response of households and firms to enacted pension reforms which may be incorrectly specified in the simulation. The discounting of future expenditure and revenue streams into present values introduces further uncertainty into the interpretation of pension liabilities, not only with respect to the choice of the discount rate, but also because compound interest and wage indexation are forceful instruments in the computation of projections.

This section presents the main tools and concepts to construct comparable projections of financial flows in and out of national pension systems and to concentrate this information into a single indicator. The two approaches discussed in the following are the implicit pension debt and generational accounts. Similar to the 2009 Ageing Report, both methods project future financial flows of the pension system but the projected financial flows are afterwards aggregated into indicators that allow further economic interpretations. Specifically, the implicit pension debt can be compared with official publications on the level of current government debt (explicit public debt) or public pension reserve funds. Generational accounts, on the other hand, provide a picture of the inter-generational equity within a pension system.

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<sup>56</sup> Noord, P. and van der Herd, R.

<sup>57</sup> Chand, S. and Jaeger, A.

<sup>58</sup> Holzmann, R. et al.

<sup>59</sup> Auerbach, A.J. et al., 1999; Gokhale, J. and Raffelhüschen, B.

<sup>60</sup> Disney, R.

## 5.1. Implicit pension debt in the social security pension system

Displaying the deficit path of the social security pension system is a useful instrument to show expected pressure on future fiscal policy. This presentation, however, has some drawbacks that can be overcome by computing alternative measures like the implicit pension debt or generational accounts.

The implicit pension debt is a measure of pension liabilities for which three different approaches exist :<sup>61</sup>

- **Accrued-to-date liabilities** cover only future benefits resulting from pension entitlements accrued until the cut-off date. The payment streams associated with those contributions and benefits are the basis for the computation of a present value of the net liabilities of the pension system. All future contributions and pension rights acquired after the cut-off date are ignored under this methodology.
- **Projected liabilities** cover only current workers and pensioners and simulate the shut-down of the social security pension system, i.e. no new entrants to the system are allowed after a specified cut-off date. For all existing members of the system future contributions to the system and their benefits are projected until the last contributor dies. The present value of the difference between contribution and benefit streams corresponds to the liability. This approach views the existing members of the system as a closed group.
- **Open-system liabilities** also account for entitlements of new workers acquired by paying contributions in the future under current rules. Usually, a cut-off date far into the future is fixed and the computation is based on the labour force and pensioners living until this date.

Furthermore, for each of these three methods assumptions on future wage increases and pension benefit indexation have to be made.<sup>62</sup> If increases in the wage rate are ignored neither the path for expenditures nor the one for contributions correspond to the features known from growing economies. The assumption of constant wages makes the computation easier and might be chosen if both contributions and expenditures are linked to the development of the wage rate. This approach is known as Accumulated Benefit Obligation.

If wage increases are integrated into the simulation but pension benefits are not, indexed one uses the so called Projected Benefit Obligation approach. The Indexed Benefit Obligation accounts for wage growth as well as benefit indexation. The approach followed by the European Commission thus is an Open-system Liability based on Indexed Benefit Obligations.<sup>63</sup>

Going from Accrued-to-date liabilities to Open-system liabilities clearly involves increasing numbers of entitled persons. Consequently, the Open-system liability method results in the biggest estimates of the present value of net liabilities in the social security pension system.

A comparison across the three methods only provides a picture about the timing of net liabilities with respect to specific current and future generations. In cross-country comparisons the same method should be applied for all countries. The choice of the method depends on the policy question to be answered. If a switch from PAYG to a funded system is analysed, the Accrued-to-date liabilities show the amount of implicit pension debt owed by the social security pension system to actual and prospective beneficiaries. This amount would have to be booked into the notional accounts of beneficiaries and backed by

<sup>61</sup> Franco, D.

<sup>62</sup> Holzmann, R. 2004.

<sup>63</sup> European Commission, 2009a.

government bonds, i.e. implicit pension debt is converted into explicit government debt. If the analysis is concentrated on the financial sustainability of the social security pension system, the Open-system liability is the most appropriate because it shows whether under current law the system is in actuarial balance.

The pension liability is sometimes referred to as implicit pension debt.<sup>64</sup> A positive number for the implicit pension debt signals future deficits in the social security pension system and reveals need for future political action, unless there is a public pension fund big enough to cover the pension system's net liability. Public pension funds of insufficient size, nevertheless, reduce the implicit pension debt and alleviate political action to restore balance in the social security pension system.

The quality of estimates for the implicit pension debt is obviously important. A big implicit pension debt signals a conflict between the intertemporal budget constraints of the regular government budget and the social security pension budget. Possible measures to restore balance in the public sector are confined to increasing future contributions or general taxes, reducing current and future pension benefits, or cutting public expenditures elsewhere and shifting those resources into the pension system. The uncertainty about the timing and the instruments of pension reform will feed back on individual decisions of consumption (saving), labour supply, and the portfolio choice<sup>65</sup> and may even magnify negative effects as compared to certain and accelerated changes in policy.<sup>66</sup>

The use of implicit pension debt according to the Open-system liability method has an advantage in terms of visibility as compared to computing expenditure and revenue paths. By computing the implicit pension debt the long-run financial impact of pension reforms can be shown with a single number. For example, reform measures affecting the pension benefits of future generations may change the expenditure path only in the remote future and by a small amount, but it may have a big impact on the implicit pension debt because the present value across all affected generations is big.

## 5.2. Generational accounts

Generational accounts are yet another possibility to display imbalances between generations. They also show the present value for the difference between expenditures and contributions in the social security pension system. Additionally to the concept of the implicit pension debt, generational accounts attribute the average net liability to each annual cohort already alive and to be born in the future.

As an example a generational account for the birth cohort 1960 shows the present value of taxes paid minus the transfer payments received (net taxes) that the average individual member of this generation will have to pay over her remaining lifetime.<sup>67</sup> Consequently, among already living generations only the newborns of the base year have generational accounts based on their full lifetime transfers and taxes. The older generations in the base year have only generational accounts reflecting their remaining expected lifetime. This feature shows up in different values of the generational accounts with positive values for cohorts in the midst of their working life and negative values for cohorts already in retirement.

Generational accounts are based on the inter-temporal budget constraint of the government and apply the rule that the present value of the sum of all future net taxes has to be equal to the net wealth of the government in the base year. If this equality is

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<sup>64</sup> Holzmann, R. et al. 2004.

<sup>65</sup> Diamond, P.A., 2002.

<sup>66</sup> Auerbach, A.J. and Hassett, K.

<sup>67</sup> Kotlikoff, L.J. and Leibfritz, W.

violated, the total government account is imbalanced. In the case of a net liability, all future generations will by assumption have to pay higher taxes. The difference between the generational accounts of the new born cohort from the base year and generational accounts of future generations provides an estimate for the size of the pension reform that is required to satisfy the inter-temporal budget constraint. In terms of generational accounting, the current policy is termed not sustainable if the lifetime net tax burden of future generations is higher than the one of the current newborn generation.<sup>68</sup>

Generational accounting always provides growth adjusted net liabilities and thus relies on assumptions about the future development of the real economy and demographic trends. Productivity growth and real interest rates play a similar role as for the computation of measures for the implicit pension debt.

### 5.3. Estimates of implicit pension debt

Estimates of the implicit pension debt are computational burdensome, because the whole pension system has to be mapped into a simulation model, which is linked to expected developments of the real economy and demographic trends. Three crucial inputs for the correct computation of pension liabilities can be mentioned according to Disney, R.:

- A common set of assumptions, time horizons and forecasting procedures across European government is required. Necessary parameters for the computation of expenditure and contribution flows must be agreed upon on a common basis and the forecast must be based on actuarial assumptions rather than political interest.
- The estimation of future expenditure and contribution flows needs appropriate data and reasonable forecasts on key macroeconomic variables such as labour force participation rates, unemployment, and the growth rate of wages and prices. Actuarial information on the respective pension system must reflect actual and expected replacement rates, i.e. the ratio between the pension benefit upon entry into retirement and the last income earned before retirement.
- The estimation must rely on common measures for official financial accounts, e.g. either on a cash flow or on accrual basis, and needs assumptions on the way how projected expenditures are financed.<sup>69</sup>

The European Commission describes the assumptions used to project expenditures and contributions for the EU-27 from 2008–2060. The published results rely on a combination of staff from Member States' institutions and the commission.<sup>70</sup> The high complexity of national pension systems and the need to extrapolate important economic variables for a horizon of 60 and more years demands an advanced data base, regulatory knowledge, and corresponding man power. For this reason estimates of liabilities are mainly published by national ministries or by international organisations. Only in the case of computing generational accounts a scientific body, the US National Bureau of Economic Research, acted as the organising platform. Accordingly, internationally comparable estimates of implicit pension debt are only done occasionally and usually published by international organisations. One of the first estimates, published for the major seven developed economies, is by Noord, P. and van der Herd, R. This OECD study computes the gross pension liability based on the concept of Projected Benefit Obligations (PBO). When taking account of existing public pension funds the implicit pension debt for the major seven economies lies between 110 and 240 percent of gross domestic output (Table 18).

<sup>68</sup> Kotlikoff, L.J. and Leibfritz, W.

<sup>69</sup> Disney, R.

<sup>70</sup> European Commission, 2009a.

**Table 18: Various estimates of implicit pension debt compared to Maastricht debt level**

	OECD (PBO)	IMF (PBO)	Kune (PBO)	Kune (ABO)	World Bank (IBO)	Maastricht Debt 2009
	% of GDP					
Belgium	-	-	101	75	-	96
Canada	121	94,0	-	-	-	-
Denmark	-	-	117	87	-	42
France	216	265,0	112	83	-	78
Germany (West)	157	221,0	186	138	-	73
Greece	-	-	245	185	-	127
Hungary	-	-	-	-	203	78
Ireland	-	-	78	55	-	66
Italy	242	357,0	207	157	-	116
Japan	162	166,0	-	-	-	-
Lithuania	-	-	-	-	155	-
Luxembourg	-	-	219	156	-	15
Malta	-	-	-	-	234	-
Netherlands	-	-	144	103	-	61
Poland	-	-	-	-	261	51
Portugal	-	-	128	93	233	83
Romania	-	-	-	-	256	-
Slovakia	-	-	-	-	210	35
Slovenia	-	-	-	-	298	35
Spain	-	-	129	93	-	53
Sweden	-	131,0	-	-	-	43
United Kingdom	156	117,0	92	68	-	70
United States	113	106,0	-	-	-	-

**Source:** All numbers as in Holzmann, R. et al. OECD estimate from Noord, P. and van der Herd, R., IMF estimate from Chand, S. and Jaeger, A., Kune, J., World Bank estimates from Holzmann, R. et al.. Maastricht debt as of 2009 from OECD National Accounts Statistics. ABO indicates accumulated benefits obligation method, PBO indicates projected benefits obligation method, and IBO indicates indexed benefit obligation method (see Section 5.1 for a detailed explanation).

An alternative estimation of pension liabilities by Chand, S. and Jaeger, A. also uses projected benefit obligations under the projected liabilities of current workers and pensioners method. The numbers of this IMF study for eight OECD members deviate from the OECD estimates in a non-systematic way. Some estimates are above OECD values and some below. Overall, Chand, S. and Jaeger, A. present an implicit pension debt between 90–360% of GDP.

Yet another estimate from the Netherland's Central Planning Bureau<sup>71</sup> arrives at substantially lower levels implicit pension debt. Assuming an open-system liability, Kune, J. computed accrued and projected benefit obligations for a set of Member States (see Table 18). Under the assumption of accrued benefit obligation the estimates for the implicit pension debt range between 60–190% of GDP; under projected benefit obligation the ratio of implicit pension debt to gross domestic product is between 80–250%.

Finally, Holzmann, R. et al. present estimates for the implicit pension debt of emerging economies including some of the EU-12. The computations are based on accrued to-date liabilities under indexed benefit obligation and current law. The numbers in Table 18 show the gross pension liability, i.e. the contributions and other revenues of the social security pension systems are disregarded. This assumption produces high estimates of the implicit pension debt, but avoids the problems resulting from assigning a systematic (by design) build-in government transfers into the pension system as implicit pension debt. Consequently, the estimates by Holzmann, R. et al. show the highest values with a minimum of 160% and a maximum of 300% of GDP.

A comparison of implicit pension debt from all sources reveals the consequences of different methodological approaches, data bases and assumptions. Holzmann, R. et al. identify differences in the discount rates applied, in the treatment of the consequence of

<sup>71</sup> Kune, J.

future earnings growth on the level of future pension benefits, in taking account of increasing life expectancy, and in the degree of coverage of separated retirement schemes within a country. As such the estimates of implicit pension debt are not comparable across studies although one may conclude that all estimates indicate substantial levels of implicit pension debt throughout the European Union. The last column of Table 18 shows the 2009 values for the explicit government debt according to Maastricht criteria. It is obvious that implicit debt in all countries is at least as high as the explicit debt, in some countries implicit pension debt is even a multiple of explicit debt.

The implicit pension debt may be added to the explicit government debt to give a comparable view on the future fiscal burden under a binding intertemporal budget constraint. A big implicit pension debt implies that future generations will face a comparatively higher tax burden, given the current law on contributions and benefits. Diamond, P. A. puts emphasis on the fact that a high implicit pension debt is an indicator of the need to undertake pension reforms. It thus acts as a signal of uncertainty for current generations. Reductions in the implicit pension debt due to successful pension reforms can then be used as an instrument to reduce uncertainty about the level of future retirement income.<sup>72</sup>

The implicit pension debt can be adjusted by implementing a successful pension reform, therefore it makes sense to keep it separated from explicit government which is part of the national accounts and cannot be changed by fiscal reform.

The 2009 Ageing Report<sup>73</sup> does not present numbers for the implicit pension debt, although it would be possible to compute this key number easily by using the difference between expenditures and contributions for each simulation period and discounting this stream to the present day. Such an implicit pension debt would also include built-in transfers from the public budget to the social security pension system.

The projection of expenditures and contributions already incorporate assumptions on demographic changes, the macroeconomic development, the labour market response of future generations to changes in the pension law, and delayed consequences of pension reforms on benefit levels which are already implemented into existing law. For this reason the estimate for the implicit pension debt will only change if pension reforms are enacted or if the assumptions necessary to compute the liability are revised.

Under the assumption that the European Commission used expected values based on the most likely outcome, a revision of implicit pension debt would be due to unexpected errors. Nevertheless, there will always be arguments about the reliability of projections ranging far into the future: deficient data, wrong assumptions, modelling errors, and the simplicity required by the political decision process will never disappear.<sup>74</sup>

#### **5.4. Estimates of generational imbalances**

Generational accounts of living generation describe the lifetime path of taxes and transfers experienced by an average member of one cohort. In the beginning of their life children receive child allowances, attend school, and pay consumption taxes. After the start of the working life payment of income and payroll taxes set in, consumption taxes continue to be paid, and transfer payments fall steeply.

During this period, generational accounts, i.e. the present value of net tax payments for the remaining life span, are usually positive and at their peak. As people become older and

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<sup>72</sup> Diamond, P. A., 1997.

<sup>73</sup> European Commission, 2008a.

<sup>74</sup> Beetsma, R. and Oksanen, H.

get closer to their retirement age, the generational account gets smaller and finally turns negative because the present value of transfer payments exceeds future tax payments. All numbers for generational accounts yet published follow the method suggested by Auerbach, A. J. et al. and include the total fiscal policy of the government, i.e. the pension system is only part of the simulation results, though it accounts for most of the generational imbalance.<sup>75</sup>

The computation of generational imbalances relies on a comparison between the generational accounts of a newborn cohort in the base year of the simulation with the generational accounts of not yet born future generations. The difference between those two generational accounts shows whether cohorts entering society today have different present values of their net tax payment than the following birth cohorts. If both present values are of the same size, the fiscal policy in place achieves generational balance. If the account of the current newborns is bigger than the account of the future generations, the system requires – under unchanged fiscal policy – increased taxation for future generations.

Table 19 summarises the results of generational accountings for several OECD and EU Member States from Auerbach, A.J. et al., Gokhale, J. and Raffelhüschen, B. The difference between scenarios A and B results from the treatment of spending on education. In scenario A education is treated as government consumption which corresponds to the national accounts definition. This definition implies that spending on education will not enter the computation of generational balances as a counterpart to taxes. In scenario B educational spending is regarded as a transfer payment to children and distributed by age groups. This will balance the burden resulting from taxation in higher age groups.

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<sup>75</sup> Gokhale, J. and Raffelhüschen, B.



**Table 19: Estimates for generational accounts, 1995**

	Generational imbalance (1)				Implicit debt (2)
	A	B	A	B	
	In thousands of 1995		In % of GDP		
Austria	-	-	-	-	143
Belgium	54,2	46,3	250,2	213,8	-103
Canada	0,2	2,7	0,9	12,8	
Denmark	40,0	44,0	188,4	207,3	12
Finland	-	-	-	-	262
France	71,3	79,2	339,0	376,6	46
Germany	151,8	151,7	756,4	755,9	78
Ireland	-	-	-	-	-76
Italy	150,6	145,1	757,9	730,2	1
Japan	242,8	246,4	1098,1	1114,4	
Netherlands	83,7	87,6	419,5	439,1	11
Norway	-	-	-	-	-200
Portugal	36,9	29,7	291,2	234,4	
Spain	-	-	-	-	89
Sweden	-40,9	-38,0	-220,6	-205,0	200
United Kingdom	-	-	-	-	134
United States	44,1	45,3	163,5	167,9	59

**Source:** (1) Kotlikoff, L.J. and Leibfritz, W. and (2) Gokhale, J. and Raffelhüschen, B. - A: Educational expenditure treated as government consumption. B: Educational expenditure treated as government transfers and distributed by age groups.

The numbers in Table 19 correspond to the generational imbalance, i.e. the difference between newborn and future generations' accounts. The middle columns give the imbalance in percent of gross domestic product to facilitate comparison with implied pension debt figures in Table 18.

The generational balances vary significantly across countries. Only Canada features a balanced generational account and among the countries collected in Table 19 only Sweden shows a favourable net transfer to future generations, i.e. the currently living generations are taxed too much relative to future generations. All other countries show comparatively high generational imbalances favouring today's generations.

Among all European countries Germany and Italy stand out. The last column translates generational accounting numbers into the more familiar framework of implicit government debt. Interestingly, the results summarised in Kotlikoff, L.J. and Leibfritz, W. deviate strongly from Gokhale, J. and Raffelhüschen, B. for Belgium and Sweden. In both countries the sign of the generational imbalance gets reversed.

The advantage of generational accounting over implicit pension debt is the disaggregated view on individual age-cohorts. On the other hand, published results always include the general government budget and do not concentrate on the pension system. This requires a rather rough modelling of the social security pension system as other parts of the tax and transfer flows as well as the social security system need modelling capacity.

Although the computation of implicit pension debt is about getting a better measure for an assessment of intergenerational equity, the additional information on the burden for specific age-cohorts provided by generational accounting seems to have limited information content for pension reform policy. Banks, J. et al. also stress that within generation differences of age-profiles for income and employment confound the calculations of generational accounts. Furthermore, the assessment of policy interventions in the pension system depends crucially on correct forecasts and an understanding of individuals' circumstances and decisions.

## 5.5. Implicit pension debt and the Stability and Growth Pact

The Stability and Growth Pact (SGP) includes the fiscal rules prescribing ceilings for the general government budget deficit and its accumulated debt. For this reason, there is a direct link between the expected rise in costs in the social security pension system and future government deficits and debt levels. The implicit pension debt reflects the present value of future expenditures on social security pensions that are not covered by contributions, i.e. given the current state of the law such deficits would have to be covered by transfers from the central government budgets in many member countries.

The revised version of the SGP changed the definition of the medium term objective and made it country specific. Furthermore, the medium term objective now depends on the potential growth path and the debt level already accumulated. The reform also accounts for the criticism about incentives to postpone structural reform in the social security pension system in the old version of the SGP.<sup>76</sup>

In the revised version deficits due to front loaded costs of implemented structural reforms in the pension system are explicitly recognised in the definition of the adjustment path to the medium term objective. The medium objective itself is not subject to reform driven expenditures. The allowed deviation from the adjustment path to the medium term objective and the reference debt level as a share of the reform costs are falling over time and restricted to five years only.<sup>77</sup>

In the revised SGP, the medium term objective itself is subject to considerations of long-term fiscal stability. Implicit pension debt should be taken into account when setting the medium term objective, although, the exact rules how to implement implicit debt into the decision process are not fixed yet. Currently the European Commission projects taxes, expenditures, and the servicing of the current debt into the future. The resulting sustainability gap indicates the budgetary adjustment necessary to balance the intertemporal budget constraint over an infinite horizon.<sup>78</sup>

In case of a sustainability gap this adjustment gives a primary surplus that has to be incorporated into the medium term objective. As this procedure would require large adjustments in most countries, the European Commission only asks for reducing expenditures in the future by implementing structural reforms, but does not incorporate the sustainability gap into the medium term objective.<sup>79</sup>

Costs from reforming the social security pension system will only affect current government spending if part of the implicit pension debt is transferred into explicit debt. This could be done by switching accrued to-date liabilities into notional accounts, i.e. by creating explicit individual claims towards the social security system, which are then funded by issuing government bonds. Such bonds would immediately be accounted as Maastricht relevant government debt whereas the implicit pension debt is not part of the Maastricht definition.

Another possibility is to introduce parametric reforms that reduce future pension benefits and to accompany these measures with incentives to build up occupational or private pensions. This strategy creates front loaded costs if direct or indirect subsidies are granted for contributions to occupational and private pension systems.

Such a strategy leads to a temporary double burden of the working population because a stock of assets has to be build up for the funded occupational or private pension, and at the same time accrued pension entitlements of current pensioners and elderly members of the

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<sup>76</sup> Beetsma, R. and Debrun, X.

<sup>77</sup> European Commission, 2007.

<sup>78</sup> Beetsma, R. and Oksanen, H.

<sup>79</sup> European Commission, 2006a.

labour force are honoured. Often many cohorts are protected by transition rules. While the fall in the implicit pension debt is not recognised in the national accounts, the deficit and debt increase associated with such a move are Maastricht relevant.

Additionally, Eurostat assigns funded defined contribution schemes as part of the private sector. Beetsma, R. and Oksanen, H. present an example of the budgetary consequences of a swap of one third of the implicit pension debt into explicit public debt. In this case the public deficit should be allowed to deteriorate by four to five percent of GDP relative to a scenario with unchanged social security pension system. Even Member States actually running a zero public deficit would thus breach the 3% ceiling of the SGP by following this type of pension reform.

## **5.6. Private pension liabilities**

Private pension liabilities correspond to the sum of all pension claims of private households towards private firms, pension funds, and insurance companies. There are no comprehensive data on technical reserves of pension funds and insurance companies across Europe. Instead the OECD provides data on invested assets of pension funds and life insurance undertakings.

The investments can be used as an approximation to pension liabilities because pension funds as well as insurance undertakings are obliged to cover their liabilities with assets. The investments are likely to overestimate existing liabilities as financial intermediaries often invest their own reserves and the revenues from investments on their own account are not separated from those on behalf of their beneficiaries.

These data are summarised in Table 20 in absolute terms and relative to gross domestic product. For some states the numbers look inaccurate and are probably subject to data errors. Table 20 shows wide differences in across countries. There are several states with almost no funded occupational or individual pension claims, such as Austria, Greece and Slovenia. On the other hand, Denmark and the Netherlands show comparatively high levels of funded pensions mainly accumulated within pension funds.

**Table 20: Assets of private life insurance companies and pension funds, and bank credits to private households, 2009**

OECD members	Insurance companies (1)		Pension funds (3)		Total funds	Credits of private households	
	Millions of USD	% of GDP	Millions of USD	Percent of GDP		Millions of USD	% of GDP
Australia	25.392	2,6	835.886	84,2	86,8	-	-
Austria	297	0,1	19.543	5,1	5,2	215.854	56,6
Belgium (2)	18.986	4,0	19.165	4,1	8,1	251.709	53,4
Canada	337.331	25,2	1.599.900	119,7	145,0	-	-
Chile	40.418	25,1	106.596	66,3	91,4	-	-
Czech Republic	20.373	10,7	11.332	6,0	16,7	59.150	31,1
Denmark	295.448	95,6	512.174	165,8	261,4	452.737	146,6
Estonia	767	4,0	1.323	6,9	10,9	11.238	58,3
Finland	46.377	19,5	204.357	85,9	105,4	148.615	62,5
France	444.168	16,8	231.686	8,7	25,5	1.424.946	53,8
Germany	1.227.946	36,9	173.810	5,2	42,1	2.118.737	63,6
Greece	8.234	2,5	63	0,0	2,5	171.519	52,5
Hungary	3.197	2,5	16.886	13,1	15,6	50.381	39,1
Iceland	56	0,5	15.174	125,5	125,9	-	-
Ireland (2)	21.289	9,6	100.278	45,2	54,8	268.340	121,0
Israel	-	-	91.696	46,9	-	-	-
Italy	182.538	8,6	-	-	-	893.540	42,3
Japan	3.472.643	68,5	-	-	-	-	-
Korea	227.441	27,3	80.059	9,6	36,9	-	-
Luxembourg	41.305	78,1	1.171	2,2	80,3	27.205	51,4
Mexico	14.163	1,6	114.689.569	13,0	14,6	-	-
Netherlands	309.421	38,9	997.922	125,6	164,5	1.019.019	128,2
New Zealand	-	-	13.755	11,7	-	-	-
Norway	121.050	32,0	27.852	7,4	39,3	-	-
Poland	26.206	6,1	-	-	-	147.150	34,2
Portugal	27.480	11,7	32.477	13,9	25,6	226.627	96,8
Slovak Republic	1.211	1,4	5.508	6,3	7,7	29.661	33,9
Slovenia	150	0,3	2.489	5,1	5,4	14.356	29,2
Spain	-	-	138.084	9,4	-	1.263.283	86,3
Sweden	253.127	62,7	225.160	55,8	118,5	343.667	85,1
Switzerland	230.356	46,8	551.450	112,1	158,9	607.963	123,6
Turkey	4.452	0,7	14.017	2,3	3,0	-	-
United Kingdom	-	-	1.753.016	80,7	-	2.264.245	104,2
United States	450.686	3,2	15.770.595	112,3	115,5	-	-

Source: OECD Insurance Statistics.

**Note:** 1. "These data include only outstanding investment by all direct insurance companies in the reporting country; investments by reinsurance companies are not included.— 2. No data on foreign controlled insurance undertakings available. — 3. The pool of assets forming an independent legal entity that are acquired by contributions to a pension plan for the exclusive purpose of financing pension plan benefits. The plan/fund members have a legal or beneficial right or some other contractual claim against the assets of the pension fund. Pension funds take the form of either a special purpose entity with legal personality (such as a trust, foundation, or corporate entity) or a legally separated fund without legal personality managed by a dedicated provider (pension fund management company) or other financial institution on behalf of the plan/fund members."

## 5.7. Private households' housing assets and mortgages

Eurostat housing statistics shows that in 2009 approximately three quarters of the EU population lived in owner-occupied dwellings. Among the Member States, Austria (58%) shows the lowest and Romania (97%) the highest share of owner occupiers. The remaining households are either tenants living in dwellings with a market price rent (13%) or tenants with a reduced-rent or free accommodation.

Homes are usually bought using a mortgage which is subsequently paid off. From an analysis of the EU-SILC survey by Eurostat one can infer on the share of households burdened by debt. Almost half of the EU population already paid off their mortgages and lives in an owner-occupied home without a loan or mortgage. Another quarter of households lives in their mortgaged property. Again the variation across Member States is

substantial. Whereas households in Eastern European Member States predominantly live in owner-occupied dwellings without a mortgage, households in Northern European Member States and in the United Kingdom predominantly use permanent finance. Further data on the tenure status of private households can be found in Table 21.

**Table 21: Distribution of population by tenure status, type of household and income group, 2009**

Member State	Owner occupied, with mortgage or loan	Owner occupied, no outstanding mortgage or housing loan	Other	Total
	In %			
EU 27	27.1	46.5	26.4	100.0
Austria	27.0	30.5	42.5	100.0
Belgium	40.2	32.5	27.3	100.0
Bulgaria	9.3	77.5	13.2	100.0
Cyprus	16.9	56.9	26.2	100.0
Czech Republic	13.4	63.2	23.4	100.0
Denmark	52.8	13.5	33.7	100.0
Estonia	16.0	71.1	12.9	100.0
Finland	43.7	30.4	25.9	100.0
France	27.4	35.6	37.0	100.0
Greece	15.4	61.1	23.5	100.0
Hungary	18.5	71.3	10.2	100.0
Iceland	70.6	13.6	15.8	100.0
Ireland	32.9	40.8	26.3	100.0
Italy	15.4	57.0	27.6	100.0
Latvia	9.0	78.1	12.9	100.0
Lithuania	9.0	82.0	9.0	100.0
Luxemburg	40.4	30.0	29.6	100.0
Malta	15.2	64.0	20.8	100.0
Netherlands	59.2	9.2	31.6	100.0
Norway	61.3	24.1	14.6	100.0
Poland	5.7	63.0	31.3	100.0
Portugal	29.9	44.7	25.4	100.0
Romania	1.2	95.3	3.5	100.0
Slovakia	7.2	82.3	10.5	100.0
Slovenia	6.9	74.4	18.7	100.0
Spain	34.5	48.7	16.8	100.0
Sweden	56.8	12.9	30.3	100.0
United Kingdom	44.5	25.4	30.1	100.0

**Source:** Eurostat, SILC. 1. – Other households are either tenants living in dwellings with a market price rent or tenants with a reduced-rent or free accommodation.

To sum up, contingent liabilities in the social security pension system arise if future commitments to pension benefits are neither covered by future contributions nor by a pension fund already accumulated in the past.

Contingent liabilities are often summarised as the discounted present value of future net cash flows in and out of the social security pension system. Several approaches can be used to project those future cash flows, each emphasising different aspects of the social

security pension system or of pension reform proposals. This chapter provides a comparison of several estimates for pension liabilities.

Those estimates show that - regardless of the approach used for the computations - substantial contingent liabilities have been accumulated throughout the European Union. The estimates for Member States range from 70% up to 360% of GDP, indicating the need for further monitoring and for future political action to balance the budget of the social security pension system.

Contingent liabilities interact with official government debt, e.g. the Maastricht debt level, because pension reform measures, which reduce future obligations, may induce additional government expenditures over a transition period. Although the revised European Union's SGP partially accounts for such interaction, full recognition of front loaded costs from pension reform may lower incentives to delay pension reform.

## 6. POLICY RECOMMENDATIONS

### KEY FINDINGS

- High participation rates and a favourable ratio of gainfully employed in relation to the population constitute an essential precondition for fiscal sound pension systems and adequate pensions. An increase in employment rates would go hand in hand with a decreasing number of pensioners and pension expenditures. Increased employment rates, especially amongst older employees, have a strong impact on each pension scheme, because they would positively influence the amount of pension contributions.
- The postponement of the labour market exit age marks a decisive foundation for the financial stability of pension systems. A broad range of policy actions should therefore support longer working lives. They are necessary for avoiding sharp increases in pension expenditures and reductions in benefits. A postponement of retirement provides a double dividend as it raises pension contributions of employed and reduces pension expenditures.
- Mixed-pillar pension systems have become more prominent in the past. They should be designed carefully, using the relative strengths of the different elements. Pension systems should be based on social security contributions as well as on occupational and private investment schemes. Some country experiences can serve as role models for other Member States. The European Parliament should help establish mixed-pillar systems across the EU in order to reduce dependency on public pensions and to mobilise occupational and private savings without encountering risks of total reliance on financial markets. Such a mixed system can mitigate the pressure of demographic changes on public liabilities.
- The key element in reforming pensions which can be derived from the cases lies in the concept of risk-sharing. All risks need to be shared between government and individuals. In addition, risks need to be shared between individuals to provide a stable pension system. The provision of a form of minimum pensions constitutes also an element of risk sharing. Hybrid and defined contributions systems should be further developed and pension benefits should become partly or entirely flexible.
- Enhancing the transparency of pension schemes to individuals is important to inform them of their future benefits and to encourage them to enter in newly formed occupational and private pension systems.
- Public pension funds of sufficient size reduce the implicit pension debt and alleviate political action to restore balance in the social security pension system. Implicit liabilities constitute most notably costs related to the greying population. Estimates of the implicit pension debt are not comparable but all published estimates indicate substantial levels of implicit pension debt throughout the European Union. The implicit pension debt can be reduced by implementing a successful pension reform, therefore it makes sense to keep the implicit pension debt separated from explicit government debt which is part of the national accounts and cannot be changed considerably by fiscal reform.

## **6.1. Increasing the labour force participation rates across the EU**

The rise in the old-age dependency ratio due to an increasing life expectancy and a greying population will affect pension systems across the European Union. In general, it is true to say that a pension system cannot be designed or reformed without taking the historical context and national preferences into account. Also, it should be noted that demographic developments in Europe as well as the financial crisis have raised the awareness of the importance of adequate and sustainable pension systems across the EU. The main threat for the financial sustainability of the European pension systems is posed by the rising life expectancy of the population and the rising dependency ratios. This means that the labour market must focus on the activation of older workers and that unemployment and inactivity must be kept as low as possible.

High participation rates, which imply a favourable ratio of gainfully employed in relation to the population, and increasing the duration of working lives are essential elements of fiscal sound pension systems and adequate pensions. A stronger increase in employment rates would go hand in hand with a decreasing number of pensioners and pension expenditures. Increased employment rates among older employees and an increased retirement age had a strong impact on each pension scheme since they would positively influence the amount of pension contributions. Concordantly, low labour market participation could offset gains of higher retirement ages by lowering pension contributions and augmenting social expenditure.

Employment policies and pension reforms have to address different groups in society. This implies effective policies to integrate both unemployed and inactive people into the labour market as well as specific policies focussing on persons with health problems and persons with family care duties. But active labour market policies can increase participation rates only to a certain extent. In this respect, employment incentives, subsidies and services as well as sanctions have a higher probability of yielding positive outcomes especially among older age groups. Political reforms should thus aim at increasing the overall participation rate and especially among the older in the next decades. For this, the European Parliament could point out to Member States that the financial situation of the public pension systems depends to a high degree on the employment rate.

## **6.2. Working longer**

As seen above, many Member States have already launched reforms geared towards a gradual adjustment of pension benefits to demographic changes. Currently, effective retirement ages are considerably below the official age. The increase in the effective retirement ages should take into account possible incentives for longer working lives and, at the same time, has to withstand possible short-term political pressures. The postponement of the labour market exit age is crucial for the financial stability of pension systems. For a number of countries the findings suggest some scope for increasing the effective retirement age by re-designing pension systems to enhance incentives for workers to work longer. This could include linking the level of benefits with the retirement age and the number of working years.

Some Member States have limits on the number of years that can accrue pension benefits in earnings-related schemes. In this case, pension entitlements increase with additional work only, if higher earnings replace earlier lower earnings. Certain measures could contribute to raising the attractiveness of working longer. Due to the fact that older workers face serious difficulties with finding a new job after unemployment in countries with seniority wages, a reduction of the seniority wages could help raise the attractiveness of older employees for employers. Likewise, active labour market policies should be



targeted towards preparing older workers for more job mobility at the end of their careers by supporting of on-the-job training and special job finding programmes. For this, incentives and schemes for a gradual move towards retirement may contribute to extending working lives. Furthermore, the role of employment protection for job prospects of older workers is under debate, since many studies find a negative relationship. And lastly, the working conditions have to be improved and the job-related health risk has to be decreased.

The cases contained in the report provide insights to stress these proposals. For instance, a Member State has implemented several reforms in recent years by pushing back the retirement age and penalising early retirement. Yet the actual retirement age remained stationary because the labour market could not strengthen the participation rate in such a way that people worked longer and contribution periods increased. This shows that changing the retirement age is an important policy tool, but does not work by itself.

### **6.3. Establishing three-pillar pension schemes across the EU while respecting national circumstances**

An appropriate mix of different pension pillars can help create sustainable pension systems in a period of intense demographic change without endangering the objective of pension adequacy. A three-pillar pension scheme consists of a first pillar run by the state which ensures a sound financial basis for the standard of living and is formed by the state pensions. These pensions are paid through social security contributions on a PAYG basis. The second pillar constitutes an occupational retirement system and is made up of collective pension schemes. The third pillar includes private savings mostly on a voluntary basis supported by tax privileges in many countries. These systems perform best in combination with a dynamic labour market, which includes a low unemployment rate and high and increasing participation rate of older workers.

Two cases have shown that the introduction of a system of notional accounts reduced the public replacement rate significantly, thereby reducing the strain on the public pension budget. But despite these reforms, their second and third pillar pension plans are not yet properly developed to offset this loss in replacement rate completely and evenly across the population. This might push more retired employees towards social security, increasing governmental spending, which would reduce gains from reduced pension spending in the total budget. On the other hand, even well developed second and third pillar systems are not invulnerable.

Another case has provided a good example of a well developed second pillar which is struggling with the rate of funding for its future liabilities due to extensive market losses. This shows that while public PAYG systems may need an overhaul, fully funded systems can be vulnerable as well.

Another weakness of the use of several pillars seen in all of the cases is its dependence on labour market performance. A weak labour market and interrupted careers provide significant lower replacement rates in all countries. However, by using several pillars the pension system might suffer setbacks, but is unlikely to collapse entirely due to one specific problem, making it more durable in uncertain environments.

### **6.4. Risk diversification**

The goal of pension reform is to build a system which can provide both sustainable and adequate pensions. They have to be sustainable in the sense that they do not burden the public budgets and remain viable in the future. But adequacy is also essential as

inadequate pensions would lead to increasing old-age poverty with negative effects on social spending and the economy as a whole. The key element in reforming pensions that can be derived from the cases lies in the concept of risk-sharing. It is clear that with the imminent demographic changes and the apparent volatility of financial markets no system can be developed which is invulnerable and completely insulated from all outside challenges, whether they be demographic or economic in nature. Therefore it is essential that the potential risks in the system are shared.

First of all risks need to be shared between government and individuals. The government cannot provide a full replacement rates for all its citizens in most countries while avoiding deficits. Contrary to this, the return of pension funds is not always guaranteed. This means that, on the one hand, a public pillar is necessary to provide a certain basic replacement rate that is sufficient to prevent the elderly from falling into poverty. This can be accomplished by using the Dutch system which makes no distinction between earnings for the first pillar, but also by providing minimum pensions.

On the other hand, the old age risk must be borne by individuals through savings in occupational and private pensions plans. Together they can achieve a replacement rate comparative to previous earnings, while liabilities are split. The step from defined benefits to defined contributions in public systems is also an element of this risk sharing between government and individuals, with individuals certain about their contributions and a minimal return guaranteed by the government, which in turn is safe from outside demographical and economical changes to future liabilities. Good examples are the public pension plans in Poland introduced with the latest reform, which calculates benefits on life-expectancy and previous economic growth or the transformation coefficient of the Italian pension system.

Secondly, risks need to be shared between individuals to provide a stable pension system. For the public pillar this is done by equalising contribution rates for all individuals as much as possible. In occupational and private pillars this is done by pooling resources in a fund without individual claims. Profits and losses are evened out between the participants and not based on individual accounts. The provision of a form of minimum pensions is also an element of risk sharing. A good example is the sharing of the gender risk as women have more chance to have atypical careers in their active years in the labour market.

This could be applied to a number of target groups whose integration on the labour market is more difficult. Depending on career types, including part-time work or self-employment, it is not always possible to build up equal pension rights. Part of this falls under individual responsibility, but another part should be covered by basic pension rights for every individual to counter inadequacies in the labour market.

Thirdly, a solid pension system must share risks between generations. An element of generational risk sharing is found in the nature of the public PAYG systems, but it is also present in the mandatory nature of many second pillar systems. By obliging participation in occupational and/or private fund, funded systems can count on continuous inflow of capital reducing the risk caused by short-term losses in assets. However, a large increase in pension spending means less budgetary space for the contributing generation and should therefore be avoided, allowing of course for national preferences. Thus, in order to make a pension system sustainable, it must continue to be supported by all generations in practice (contributions) as in theory (policies).

To start, benefits must be fair between each contributing generation and public pension spending must be contained. Adding the element of life expectancy to future benefits would ensure that the costs are shared more equally between generations. A final generational element is the creation of public support for these systems with all generations. In order to

harness and keep this support, it must be avoided to place the cost of reforms with future generation. If not, it may result in the (un)willing avoidance of the general schemes by newer generations. The rise in the number of self-employed in a Member State can be partially seen this way. These elements of risk sharing should be kept in mind during pension reform and with these specific policies can be implemented.

### **6.5. Enhancing the transparency of pension schemes**

It is important for sustainability that all costs related to pensions are made explicit and are included in calculations and projections. Risk sharing in the government should be read as making all pensions cost transparent and visible to increase sustainability. As more pillars are introduced and benefits are not defined, it is especially important to inform individuals of their pension right and their future liabilities. In many Member States occupational and private pension funds are obliged to inform their participants each year of future benefits under current contributions and indicators. For (semi-) public pension this rarely exists in a standard and comprehensive form. The combination of public, occupational and private benefits always has to be done by the individual. This is made even more difficult as pay-out methods differ.

Standardising information of pension benefits to European citizens will provide an incentive to use all available pension schemes. As a consequence reform should be explained clearly to the population. Fiscal policy can be used as a tool to encourage participation in pension plans and savings.. As seen above, the coordination of policy between governmental institutions is necessary. Active labour market policy is essential to maximise the return of retirement policy. If these are not corresponding, additional social cost will be made in terms of unemployment and others which reduce the positive financial impact of pension reform.

Therefore, enhancing transparency to individuals is important to inform them of their future pension claims and to encourage them to enter in newly formed occupational and private pension systems. This can be realised by using annual account reports from the different pillars including occupational and private pensions. In this context, the European Parliament could stand up for the implementation of such accounts across all Member States. To do so, all Member States can be monitored systematically on a regular basis in terms of their pension adequacy and sustainability by an independent group of experts who can then formulate country-specific recommendations. Implementing these combined accounts would further facilitate standardised monitoring.

### **6.6. Contingent liabilities now and in the future**

Public pension funds of sufficient size reduce the implicit pension debt and alleviate political action to restore balance in the social security pension system. Implicit liabilities constitute most notably costs related to the greying population. Estimates of the implicit pension debt are not comparable across studies although one can conclude from existing material that all published estimates indicate substantial levels of implicit pension debt throughout the European Union.

The implicit pension debt can be reduced by implementing a successful pension reform, therefore it makes sense to keep the implicit pension debt separated from explicit government debt which is part of the national accounts and cannot be changed considerably by fiscal reform. Some of pension reforms may induce front loaded costs, for example due to the double burden of tax relieved social security and private or occupational pension contributions. During the transition period such a pension reform would create additional tax losses or in case of subsidised contributions additional

government spending, depending on the design of the transfer. Frontloaded costs from reforming the social security pension system will be accounted as Maastricht relevant government debt. Implicit pension debt, on the other hand, will not be counted under the Maastricht definition. This discrepancy may obstruct further pension reforms in countries with high implicit pension debt.

The revised SGP takes account of this distinction and requires that the computation of the medium term objective should incorporate information on the level of implicit pension debt. Because the implicit pension debt shows the size of a future pension reform, accounting for it in the computation of the medium term objective is fully appropriate. Countries with high implicit debt would be required to run budget surpluses in the medium term. After implementing a successful pension reform the implicit pension debt is reduced and the medium term objective can be adjusted such that only a balanced budget must be targeted. If the pension reform creates front loaded costs, these costs should be reflected in the adjustment path to the medium term objective. Contrary to today's rules, longer transition periods and full recognition should be possible. This small reorganisation of the rules will remove incentives to delay pension reforms.

Private and occupational funded pension liabilities are a claim of private households against financial intermediaries. These liabilities are not part of the government sector and thus a large size of private household claims just indicates a small social security pension system. Nevertheless, the expected ageing process may still produce a sizeable implicit pension debt in the social security system. Therefore, simply deducting private and occupational funds from the Maastricht debt will not reduce the reform requirement.

The implied improvement of the medium term objective, on the other hand, will conceal the need for social security pension reform. Additionally, deducting private and occupational funded pension liabilities from the explicit government debt in the SGP procedure will favour those Member States pursuing a privately funded pension system over other member countries favouring parametric reforms of the social security pension system even if the reduction in the implicit pension debt would be of equal size. For these reasons a consistent crediting of reductions in the implicit pension debt in the preparation of the medium term objective together with full crediting of front loaded costs of pension reforms in the definition of the adjustment path is more likely to remove incentives to delay pension reform and it is more neutral with respect to the question of a shift towards more or less funding.

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## **ANNEX 1: CASE STUDIES**

The case studies in this study are used as a way to provide an in-depth analysis of the various pensions systems in the European Union. Apart from the general analysis and the overview of comparable data in the EU-27, the case studies will survey good and less successful practices with regard to the context in which the systems need to operate.

If relevant, contextual data is considered such as home-ownership, the presence of dualities in the labour market and the derived pension's benefits or reallocation of funds to decrease the debt-level of the state.

One must bear in mind though, that while some pension systems seem better prepared than others to future developments, each fits into its own political and historical context from which they cannot be separated. Some states around the world have interesting examples of long-term pension funding which are good practices — for example the oil income in Norway.

However, most states cannot rely on exceptional conditions and must sustain their system by making it solid and durable in its own right. As such, EU Member States have to look at practices and measures used or implemented by their neighbours.

The objective of this section is to subtract elements from the systems and the proposed or implemented reforms in each case which then might be useful in the pension debate around Europe, either to be copied or to be avoided. To do this, the entire pension system for each chosen country is examined in detail focusing on system related elements as well as on contextual factors.

Hereafter, the future projections for each country regarding demographic and budgetary predictions are displayed. Moreover, the reforms that are discussed or already taken to sustain the system in the future are taken into account. As a result, for each case the main elements are summarised that could serve as examples in future reforms.

### **1. THE NETHERLANDS**

#### **1.1. The Dutch pension system**

The Dutch pension system is a clear mixed-pillar system. It is based on social security contributions as well as on occupational and private investment schemes. In Table 22 the basic characteristics and status of the Dutch Pension system are shown. Currently, the statutory retirement age is 65, for both men and women. Under recent proposed reforms this age would rise to 66 in 2020 and later possibly to 67 years. The actual retirement age was 63.2 in 2008, making for only a small spread between the actual and the statutory retirement age. The actual retirement age is in fact very high compared to the other Member States only in Sweden and Ireland do employees retire at a later age. Following the OECD report on pensions at a glance, in 2008 the Dutch pension system provided pensioners with a gross replacement rate of almost 90% of previous average earnings and a net replacement rate of more than a 103% due to the lower tax contributions that pensioners have to pay compared to the working population.<sup>80</sup>

Data from the Social protection Committee indicate slightly smaller replacement rates, respectively 70.7% and 91.8% in 2006 (European Commission, 2006b). According to the Dutch Government Central Bureau of Statistics, the total pension benefits consists on average for 50% out of the state pension, for 45% out of occupational benefits and for 5%

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<sup>80</sup> OECD, 2011b.

out of private pension schemes. Net pension wealth in the Netherlands is very high compared to other OECD countries, up to 13.5 times the average annual earnings.<sup>81</sup> Apart from figures concerning the functioning of the pension system contextual information is also important to evaluate the functioning of the system and to understand the choices made by the government for possible reforms. The 2009 Ageing Report and OECD data show that life expectancy in the Netherlands is comparable to other Western European countries. The functioning of the labour market however is more efficient with a low unemployment rate and a high participation rate for older workers (53.3%).<sup>82</sup>

Even with the decline of employment rates in 2008 and 2009 due to the crisis, Dutch unemployment remains relatively low and participation rates high (53.3% compared to 45% in EU-27). Apart from that, the poverty rate amongst those at old age (65+) is very low compared to the OECD mean of 13.5%. This means that older people in the Netherlands have the means to sustain themselves above poverty risk. An often cited factor in the wealth of pensioners (IMF, 2005) and the risk of poverty is the rate of homeownership amongst the older population. The ownership of property ensures housing without the obligation to pay rent from pensions which are lower than former wages.

For 2009 Eurostat data show that home ownership in the Netherlands accrues to 68.4% of the population of households coming from 62%. Nevertheless, according to calculations on Eurostat data, in the EU-15 and the EU-27 higher rates of home ownership can be observed with 71% and 73.5%. The difference is much more pronounced when we look at single or two person households with at least one adult older than 65, a group which constitutes 4.9% of the population (of households). In the Netherlands, about 26.5% of the household with an adult above 65 own property opposed to 63.4% in the EU-15 and 66% in the EU 27.

**Table 22: Characteristics of the current pension system in the Netherlands in 2008**

<b>General features</b>	
Statutory retirement age (m/f)	65/65
Number of private funds	730
Invested capital	EUR 700 billion
Autonomous funds assets in % GDP	126%
<b>Functioning</b>	
Actual retirement age	63.2
Gross replacement rate	89.1
Net replacement rate	103.3
Net pension wealth	13.5
<b>Contextual parameters</b>	
Life expectancy (m/f)	77.9/82.2
Unemployment rate	4.4%
Participation rate (55–64)	53.3%
Old-age dependency ratio	22%
Old-age poverty rate	2%
Home ownership	68.4%

**Source:** OECD (2011b), Commission Services (2009), International Organisation of Pension Supervisors (2008a), Centraal Bureau voor de Statistiek, Eurostat data. Slight variations between EU and OECD data are possible.

<sup>81</sup> Centraal Bureau voor de Statistiek.

<sup>82</sup> European Commission, 2008a; OECD, 2011b).

Before we look at the future prospects of the Dutch pension system, we will discuss the functioning of the three pillars in more detail. The first pillar of the pension system is formed by state pensions.<sup>83</sup> These pensions are paid through social security contributions on a PAYG basis, meaning that the current contributions of the active population are used to pay the current pensions entitlements.

Every person who has either worked or lived in the Netherlands from 15–65 has a right to a pension at the rate of 2% of the pension allowance per year of working/living in the Netherlands. This state pension forms the basis for each pension in the Netherlands. Importantly, it is a flat rate scheme, so it is not earnings related as every recipient receives the same amount based upon these simple parameters while allowing some differentiation on social characteristics. Single households, for example, receive more than couples living together, respectively 70% or each 50% of a minimum wage. There is also an upper limit to the contribution rate.<sup>84</sup>

The minimum wage, which forms the reference for the pension benefits, is revised every two years to adjust for inflation. According to the OECD, benefits of the first pillar constitute about 29% of previous average earnings.<sup>85</sup> According to the report of the Social Protection Committee on privately managed funds, the contribution of the state pension to the total replacement rate would be 40% with the other 60% attributed to the occupational pension plan of the second pillar.<sup>86</sup>

The second pillar consists of collective pension schemes. Within the Netherlands, there is a strong tradition of providing employees (including civil servants) with an occupational pension plan. More than 90% of all workers are covered by an occupational plan<sup>87</sup>. Participation is not mandatory, but can be made mandatory at the request of at least 60% of the employers for a specific sector. Through agreements between the social partners a certain percentage of an employee's wage is invested in a company or industry wide pension funds. Some specialised funds exist for independent professions. These funds, numbering 730 in 2009, are independent non-profit organisations whose sole task is to manage the contributions and distribute the benefits to the participants. In this way the funds are protected from potential company failures, guaranteeing that their assets are not seized by creditors. Especially for company funds this is an important feature. More than 90% of all covered employees enjoy a defined benefit scheme which is in most cases based on lifetime average earnings; those remaining are covered by a defined contribution scheme.<sup>88</sup>

In addition to the state pensions and the occupational schemes, the Dutch pension system allows for private pension plans which have a mandatory minimum return. It is up to the individual to choose to participate in one of these schemes. According to the Dutch Government Central Bureau of Statistics, an overrepresentation of self-employed people exists in these schemes, especially when comparing the value of the obtained insurance. This is logical given that they cannot participate in the occupational schemes.<sup>89</sup> Unfortunately, there are no reliable data demonstrating the size of the assets in these private funds.<sup>90</sup>

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<sup>83</sup> Algemene Ouderdomswet.

<sup>84</sup> European Commission, 2009b.

<sup>85</sup> OECD, 2011b.

<sup>86</sup> European Commission, 2009b.

<sup>87</sup> This figure entails employees who participate or have participated as depending on their employment they might step in or out of different schemes for a period of time.

<sup>88</sup> OECD, 2011b.

<sup>89</sup> Centraal Bureau voor de Statistiek.

<sup>90</sup> Commissie Toekomstbestendigheid aanvullende Pensioenregelingen, 2010.

## 1.2. Future trends and reforms

Table 23 displays some important future trends for the Netherlands. Life expectancy will rise with about 5 years until 2050. Under an almost constant fertility rate<sup>91</sup> this will increase the dependency ratio, which is the ratio of the population over 65 compared to the population between 15–64 years old. In 40 years this ratio will more than double meaning that for each person over 65 there will be only two between persons aged between 15–64, compared to almost one for every five persons in 2008. It is clear that the Netherlands will undergo a significant greying of their population.

This also means that all costs related to the older population will rise. The 2009 Ageing Report indicates that under the known regulations costs for the provision of public pensions would rise from 6.6% in 2008 to 10.3% in 2050 to stabilise around 10.6% in 2060.<sup>92</sup> This means a rise of 4% of GDP, higher than the rise in the EU-15 and EU-27, respectively 2.4% and 2.3%. However the Netherlands start from an expenditure which is lower than the average expenditure for EU-15 and EU-27 (10.2%). As these are assumptions made before the crisis, adjustments in the country profiles of the Joint Report on Pensions suggest that the cost may augment by 0.2% by 2020 and 0.3% in total by 2060.<sup>93</sup>

The 2009 Ageing Report made predictions concerning the growth of GDP which are partially outdated because of the recession of 2008/2009, GDP growth for 2008 and 2010 comes from actual figures, while those for 2020 and beyond are the old projections. It is probable the expenditure for public pensions in terms of GDP will be higher because of the losses taken during the crisis. Predictions made by the Dutch Central Planning Bureau show an increase in care related costs of about 4% of GDP from almost 10% in 2010 to 14.3% in 2050.<sup>94</sup>

Latest figures from the Dutch Central Planning Bureau on the evolution of the debt as percentage of GDP have taken the crisis into account and indicate a steady rise up until almost 175% in 2050 and more than 200% in 2060 in a scenario with no further policy changes.<sup>95</sup> This means that in order to control the future debt, changes are needed to the system.

**Table 23: Projections of developments in the Netherlands**

	2008	2010	2020	2050
Life expectancy (m/f) in years	77.9/82.2	78.2/82.5	80.4/84.6	83.7/87.8
Old-age dependency ratio	22.0%	23.4%	31.0%	46.0%
Possible GDP growth	1.9%	1.8%	1.5%	1.5%
Public pension expenditure in % GDP	6.6%	6.5%	7.8%	10.3%
Care related expenditure as % of GDP	-	9.8%	10.8%	14.3%
Debt as % of GDP	58.0%	69.0%	75.0%	174.5%

**Source:** The 2009 Ageing Report (European Commission, 2009a), Joint pension Report (2009), Eurostat, Bos, F. and Teulings, C. (2010).

The projections of the future ageing of the population and the resulting challenges this creates are not new. During the last decade several reforms were implemented or are proposed to maintain the sustainability of the pension system in the future.

The Dutch pension system is based upon two different important funding mechanisms. The first pillar is entirely financed by the state which has to be able to provide the funding. On

<sup>91</sup> European Commission, 2008a.

<sup>92</sup> European Commission, 2008a.

<sup>93</sup> European Commission, 2010c.

<sup>94</sup> Bos, F. and Teulings, C.

<sup>95</sup> Bos, F. and Teulings, C.

the other hand the second pillar is based on occupational schemes paid by contributions of employers and employees to private pension funds who in turn provide benefits to the participants.

The private funds are not managed by the government but are closely regulated as they form a crucial part of the replacement rate for Dutch pensioners (60–70%). This means that reforms concerning pensions in the Netherlands can take two forms: sustaining government funding for the statutory PAYG pensions or regulating pension funds to ensure an adequate level of future benefits.

To guarantee sustainability of the government funding of the statutory pensions several measures were taken during the last decade. In 2005 the tax-favoured status of early retirement was abolished. It was funded on the same budget of the statutory pensions on PAYG basis. This meant higher costs of benefits and lower contributions because workers dropped out of the labour market more early, which made correcting the early retirement incentives an important step in achieving two goals at once, increasing labour participation as defined in the EU Lisbon strategy and taking steps to the sustainability of statutory pensions.

At the beginning of the decade, the financial market plummeted in the wake of the dotcom crisis. It showed the weakness of the Dutch pension funds which have to cover all liabilities of its participants. Pensions assets dropped from almost 120% of GDP to just 105% and below in 2001.<sup>96</sup> The funds could now barely cover 105% of their liabilities instead of 150% as during the peak a few years before.

As many funds worked with defined benefits based on final earnings, this placed a heavy strain on their ability to ensure their capability to always be able to pay out their liabilities. The government intervened by means of its regulator asking all funds to increase funding rating within the year to levels above 105% and to draw out a plan to return to funding of 130% of liabilities within eight years. In order to do so they were also told to raise contribution rates. This resulted in the Financial Assessment Framework in 2007.<sup>97</sup>

Negotiations between the social partners, largely responsible for governing the funds, led to some specific changes. Contributions were indeed augmented up from 7% in 2001 to 12.8% in 2005. But apart from this “quick fix” other changes were made to ensure the sustainability of the funds such as a gradual switch from defined benefits to defined contributions or a combination of both. Further, the benefits were less based on the final wage but more on the average wage. The general idea was to spread the risk over all stakeholders and all participants.<sup>98</sup>

The volatility on the financial markets also sparked the general debate whether to invest in bonds or in equity to guarantee return on investment.<sup>99</sup> Current developments within the EU show that also on the bonds market there exist no absolute guarantees for pension funds.

The financial crisis and the fall of stock market assets showed, once again, the vulnerability of the occupational pension plans which, in turn, initiated further reforms. The main element of reform which are currently being discussed or at the verge of being approved is a rise of the statutory retirement age from 65 to 66 by 2020. The eventual goal would be to raise it to 67 in 2025. The pension age does become more flexible, but retiring early means a loss of 6.5% of benefits per year, while working longer will result in 6.5% more benefits.

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<sup>96</sup> Høj, J.

<sup>97</sup> Ponds, E. and Van Riel, B.

<sup>98</sup> Ponds, E. and Van Riel, B.

<sup>99</sup> IMF, 2004.



Furthermore, the framework of private pensions<sup>100</sup> will be adapted to the new retirement age, more flexible to life expectancy, meaning that the fiscal friendly contributions allowed for the build up of an occupational or private pension will be reduced to be spread over a longer career. Hybrid and defined contributions systems become further developed and pension benefits become partly or entirely flexible. These changes were agreed upon by the social partners in June 2010 and are currently in the final stages of discussion with the government.<sup>101</sup> They should be implemented in 2011.<sup>102</sup>

### 1.3. Lessons to be learned

The pension system of the Netherlands is an interesting example of an hybrid pension system with a balance between social guarantees of state pensions for every citizen and occupational pension benefits based on individual careers. The statutory PAYG system is more vulnerable to the rise in life expectancy and the dependency ratio and thus seems more threatened by the greying of the population. However, the occupational pension funding proves to be vulnerable as well because of the difficulty to provide future defined benefits in volatile financial markets. An ageing population also means lower contributions and a higher benefit distribution for pension funds.

The Dutch pension system exhibits several interesting features that can serve as an example to other countries for possible reform. Of course, several characteristics of the system are tied to the local and historical context, but this does not undermine their relevance.

The interesting features of the Dutch pension system are its high replacement rate, the high coverage it provides with the occupational pension benefits, and the existence of assets to cover future liabilities. The replacement rate is one of the highest in Europe, covering 60% to more than 100% of previous earnings when taxes are taken into account. This guarantees a high standard of living and reduces old age poverty. It also guarantees a large consumer base which can maintain a high consumption level, which in turn can have an influence on economic growth.

The composition of the replacement rate is well balanced, on average 45% by statutory pension benefits, 50% occupational and 5% private according to the Dutch Central Bureau of Statistics, which brings more certainty for pensioners to obtain decent pension benefits.

The high coverage rate of the occupational pension schemes is another feature of the Dutch system which can be recommended. More than 90% of all employees are covered by occupational pension schemes and it is possible to continue contributions for employees who temporarily exit the labour market.

The third feature worth noting in the Dutch system is the large funding for the occupational schemes, which should cover all future occupational pension liabilities. An additional feature that merits attention is the large role of the social partners in the pension discussion and system. The Dutch pension system is in large part build up and sustained by agreements between the social partners with the government in the role of regulator and caretaker.

Despite these positive features, the Dutch pension system also has a number of vulnerabilities, namely, as in most countries, a rising life expectancy and the greying of the population, and more specifically volatile capital markets and labour participation.<sup>103</sup>

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<sup>100</sup> "Witteveenkader".

<sup>101</sup> Ministry of Social Affairs and Employment in the Netherlands.

<sup>102</sup> Pension agreement 2010.

<sup>103</sup> Public Services International.

Firstly, the statutory pension system is constructed as a PAYG system. Even though it does only provide a part of the pensions for retired employees, it is very susceptible to the rising life expectancy as this means longer periods of benefit costs; combined with an ageing population and less contributions this will always put a strain on expenses. However, since this pension liabilities are not based on earnings it is easier to make forecast and to seek ways to limit future costs.

Secondly, the occupational pension funds are an advantage to the Netherlands as they already manage assets higher than the designated liabilities. Nonetheless, two crises in 10 years have shown that the investment results on financial markets can prove very unpredictable, even in the long run. Dutch funds have partially recovered, but future downturns could cause the funds to be underfunded to cover all liabilities. In the current economic situation it clearly remains difficult to augment the level of assets to the minimum limits imposed by the Dutch government.

Thirdly, the Dutch pension system relies heavily on labour market participation. High participation is needed to ensure contributions for the statutory as the occupational systems and to ensure wide coverage of the occupational schemes over the entire population. Self-employed persons seek their pension benefits from private plans, but those who are unemployed cannot afford private plans nor do they have access to occupational plans. Although this group is currently rather small, it creates duality among pensioners in the Netherlands.

The manner how the Dutch government and the social partners have taken up reform to address several of these issues merits attention. The reforms concerning statutory retirement age for state pensions could be an example for a reform as they are tied to a comprehensive adaptation of the system, including contributions to the occupational plans. Especially the tie between the guarantee of tying state pensions to actual average wages, but making occupational benefits more flexible by moving away from defined benefits towards a hybrid system with defined contributions is interesting to study as a potential model for reform. It remains to be seen what the result of the reform will be after government approval.

On a final note, it is interesting to mention that the Melbourne Mercer global Pension index from 2010 rates the Netherlands as the best performing pension system among 14 different countries.<sup>104</sup> The report compares adequacy, sustainability and integrity to grade each system. Importantly none of the countries receives grade A, which would make it a system with good benefits, high sustainability and a high level of integrity.

Several measures are indicated in the report which can further improve the score of the Dutch system. Amongst these are: "Introducing a minimum access age so that it is clear that benefits are preserved for retirement purposes; raising the level of household saving; increasing the labour force participation rate amongst older workers; providing greater protection of members' accrued benefits in the case of fraud, mismanagement or employer insolvency".<sup>105</sup>

For other Member States the Dutch system might serve a good example of balancing capitalisation systems and PAYG systems, while also maintaining a social balance by making the public pension PAYG flat and leaving the occupational capitalisation system to be earnings related. In this way costs and risks of the pension system are spread out, making it easier for the government and the social partners to embrace reform as it touches them all. Linking retirement age to life expectancy is a general good governance measure to keep pensions sustainable.

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<sup>104</sup> The Netherlands receive a score of 78.3, followed by Switzerland (75.3) and Sweden (74.5).

<sup>105</sup> Mercer.

## 2. FRANCE

### 2.1. The French pension system

The French pension system is mainly a public pension system based on the first pillar and partly the second pillar, with 98% of benefits contributed in a PAYG scheme.<sup>106</sup> Private contribution systems or occupational non-government schemes are not mandatory. In the table below we describe some of the features and important figures of the French pension system and the context in which it operates. As of December 2010 the statutory retirement age in France has been reformed to rise to 62 years for both sexes. Up until then the statutory age was limited to 60 years.

The actual retirement age displayed in the EU Report on pensions in the year 2009 was 59.3 years. This is one of the earliest average exits out of the labour force in Europe, only ahead of Romania and Slovakia. The undertaken reform will probably delay the average exit from the labour force. According to the OECD<sup>107</sup> the gross replacement rate amount to 49.1% of previous average earnings, corrected for taxes this amounts to a 60.8% of a net replacement rate. This is a replacement rate which is lower than the OECD gross replacement average of 60% and net replacement of 72%.

However, data from the Social Protection Committee indicates higher replacement rates, a gross replacement rate of 66.2% and a net rate of 79.4% for 2006, but also warns for lower replacement rates in the future due to indexation and the number of working years taken into account for calculation of benefits. The benefits are calculated on longer periods for different generations, respectively 23, 24 and 25 years as of 2006, 2007 and 2008. Net pension wealth in France is roughly equal to the OECD average, up to 8.5 times the average annual earnings.<sup>108</sup>

Apart from these figures concerning the pension system and its functioning, there are also some important contextual factors. Life expectancy is an important element for the future projections of pension entitlements. According to the 2009 Ageing Report life expectancy in France for 2008 was 77.5 years for men and 84.3 years for women.

The EU joint report on pensions indicates that people in France have the highest life expectancy in Europe at age 65, 19.9 years.<sup>109</sup> Labour market aspects are also of importance. The French labour market has an unemployment rate of about 8% in 2009, which has risen slightly in 2010. Participation amongst older workers stands on average, but especially for men aged 60 to 64 the participation rate (19%) is well below OECD average of 54%.<sup>110</sup>

The French Pensions Advisory Council in 2009 counts a participation of 16.4% of those aged 60 to 64, compared to 30.1% in the EU-27. The poverty rate amongst the elderly in France is with 8.8% below the OECD average of 13.5%, which indicates that the replacement rate and the pension benefits succeed in providing many people a respectable income. Home ownership in France, an important element of pensioner's wealth, stands at 63% in 2009. About 36.9% of the households with an adult above 65 own property opposed to 63.4% in the EU-15 and 66% in the EU-27.

<sup>106</sup> SPC, 2009.

<sup>107</sup> 2011a.

<sup>108</sup> European Commission, 2009b.

<sup>109</sup> European Commission, 2010c.

<sup>110</sup> OECD, 2011a.

**Table 24: Characteristics of the current pension system in the France**

<b>General features</b>	
Statutory retirement age (m/f)	62/62
Autonomous funds assets in % GDP	0.77%
<b>Functioning</b>	
Actual retirement age	59.3
Gross replacement rate	49.1
Net replacement rate	60.8
Net pension wealth	8.5
<b>Contextual parameters</b>	
Life expectancy (m/f)	77.5/84.3
Unemployment rate	7.8%**
Participation rate (55–64)	41.0%*
Old-age dependency ratio	25%
Old-age Poverty rate	8.8%
Home ownership	63.0%**

**Source:** OECD (2011), Commission Services (2009), International Organisation of Pension Supervisors (2010), Eurostat data (2009), \* 2007, \*\* 2009. Data are recovered from different sources and were not always available for the same year. Slight variations between EU and OECD data are possible.

The French pension system is very much dominated by the public pension in the first pillar. This pension is based on social security contributions and benefits are paid out on a PAYG basis. There exist three main groups, each group comprised of several different schemes; employees of the private and public sector, independents and special regimes for certain public professions. The contributions are paid by both employers as employees for a general public scheme and some specific schemes for certain groups, independents contribute for themselves.<sup>111</sup>

Under the 2003 reform a full contribution period extends to 41.5 years and from 2010 this will gradually increase to 43.5 years. The statutory minimum retirement age is 62 years, but to apply for full benefits one must either have a full contribution career or one has to retire at age 67.

The public pension aims at a replacement rate of 50%, but for each missing contribution quarter 1.25% the pension rate is deducted and the pension amount is reduced pro rata of the final benefits. Specifically for employees working on the minimum wage, the replacement objective is at least 85% of the minimum wage.<sup>112</sup> The benefits themselves are calculated on average earnings for 25 years as of 2008, but with the limit of the social security ceiling which can amount to 140% average earnings.<sup>113</sup>

A minimum public pension exists for all inhabitants who have contributed at least one contribution quarter. This pension can vary depending on the number of actual contributed quarters. This can be augmented with a general minimum old-age assistance program which can provide additional benefits. Employees with public pension benefits and occupational benefits will rarely classify.

The second pillar is formed by the occupational pension schemes. For all workers an occupational scheme is mandatory. The mandatory occupational schemes which exist in many forms can be split into two national pension federations, ARRCO and AGIRC. The

<sup>111</sup> Conseil d'orientation des retraites, 2010b.

<sup>112</sup> OECD, 2011a.

<sup>113</sup> European Commission, 2009b.

ARRCO scheme is designed for all private employees, while the AGIRC scheme is an extension for professionals and executives. They are private schemes dating back to 1947 and are governed by the social partners, but they were made mandatory by the government.<sup>114</sup>

The ARCCO plan has 18 million contributors and 10 million beneficiaries; the AGIRC has 3.6 million contributors and 2.1 million beneficiaries according to the International Organisation of Pension Supervisors profile for France for 2011. All plans work on a PAYG basis. It also describes that the contributions for ARRCO “benefits are earned on 6% of earnings below the social security ceiling and on 16% of earnings up to three times the social security ceiling. For AGIRC benefits are earned on 6% of earnings below the ceiling of the general public pension scheme and on 16.24% of earnings up to eight times the social security ceiling”.<sup>115</sup>

Contributions are used to build up pension points, calculated by dividing the total annual contribution by the value of each pension point. Benefits can be taken up when a member has achieved a full contribution career or at the retirement age when one is eligible for full benefits. Until 2010 this was 65, but this will augment to 67 years. The amount of gathered pension point is then converted to benefits by multiplying the number of saved point to their actual value. The point cost is upgraded based on earnings, while the point’s value is increased according to prices. This means that the final benefits are lower compared to valorisation to earnings.<sup>116</sup> Benefits are generally paid out as annuities.

Apart from these mandatory occupational schemes, additional voluntary occupational schemes are also possible. In 2006 the government made the PERCO scheme possible for employees. These are voluntary plans where the employee can make contributions amounting to maximum 25% of his gross salary. Employers must also contribute, but there is an upper limit to their contribution and no minimum. Benefits can normally only be paid out in retirement and are paid as annuities. The funds can work with the defined benefits or the defined contributions method. The capital is not taxed, only the annuities are considered under the income tax. The scheme had about 360 000 participants in 2008 and up to 690 000 in 2010. It is obviously growing but still accounts for a small coverage (about 2.4% of all employees). OECD data indicate that autonomous funds only govern assets worth 0.77% of GDP in 2008.

The third pillar is less developed in France. The personal pension<sup>117</sup> plans are possible since 2004. They are designed as defined contribution plans. The purchaser can only receive his benefits when he reaches retirement age. On the other hand, the contractor must guarantee a certain minimum level of benefits. The closer a person is to retirement, the safer the investment of his pension funds must be, guaranteeing that he will not suffer substantial losses just before retirement. Plans can be offered by regular financial institutions and banks, but no figures are available concerning coverage and assets.

## 2.2. Future trends and reforms

Table 25 gives the projections of several indicators which are of importance for the pension system. The first figures concerning population were distilled from the 2009 Ageing Report. In the report the future trends concerning life expectancy, the dependency ratio and the potential GDP growth were displayed. According to the projections life expectancy will rise with about 6 years for men and 5 years for women. Accordingly the dependency ratio will

<sup>114</sup> Conseil d’orientation des retraites, 2010b.

<sup>115</sup> International Organisation of Pension Supervisors, 2010.

<sup>116</sup> OECD, 2011a.

<sup>117</sup> PERP.

rise from 25% in 2008 to 45% in 2050. The Social Protection Committee expects that the dependency ratio will even increase up to 47.9% in 2050. This is a clear indication of the ageing of the population, but still according to the Social Protection Committee the dependency ratio will remain below the EU average of 52.8%.<sup>118</sup>

The economic projections indicate a rise in expenditure compared to modest potential growth. The future growth indicators are of course predictions which were made before the crisis – the numbers of 2008 and 2010 are actual figures from Eurostat. The economic crisis has shown that such gradual growth is unlikely and will pass through ups and down. A little more certainty can be given concerning the expenditures on public pensions as demographic projections, but here also the crisis had its influence.

France will see its expenditure rise from 13% to 14.2% in terms of GDP. That is a rise of 1.1% compared to the 2.3% rise for the EU-27. However, France also starts off with the highest public pension expenditures and remains above the EU-27 average of 12.3% in 2050. New figures, which take into account the crisis, indicate that the cost may increase with 1.2% by 2020 and 1% in general by 2060, which corresponds with the latest figures which show the projected deficit level that would be reached in 2025 instead of 2040.<sup>119</sup>

It is difficult to find accurate current projections for the rise in the French debt level. French national statistics show that according to the rules of the Stabilisation Pact France has a debt worth 81.7% of GDP in 2010. This will rise in the future, but several aspects were not yet calculated for accurate projections such as the effects of the 2010 pension reform. Cecchetti, S. et al. indicate that depending on reforms debt levels may rise from 81.7% to between 200% and 400% of GDP in 2050.<sup>120</sup> This means that France's public budget is under heavy strain, not only from public pension expenditure. Health-care costs are already high in France and will probably rise because of the ageing population, extending pressure on public finances.

**Table 25: Projections of developments concerning pensions in France**

	2008	2010	2020	2050
Life expectancy (m/f) in years	77.5/84.3	77.9/84.5	79.5/85.9	83.9/89.1
Old-age dependency ratio	25.0%	26.5%	33.0%	45.0%
Possible GDP growth	-0.1%	1.5%	1.5%	1.7%
Public pension expenditure in % GDP	13.0%	13.5%	13.6%	14.2%
Health-care expenditure as % of GDP	8.1%	8.2%	8.6%	9.3%
Debt as % of GDP	63.9%	81.7%	150.0%	200.0-400.0%

**Source:** The 2009 Ageing Report (European Commission, 2009a), Commission Services (2009), Insee (2011), Cecchetti, S. et al. (2010).

The French Pensions Advisory Council, created in 2000, has also made several projections of the French Pension system and the budgetary implications. In each report assumptions were updated according to latest reforms and economic forecasts. The latest report defines three scenarios in which either the effect of the crisis are compensated by 2013 or rather that unemployment drops again, but productivity remains low. The last scenario is the least favourable with both high structural unemployment and low productivity.

<sup>118</sup> European Commission, 2009b.

<sup>119</sup> Conseil d'orientation des retraites, 2010b.

<sup>120</sup> Cecchetti, S. et al.

Leaving interest yields equal for the mandatory occupational schemes, the scenarios show a cumulated need for additional financing of 12.9% to 13.1% of GDP in 2015. In 2050 this will have increased to a cumulated 77.1% in the most favourable scenario to 118.4% of GDP in the least favourable scenario. Additional financing of the system by the government to balance contributions and benefits will amount to 1.7% to 2.1% in 2020 up to 3% of GDP in 2050.<sup>121</sup>

As the projections show, France still has to undergo pension reforms to sustain their system in the future. During the last 20 years, France has implemented several reforms partially transforming the pension system. The last most important reforms were done in 2003, 2008 and 2010. Before going into those reforms, it is also interesting to go back to the reforms done in the 1990s. Most elements of those reforms were later changed in the reforms discussed below and are thus outdated, but one measure deserves additional attention.

In 1999 a special fund<sup>122</sup> was created to alleviate the future pension burden. The fund was to contain EUR 150 billion by 2010 which would be spend gradually from 2020 onwards to compensate additional costs. However, the funds never received structural contributions from the government which left the funds underfinanced in relation to its objective.<sup>123</sup> In the latest reform in 2010, the start date of the usage of the fund would also be moved from 2020 to 2010.

In 2003 an extensive reform was done by the administration of the time of the basic public pension scheme. It contained several import changes to the pension system. One of the main elements was the prolongation of the contribution period. By 2008 people would have to contribute at least 40 years instead of 37.5. After 2008 this would further rise to 41 years by 2012.<sup>124</sup>

On the other hand, with the "aid for a longer career", it was made possible for people who had start working before the age of 16 or 18 to quit before the retirement age of 60 if they had at least contributed at least 42 years. To reduce the cost of benefits, the period on which calculations were based was spread out to respectively 23, 24 and 25 years as of 2006, 2007 and 2008. This meant lower average earnings, hence lower benefits.

The installation of new capitalisation schemes both personal and occupational in the form of the PERP and PERCO schemes was an important step. This gave the possibility to diversify potential pension income and left more space for private pension plans, which were poorly developed. To support pensioners some social measures were taken as well, such as affirming the link of pension benefits to the index instead of to average earnings and fixing a basic pension of 85% of the minimum wage for those employees who have worked their entire life on minimum wages.

The success of the reform was mixed, reports from the Pensions Advisory Council and the government show that the actual retirement age decreased because of the measure for employees who started contributing before the age of 18.

In 2010, after the economic crisis, another lager reform was implemented by the French government. Major elements of the reform pushing back the statutory retirement age and the retirement age for full benefits, toughening the regulation for "aid for a longer career" and the further increase of the contribution period. The main element of the reform was based on the changing of the statutory retirement age from 60 to 62 years.

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<sup>121</sup> Conseil d'orientation des retraites, 2010b.

<sup>122</sup> Le Fonds de réserves pour les retraites.

<sup>123</sup> Berger, C. et al.

<sup>124</sup> OECD, 2011a.

The necessary retirement age to receive full benefits, if one has not contributed for a full career, has also changed from 65 to 67 years. Correspondingly the minimum contribution period, which was set to reach 41 years by 2012 under the 2003 reform, will be prolonged to 41.5 years by 2020. Those who have not contributed for 41.5 years and quit before 67 will suffer penalties on their benefits. These main measures were focused to counter rising life expectancy by lengthening contribution periods and shortening the beneficiary period.

Beside these measures, other instruments were used to counter the mounting costs of the pension system. Several special taxes or tax increases were instituted to raise revenue. Contrary to the initial goal of the Pension Reserve Funds to use it from 2020 onwards, the 2010 reform approved its usage as of 2010 to stem deficits in social security because of pension obligations. Despite severe political opposition and protest from the population, these reforms were approved on 9 December 2010. It remains to be seen if they will withstand political changes during the coming years.

### **2.3. Lessons to be learned**

The French pension system is based almost entirely on PAYG funding. This makes it a prime example of an old pension system still close to the initial pension systems introduced in Europe. This certainly does not mean that the French pension system is without merits. As all systems it displays strengths and weaknesses.

The financial crisis has shown how fragile pension schemes based on capitalisation can be. For a dominantly PAYG system such as in France, the effects of the crisis on pension funding were less extensive than in countries with large capital funding such as the Netherlands. However this does not mean that the crisis cannot or did not have any effect on the provision of future pensions, but the effect will be more indirect. The replacement rate, while not among the highest in Europe, seems to be sufficient to keep pensioners out of poverty, more so than in several OECD and EU countries. The mandatory occupational pension schemes help employees to reach decent pensions

The French pension system also has its weaknesses. The high reliance on the PAYG system makes the system vulnerable to the main threat for the financial sustainability of the European pension systems: rising life expectancy of the population and rising dependency ratios. France can expect a significant rise in both parameters, also given low actual and statutory retirement ages. The high dependency ratio ties the system closely to developments on the labour market. As pensions are sustained only by current contributions, a lower number of contributors make finding a financial balance more difficult. It also means that the labour market must focus on the activation of older workers and that unemployment must be kept as low as possible. In this respect, France also suffers with some difficulties. Largely but not entirely due to the crisis, unemployment has not yet fallen to levels which are deemed necessary to obtain sustainable funding according the Pension Advisory Council.

The situation of people on the labour market has consequences for their future replacement rate. In France the pension system provides significant reductions of benefits if the full contribution period has not been achieved or one retires earlier. This can lead to low replacement rates for those who lost several years on the labour market due to voluntary or involuntary reasons.

Unemployment caused by the crisis can have severe effect on the replacement rate of those unemployed, whether temporary or permanent, which is an undesirable social effect. On a final note, the distinction in occupational pension plans and especially the maximum contributions which is allowed seems artificial. Hence, using more equal standards for occupational pensions appears to be a proper method.



Keeping pension spending under control is difficult in France because the basic expenditure is structurally high. Expenditures will not rise as much as in other countries, but France already is and remains a country with a high pension spending ratio in percentage of GDP.

Yet France has not been blind to the weaknesses of its pension system. Several reforms have been carried out to be able to confront the upcoming challenges. Pension reform in France has been difficult because of political differences and less involvement of the social partners compared to some other countries. In the last twenty years many reforms were undertaken, which shows that the differences do not obstruct changes directly. The reforms have focused on the weakness of the French pension system in several ways; trying to diversify pension funding through the installation of capitalisation plans; expanding the contribution period and matching retirement more closely to life expectancy. The reforms form in many ways a continuous line through the years, each building on the previous reform to take more drastic measures. While the reforms are in line with current suggestions concerning pension reform, not all of them were equally successful.

The public pension reserve funds did not receive the means which were necessary to build up a substantial capital. The 2003 reforms allow private capitalisation plans, but still under strict regulation, hampering their success. The reforms of 2003 also tried to postpone the actual retirement age, but instead lowered it because it created a special rule for certain groups to quit earlier, simply because they were officially dropped out of the labour market, unable to find a job.

This shows that France cannot gain substantial advantages of its pension reform if it does not combine this with labour market reforms and activation of older workers. The effects of the 2010 reform will only become clear in several years, but again activation measures are partially missing while the reform implies employees working to at least 62 up until 67. The participation rate of those aged 60–64 years, which is currently around 16%, remains a crucial indicator of success.

Several publications and reports have given further advice to maintain budget stability in the pension system. Égert, B. proposed several measures concerning pensions, without taking the last reforms into account such as automatically linking the contribution period and life expectancy, reducing the number of retirement schemes to reduce complexity, eliminate early retirement and to consider the introduction of a notional accounts or point-based pension system.<sup>125</sup>

The Melbourne Mercer Global Pension Index for the year 2010 rated France as one of the lowest performing pension systems among 14 countries comparing adequacy, sustainability and integrity to grade each system. Several measures are indicated in the report which can further improve the score of the French system, most of which are already mentioned. Amongst these are “increasing the level of funded contributions thereby increasing the level of assets over time, increasing the state pension age over time, increasing the labour force participation rate amongst older workers, improving the regulatory requirements for the private pension system”.<sup>126</sup>

France can serve as a model case for other EU Member States given existing pressure on the pension scheme due to the ageing of the population. But the French reforms can also serve as interesting test cases to see which reforms work and which do not. Pension reform and labour market reform in the field of activation must go hand in hand if they are to succeed in reaching their goal as the 2003 reform pointed out.

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<sup>125</sup> Égert, B.

<sup>126</sup> Mercer.

## 3. ITALY

### 3.1. The Italian pension system

The Italian pension system has undergone substantial reform in 1995 introducing notional accounts, but remained a traditional pension system based on a solid public pillar with voluntary second and third pillar contributions. Recent reform of the severance pay “Trattamento di Fine Rapporto” (TFR) has increased reliance on capitalisation.

In Table 26 several contextual features and characteristics of the Italian pension system are displayed for 2008. The statutory retirement age for men is 65 years, but it is only 60 for women. Italy is one of the few countries who maintain this distinction. The actual retirement age is in general 60.8 years, which is still well below the statutory age of 65, but as the statutory age for women is only 60 this figure is relatively high and almost reaches the EU average (61.4).

According to the figures of the OECD, the Italian pension system provided pensioners benefits which amounted to a gross replacement rate of 64.5%. Correcting for taxes paid on these benefits, the net replacement rate amounted to 76.2% of previous gross average earnings.<sup>127</sup> Data from the Social Committee (2009) give a gross replacement rate of 80.2% and a net replacement rate of 89%. The significant variance for these two numbers probably comes from the difference in earnings and career length which is used to calculate the replacement rates.<sup>128</sup>

Pensioners in Italy obtain through their benefits a net pension wealth of 9.1 times their average annual earnings. This puts them slightly above the OECD average for pensioners. The contextual parameters show the environment in which the Italian pension system operates. Life expectancy in Italy amounts to 78.5 years for men and 84.2 for women in 2008, which places Italy amongst the countries with the highest life expectancy in Europe according to both the 2009 Ageing Report and the OECD.<sup>129</sup>

If life expectancy at age 65 is compared, Italy ranks second after France with an average of 19.5 years. Looking at the economic situation, the labour market had an unemployment rate of 7.8% in 2009, up from 6.2% in 2007. The participation rate of older workers stood at 34.7% in 2007, well below the 45% average of the EU-27. Both parameters indicate that a large part of the Italian labour force is not integrated and consequently cannot or does not contribute to the pension system. In 2008 the old age dependency ratio stood at 30%, higher than the EU-average of 24.5%.

The old age poverty rate defined by the OECD stands at 12.8%. While not particularly low, it hovers around the OECD average. This gives an indication of the ability of the Italian pension system to keep the retired population out of poverty, which seems to be adequate but not exceptionally efficient. When the rate of home ownership is compared however, it appears that Italy supports a higher home-ownership rate than many other European countries with 72.5% compared to an average of 71% in the EU-15.<sup>130</sup>

The rate for single or two person households with at least one adult older than 65, a group which constitutes 6.3% of the population (of households) goes up to 76.2% - an important life-time asset.

In Italy the traditional three pillars of a pension system can be found. The mainstay of the Italian pensions system remains the first public pillar, even if this one has undergone

<sup>127</sup> OECD, 2011b.

<sup>128</sup> European Commission, 2009b.

<sup>129</sup> OECD, 2011b.

<sup>130</sup> OECD, 2011b.

several reforms during the last 20 years. From a system of defined benefits on PAYG basis, the first pillar now works with defined contributions on notional accounts. Benefits remain to be paid on PAYG basis.

Under this system both public and private employees pay a contribution of almost 33% of wages. In the private sector, contributions are divided in 8.91% contributed by the employees and 23.81% by the employers. In the public sector, the employee contribution is slightly less and the government contribution slightly higher.<sup>131</sup>

**Table 26: Characteristics of the current pension system in the Italy**

<b>General features</b>	
Statutory retirement age (m/f)	65/60
Autonomous funds assets in % GDP	4.11%**
<b>Functioning</b>	
Actual retirement age	60.8
Gross replacement rate	64.5%
Net replacement rate	76.2%
Net pension wealth	9.1
<b>Contextual parameters</b>	
Life expectancy (m/f)	78,5/84.2
Unemployment rate	7.8% **
Participation rate (55–64)	34.7%*
Old-age dependency ratio	30%
Old-age poverty rate	12.8%
Home ownership	72.5%

**Source:** OECD (2011), Commission Services (2009), International Organisation of Pension Supervisors (2008b), Eurostat data (2009) \* 2007, \*\* 2009.

**Note:** Data is recovered from different sources and were not always available for the same year. Slight variations between EU and OECD data are possible.

The contributions are registered in a fictional account of the contributing employee. This account will determine the received benefits at retirement. To calculate the correct value of the benefits at retirement age, three factors are taken into account: the total contributions, capitalisation according to GDP growth and a transformation coefficient. For the capitalisation a five-year moving average of GDP-growth is used.<sup>132</sup>

The transformation coefficient captures the effect of the life expectancy, probability of death, leaving a surviving partner, etc. It is used to transform the total contribution amount into an annuity. Correspondingly, the earlier one retires and the longer the future life-expectancy will be, thus the annuity will be consequently lower.

The transformation coefficient allows for adaptations in the future benefits, making the system more flexible and future benefits adaptable to outside parameters and it is updated every three years since 2007. This makes the Italian public pillar a defined contributions system.

For those who entered the system after the main reform in 1996 retirement is fixed at 65, but a seniority pension – similar to early retirement - can be obtained with 40 years of contributions or at 60 with at least 35 years of contributions. This minimum age standard will further increase to 62 in 2013 after which it will rise from 2015 according to life-

<sup>131</sup> European Social Observatory, 2010a.

<sup>132</sup> International Organisation of Pension Supervisors, 2008b.

expectancy with about four months every three years. Exceptions in this public pillar are made for certain professions who must participate mandatory in special private pillars instead. For any resident in Italy above 65 who has contributed insufficiently, there is the “social check” which serves as a zero-tier public pension. This is a means-tested minimum pension.<sup>133</sup>

The public pensions are also adapted to the evolution of the index up until certain maximum benefits. Above those limits the indexation of benefits is below actual figures or even non-existent. In total the first pillar accounted for the entire replacement rate of 78% to 88%, but the transformation to notional account will eventually reduce this to about 50%. The decrease in the public replacement rate should by then be compensated by various plans from the second and third pillar.

The second pillar consists of two different elements, a mandatory scheme and voluntary schemes. Italy had a tradition of severance pay “Trattamento di Fine Rapporto” (TFR) in which the employer needed to capitalise a part of the employee’s salary (6.91%), to be paid out as severance pay at the end of employment. The employee could use it at retirement, but especially it could be used by the employee in times of unemployment or, after 8 years of build-up, for costs in relation to illness or purchase of a home. At the reform in 2005 the TFR contribution had to be redirected from the companies’ capital to private pension funds, in most times the industry-wide occupational funds.

This transfer implied silent consent of workers. In case they object, the TFR stays with the firm or goes to the National Institute of Social Security. Minor additional contributions can be made to the mandatory 6.91%. The contributions are tax-exempt, but the benefits are taxed. According the European Social Observatory about 13% of all employees are covered so far by this type of plan. There also exist voluntary occupational plans in which employees can opt for open funds or closed collectively agreed funds. Contributions can be made together with the TFR or in a different plan altogether.<sup>134</sup>

The third pillar is completely voluntary. Personal pension plans can be purchased at insurance companies. Coverage is still very low for these types of pension plans. Assets in Italy’s pension funds are now worth 4.57% of GDP according to OECD data of which 4.18% is invested in occupational schemes, the other 0.39% in personal pension plans.<sup>135</sup> About 20.7% of all workers participated in some form of private pension plans in 2008.<sup>136</sup>

### 3.2. Future trends and reforms

In Table 27 some projections are shown for the future of the Italian system with indicators which can have a profound impact on the sustainability of its pension system. The projections are mostly derived from the 2009 Ageing Report, chosen because of the availability and comparability of data. However not all figures are fully up to date with the present situation, as it goes without saying that several of the economic assumptions made in the Ageing Report have worsened because of the economic crisis and the continued economic uncertainty.

Looking at the projections concerning the population, it is shown that life expectancy will rise with almost 6 years for men and 5 years for women. Concordantly, the old-age dependency ratio rises steadily at first from 30% in 2008 to 35% in 2020, but grows increasingly to reach 59% in 2050 under current conditions and assumptions. This is a

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<sup>133</sup> OSE, 2010.

<sup>134</sup> European Social Observatory, 2010a.

<sup>135</sup> OECD, 2010b.

<sup>136</sup> Paci et al.

higher dependency rate than both the EU-27 and the EU-15 which projections expect a total dependency rate of 50% for both.

The economic projections are more unstable as the economic assumptions they were built upon have changed thoroughly through the crisis. They remain interesting however, as they show what should now be defined as an optimistic scenario, making it even more clear where possible deficiencies are or changes must be made. In 2008 (and in 2009) growth was negative with -1.3%, opposed to what was foreseen in the Ageing Report. Future growth predictions (between brackets) are relatively low, giving Italy limited breathing room through economic expansion.

Public pension expenditure does seem to be positively influenced by the reforms made to the system. From 14% of GDP in 2008 would only rise to 14.1% in 2020, after a rise to more than 15 percent of GDP in 2040, the cost falls back again in 2050. This indicates that the reforms partly reach the goal of curbing the additional cost of ageing, even with the ageing population and the rising dependency ratios.

According to the 2009 Ageing Report the crisis might bring up the cost of the public pension system an additional 0.3% of GDP if the crisis remains limited to canceling the gains made since the year 2000 and makes a so called lost decade. Public health-care expenditure under the basic assumptions would rise from 5.9% in 2008 to 7.0% in 2050, but here the crisis might also push this number up.

Therefore, even if health-care and pension costs remain controlled, the public debt will still rise. Through 2001 to 2010 it already rose from 106% to 119%. Depending on conditions the debt level may reach 150% by 2020 and rise exponentially afterwards. Since many small reforms and adaptations were implemented very recently, it is difficult to make for an accurate current projection which takes these changes into account.

The Italian pension system underwent a series of reforms over the last 15 years with the intention to transform it into a more sustainable and diversified pension system. Before the first reforms were enacted in 1995, the pension system relied almost solely upon a strong public pillar, financed as a PAYG system.

As the replacement rate of the system reached about 80%, it was capable of providing adequate benefits, but it was also prone to become financially unsustainable under demographic changes which increased the dependency ratio between pensioners and contributors to the system. The reform of the system proved to be a continuous task as multiple major changes were made or reversed, together with small adaptations when the annual budget was addressed. This does make it hard for the population to keep track of the actual rules that apply in their personal situation.

**Table 27: Projections of developments concerning pensions in Italy**

	2008	2010	2020	2050
Life expectancy (m/f) in years	78.5/84.2	78.7/84.4	80.3/85.7	84.3/89
Old-age dependency ratio	30%	31%	35%	59%
Possible GDP growth	-1,3%	1%	1.9%	1.3%
Public pension expenditure in % GDP	14.0%	14.0%	14.1%	14.7%
Healthcare expenditure as % of GDP	5.9%	6.0%	6.2%	7.0%
Debt as % of GDP	106%	119%	110–150%	NA

**Source:** The 2009 Ageing Report (European Commission, 2009a), Commission Services (2009), Eurostat

In 1995 a major reform, the so-called Dini reform, was carried out which would transform the system from defined benefits to a system of notional accounts with defined contributions, after several parameter such as eligibility age, number of contributing years, etc. were already augmented in 1992.<sup>137</sup> Contributions were increased and a new method of calculating benefits was defined using the total contributions, the average GDP-growth and a transformation coefficient.<sup>138</sup>

This system would enter into force for all who entered the labour market from 1996 onwards. Those who already had at least 18 years of contributions would continue under the old system. For those in between transitional measures were put in place. This meant however that the cost of the reform was pushed forward to be carried by the younger generations. In the reform the seniority pensions (early retirement) were revised. It was made possible to retire with full seniority starting from age 57 with at least 35 years of contributions or even with 5 years of contributions if at least a level of benefits was reached that equalled or exceeded 120% of the social allowance.

In 1997, the first Prodi Reform took place, further reworking the new criteria. As it became obvious that the replacement rate of the public pillar would decrease, which was one of the intentions of the reform,<sup>139</sup> the private pillars that had to fill the gap were underdeveloped because of legal and financial restrictions. The 1997 reform aimed to make it easier to participate in complementary pension plans and also tightened the rules to be applicable for seniority pensions or early retirement. This reform was followed by the Maroni Reform in 2004 which further tightened the seniority applicability bringing the age requirement back to 60 for women or 65 for men. The reform made it impossible to retire before that age with 35 years of contributions while introducing the possibility to retire at any age with at least 40 years of contributions.<sup>140</sup>

No more early retirement with 120% social allowance would be allowed. The pension plans under the second and in a lesser way to the third pillar were further encouraged by providing higher fiscal incentives and by transferring the TFR to the second pillar as an occupational pension scheme.<sup>141</sup>

Right before these previous reforms would come into effect the system was changed again under the second Prodi Reforms, which revised the seniority rules. Instead of fixing the earliest retirement age for seniority pensions at 60 and 65 at once, the implementation was made more gradual to ease out the negative effect for a certain generation (1951–1955) who would be hit the hardest according to Scopelliti.<sup>142</sup>

Thus, a moderate increase from the age of 59 to 61 should take place. The Prodi reform also increased the means tested benefits and the benefits for those with atypical contracts. The transformation coefficient designed to calculate the pension benefits would now be revised every three years and not after 10 years as initially planned.<sup>143</sup>

Recently, further small adaptations have been made. The statutory retirement age will be equalised for men and women in the public sector starting by 2012. Also, the minimum retirement age has been permanently increased both for the old-age and early retirement benefits. The payment window of the pension is also adjusted, signifying that the actual payment of benefits will only be paid out 12 months after retirement for employees and up

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<sup>137</sup> Amato reform.

<sup>138</sup> Cackley, 2006.

<sup>139</sup> Cackley, 2006.

<sup>140</sup> Scopelliti, A. D.

<sup>141</sup> European Commission, 2010c.

<sup>142</sup> Scopelliti, A. D.

<sup>143</sup> Aben, M.

to 18 months for the self-employed.<sup>144</sup> Since minor reforms and adjustments have been made continuously, it is possible that some have not yet been included.

### 3.3. Lessons to be learned

The Italian pension system constitutes an interesting case to observe reforms and their effects. While Italy is amongst those countries that will feel the demographic evolution the hardest, its pension system was extremely vulnerable to these evolutions since it relied solely on a PAYG system to fulfil its pension obligations. While this was the situation before 1995, the situation in 2010 is completely different. From a fixed one-pillar system, the Italian pension system has increasingly become a flexible multiple pillar system.

The conversion of the pension system makes it somewhat difficult to assess the strengths and weaknesses of the Italian system under its current structure as not all elements have been rolled out yet and transitional measures distort the full effects of the measures.

Considering the strengths of the new system, it is obvious that the transfer from defined benefits to notionally defined contributions (NDC) is a good way to balance keep spending for future benefits under control. By making benefits adjustable to life expectancy the demographic challenge posed by an ageing population can be countered and the amount of future entitlement adjusted for a fairer distribution of wealth across generations.

The second interesting element of the new Italian pension system is the diversification of the pension system. The instalment of the TFR as occupational pension guarantees that all workers will not only receive benefits from the second pillar, which will be lower than before the reforms.

Some weaknesses remain however. First of all, the system remains to be operated on PAYG basis. This is not a problem as such, but it implies that the risk for claims on future entitlements remains with the state.

As Italy is not in an optimal financial situation due to its debt-level, it must monitor the evolution of contributions and benefits very closely to avoid extra cost through deficits in pension payments.

Secondly, the effect of the labour market is an important potential weakness. It also remains to be seen what the effect will be for those who are unable to build up a full working career. As the importance of the public pillar is diminished and requirement and benefits for social allowances have been sharpened, it might be possible that a dual situation between pensioners will arise.

On one hand there would be those who have worked full careers, enjoy full first pillar benefits and benefits from the second and third pillar which they could build up during employment and on the other hand there would be a disadvantaged group who had less access to employment and was thereby cut off from the use of the second and third pillar and does not enjoy full benefits from the first pillar.

Seeing that the labour market situation has worsened considerably during the crisis, this might prove an important issue as access to the labour market by many young unemployed and the build up of pension entitlement is delayed. As the old-age poverty rate in Italy is almost equal to OECD mean under present conditions, it could rise further. The reforms undertaken by the Italian government were impressive and numerous. Their main purpose, ensuring the sustainability of future pension liabilities, seems to be successful. Projections even before some further reforms indicate only a limited increase in public spending on

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<sup>144</sup> European Commission, 2010c.

pensions, despite the increase of pensioners due to demographic transitions. Even the effect of the crisis on public pension spending remains limited.

Some other elements of the reforms are less positive. The duration and constant adjustments to the reform make the process not very transparent for the future recipients. Especially reversing earlier decisions such as in 2007 could prove confusing. It is important that the major elements of reforms are made under a political consensus to make them durable and ensure broad support. In some ways it is also unfortunate that during the initial reforms those with 18 years of contributions could remain under the defined benefit system. By distorting the balance between generational costs and benefits, these types of measures might cause friction between generations.

It is also unclear to see how the market for occupational and especially private pension plans will develop. Currently Italy has less than 5% of GDP worth in assets and many employees remain without private plans. To ensure that replacement rates do not fall considerably, people will have to be encouraged to participate in voluntary plans of the second and third pillar.

The mandatory element of the TFR transition to occupational pension schemes is logical, but the effect of this transition on the Italian economy remains to be seen as it used to be a cheap source of financing for companies and a fallback position for employees during unemployment. Even though employees can still withdraw their savings for certain purposes, it might affect their behaviour during unemployment and their consumption.

Concluding, the reform offers a sound example of how regular defined benefits can be transformed into a more flexible and sustainable system. This cannot be underestimated as countries with defined benefits under PAYG systems cannot suddenly switch to systems with capitalisation.

The option of notional account might prove more viable as a method of reform. The Italian case also shows the importance of thorough planning to minimise the number of years to implement the necessary reforms.

## **4. POLAND**

### **4.1. The Polish pension system**

The Polish pension system used to work as a traditional PAYG system based on the public first pillar. As this system was becoming a strain on future budget sustainability, it was reformed starting 1998/9 into a more diversified system using notional accounts with defined contributions and fully-funded DC schemes.

In Table 28 the main characteristics of the pensions system in Poland and its contextual surroundings are shown for 2008. The statutory retirement age for men and women is different in Poland, being 65 for men and 60 for women. Of all remaining European countries except Switzerland who have this distinction in statutory retirement age, Poland is the only state in Europe with no concrete plans to phase out this difference in the future.

The actual retirement age in Poland is much lower than the statutory retirement age. On average people retire at the age of 59.3 years. This is well below the average in the EU (61.4). The cause of this is varied, but the main reasons are the wide existence and usage of early retirement for a number of professions and the lower retirement age for women combined with their lower employment opportunities.

The replacement rate provided by the Polish pension system comes to a gross rate of 59% and a net rate of 68.2% in 2008 according to the OECD. Figures from the Social Protection



Committee from 2009 indicated gross and net replacement rates of 63.2% and 77.7% for 2006. The difference is mainly due to the methodological difference in calculating the standard averaged replacement rate for a normal career. At retirement Polish pensioners obtain by average a net pension wealth of 7 times their gross average earnings, well below the OECD average of 8.2. Part of this will be obtained through capital from the second pillar. Those assets in pension funds reached 15.79% in 2010 from 13.52% in 2009.<sup>145</sup>

In 2008 the value of the funds fell back by more than 14%. In comparison with other Member States this was around the average losses in similar funds. Prior to the crisis, the Polish funds were the best performing in the region.<sup>146</sup>

Looking at the contextual indicators which influence the pension system, we can get a better understanding of the pension system's characteristics. Starting with the demographic indicators, the life-expectancy in Poland is relatively low in comparison to other Member States or OECD countries. This is especially true for men who have an average life expectancy of 71.4 years, opposed to women's 79.9 years.

Average life expectancy in the European Union in 2008 was 76 years for men and 82.1 years for women however. Life expectancy at the age of 65 is only 16.5 years, which is well below the average of 18.2 of the EU-27, but amongst the highest in Eastern European countries.

Economic indicators show that unemployment is relatively high in Poland reaching 9.6% in 2009 and rising in 2010. In perspective, Poland has had unemployment rates which were much higher during the last decade. The participation rate of those ages 55 to 64 remains low to EU standard with 32.1% opposed to the EU 47.5%. Early retirement is an important contributor to this; the dependency ratio is not very high and stands at 19%, lower than in most Western European countries at this moment in time (24.5%).

According to the OECD, the old-age poverty rate is also quite low and stands at 4.8%, considerably below the OECD average of 13.1%. This is certainly one of the positive effects of the old pension system which allowed for a universally high replacement rate. The last indicator to take into account is the rate of home ownership in the country. This stands at 68.7% according to Eurostat data. The rate for single or two person households with at least one adult older than 65, a group which constitutes 4.8% of the population decreases however to 59.2%, indicating that the elderly are less likely to own their home than younger generations.<sup>147</sup>

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<sup>145</sup> European Commission, 2009b.

<sup>146</sup> Jarret, P.

<sup>147</sup> OECD, 2011b.

**Table 28: Characteristics of the current pension system in the Poland in 2008**

<b>General features</b>	
Statutory retirement age (m/f)	65/60
Pension funds assets in % GDP	13.52%**
<b>Functioning</b>	
Actual retirement age	59.3
Gross replacement rate	59.0%
Net replacement rate	68.2%
Net pension wealth	7.0
<b>Contextual parameters</b>	
Life expectancy (m/f)	71.4/79.9
Unemployment rate	9.6%**
Participation rate (55–64)	32.1%*
Old-age dependency ratio	19%
Old-age poverty rate	4.8%
Home ownership	68.7%

**Source:** OECD (2011), Commission services (2009), International Organisation of Pension Supervisors (2009), Eurostat data (2009), \* 2007, \*\* 2009.

**Note:** Data is recovered from different sources and were not always available for the same year. Slight variations between EU and OECD data are possible.

In Poland the pension is mainly built on the first and second pillar since the reform of 1998/1999. The first pillar used to provide all benefits and guarantee a high replacement rate. Due to increasing deficits the contributions had to be raised up until they reached 45% of wages, which clearly indicates the need for reforms to make the system more sustainable.

Currently the first pillar is based on notional accounts with defined contributions. These contributions amount to 19.52% of gross wages, which are paid equally by employees and employers and are administered by the Polish pension authority (ZUS). They redirect 7.3% (2.3% as of 2011) of the 19.52% directly to the Open Pension Funds (OPF) in the second pillar. The rest is kept in the public pillar and constitutes the capital for the individual's notional account. As of 2011 the additional 5% which is not redirected is kept into sub accounts and will be reimbursed after being subjected by indexation according to real GDP growth. As these accounts are not fully-funded, they are also additional notional accounts.<sup>148</sup>

As a transitional measure those born between 1949 and 1968 had the choice to enter in the NDC system and the funded pillar or only in the first. In this case the entire 19.52% went to the NDC system, yet 80% opted to step into the funded pillar, opposed to a projected 50%.<sup>149</sup>

The first pillar continues to operate under a PAYG system, so it is not a fully-funded system. The benefits to which an individual is entitled are derived from each person's total contributions, capitalised with the real wage growth and converted into annuities using tables with unisex life-expectancy projections. As of 2008 these benefits are subject to indexation once a year. The new system also capped maximum contributions to 2.5 times average earnings. Early retirement remains possible, but no longer within the pension system. Under the former system many professions were entitled to early retirement

<sup>148</sup> Eurostat, 2011.

<sup>149</sup> Sierhej, R.

depending on the number of years of contributions. Several of these were abolished but many persisted or were reinstated such as those of miners.<sup>150</sup>

As of 2009 a bridging pension is used for those working under a set of specified conditions. They can receive benefits for five or even 10 years before retirement. This is paid out by the state budget (and employers) however, so it does no longer use pension recourses. The first pillar includes a zero tier with a guaranteed minimum pension for man/women with 25/20 years of contributions. If their pension should fall below a certain level, it will be supplemented up to about 45% of the average pension, also by provisions from the state budget.

The second pillar consists of the mandatory and voluntary occupational plans. The mandatory system is based on the 7.3% of contributions (2.3% as of 2011) that is redirected from the contributions made to the ZUS towards the OPF as such they can also be viewed as the second tier of the first pillar. As the funds are privately managed and partly funded by employer and employee, we prefer to count them in the second pillar despite them being under close governmental regulation. These funds are private and provide for a capitalisation of contributions paid out at retirement. Currently 14 of these funds exist. Those individuals who do not choose a specific fund to allocate their contributions get one assigned to them. The funds cannot invest in more than 5% of foreign assets.<sup>151</sup>

Savings are paid out in the form of annuities but cannot be obtained before the age of 65. As women can retire at 60, a special measure has been taken for them. They will receive temporary capital pensions, based on their savings. This is managed by the OPF.<sup>152</sup> There is also the possibility to enter in voluntary occupational pension plans which are private pension funds with contributions from both employer and employee. Contributions of both are tax-exempt up to certain limits. To start with an occupation plan, at least half of employees must have the possibility to enter and it must be registered with the supervising authority. When switching jobs it is difficult to transfer or maintain one's PPE and the lack of mechanisms imposed by employers to prevent poaching, making that in 2009 only 3% of employees was covered by such pension plans. It is possible to switch the saving to a personal pension plan.

The third pillar consists of voluntary private plans (IKE). Contributions to such plans can be made with after-tax earnings. If they remain below 150% of the average monthly wage they are tax-exempt. Methods of paying out benefits vary depending on the plan. The saved capital can be withdrawn before retirement with financial penalties common in such plans.<sup>153</sup> In 2009 almost 5% of employees were insured in this manner.<sup>154</sup>

## 4.2. Future trends and reforms

Some important projections for the Polish pension system and its depending variables are made in Table 29. As these projections are made with assumptions before the economic crisis some may have already been altered. Those who are affected by the crisis will be discussed accordingly. Life expectancy will considerably over the coming decades reach 80.7 years for men and 86.7 years for women over the coming decades. Noticeably the large difference between men and women remains. This is important as all pension calculations in Poland are made on unisex life expectations, which is thus favourably to women. The dependency ratio, which was fairly low to European standards, rises up to

<sup>150</sup> OECD, 2011a.

<sup>151</sup> European Social Observatory, 2010b.

<sup>152</sup> OECD, 2011a.

<sup>153</sup> International Organisation of Pension Supervisors, 2009.

<sup>154</sup> European Social Observatory, 2010b.

27% by 2020, but grows more strongly to 56% by 2050, thereby surpassing the projected European average rate of 50%.

The economic prospects show a strong GDP growth in recent years, more than initially projected in the 2009 Ageing Report. The Polish GDP experienced a slowdown of GDP-growth in 2009, but the crisis did not fully stop economic expansion in Poland. Projections by 2050 indicate a slowdown in the long run however.

Public pension expenditures show a surprising trend compared to the ageing population. According to the forecast made in the Ageing Report spending will actually fall, contrary to most European countries, from 11.6% in 2008 to 9.1% of GDP in 2050. The crisis would worsen this outlook by about with an additional 0.9% according to the latest recalculations. The reason for this decline is found in the pension reform which has drastically cut in the publicly provided benefits and pushed part of future pension obligations to the private market.

Healthcare cost will rise however, by almost 25% in 2050 to 4.9% of GDP. Public debt has risen the last years, partly due to the crisis, but also due to deficits in social and pension spending as the reform has not yet succeeded in fully balancing the contributions and entitlements. Future debt levels for Poland are difficult to estimate with the effect of pension reform continuing and possible spill over to other forms of social spending, especially since it is constitutionally illegal to pass the debt level of 55% of GDP.

It is yet unknown what the latest reversal of the reform in 2011, internalising 5% of the contributions to the OPF and thus also future liabilities, will mean for the pension expenditure and the budget in the long run.

**Table 29: Projections of developments concerning pensions in Poland**

	2008	2010	2020	2050
Life expectancy (m/v) in years	71.4/79.9	72.1/80.3	74.3/82.1	80.7/86.7
Old-age dependency ratio	19.0%	19.9%	27.0%	56.0%
Possible GDP growth	5.1%	3.8%	2.5%	0.3%
Public pension expenditure in % GDP	11.6%	10.8%	9.7%	9.1%
Healthcare expenditure as % of GDP	4.0%	4.1%	4.4%	4.9%
Debt as % of GDP	47.1%	55.0%	NA	NA

**Source:** European Commission (2009a), Commission Services (2009), Eurostat.

The Polish pension system underwent a major overhaul between 1998 and 1999. Thereby it changed its traditional system based on a public pillar with a PAYG system to a multi-pillar system with notional accounts for the public pensions (NDC) and capitalised second pillar schemes (FDC). The overhaul was necessary as the old pensions system was becoming unsustainable in the prospect of future demographic developments.<sup>155</sup>

Two major elements of the reform, the introduction of the NDC and the FDC, were specifically aimed at improving the financial status of social security. These changes would imply a reduction of the cost of the pension system by lowering the replacement ratio for future pensioners, increasing the effective retirement age (by cutting early retirement) and by shifting longevity and market risk to beneficiaries. In the short run cost would rise the first decade of the reform, mainly because of the lower contribution rate of 19.52% while it had reached 45% before. As benefits are paid out on PAYG basis such drastic reduction had

<sup>155</sup> Gora, M.

a large effect on the balance sheet between the current contributions and obligations. Estimates made directly after the reforms showed that deficits and surpluses would be reversed by 2010.<sup>156</sup>

Several transitional measures had to be taken. Everybody in employment before 1999 received an initial capital on their NDC accounts, based on their acquired rights in the old system. The group born between 1948 and 1968 could choose to opt in only the NDC system, paying a generally higher contribution, or opt in both the NDC and the FDC system. This was done by 80% of those eligible, instead of the foreseen 50%. Additionally, a demographic reserve fund was established. This fund was meant to reduce the impact of the retirement of the baby-boom generation on the necessary contribution rate. As the number of contributions would reduce and benefits would have to be expanded, the reserve fund would ease these differences.

Several adjustments were made in the course of implementation, while other elements necessary for completing the reforms were only decided upon in a later phase. In 2004 the rules surrounding the pension plans, a form of occupational pension funds were simplified, tax exemptions were expanded and investments made easier in order to encourage participation in these occupational funds. Some previous elements of the reforms were reversed, however, such as the uniformed services which were excluded from the standard regime in 2003 and the early retirement benefits for miners which were reinstated in 2004,<sup>157</sup> thereby undoing an important element of the reforms, namely curbing the special regimes of early retirement and their related costs.

Furthermore, some elements of the reform are only adopted later on. In 2009 the Law on Annuities is adopted by the Parliament after 10 years of debate. It decrees the conversion of assets into single annuities following unisex life tables, starting at the age of 65. Special rules concerning women are included as mentioned earlier in the description of the pension system. In 2009 the general reform of bridging pensions was also enacted further reducing the possibilities of early retirement.

The success of the reform in achieving its goals and on the impact it has on the Polish population still needs to be assessed. The reform and its adjustments were not without problems as some authors point out.<sup>158</sup> The reason is that the reform cut the replacement rate quite drastic<sup>159</sup> and reformed the system in such a way that it affected its participant's behaviour in an undesirable way. Two main critiques are made on the reforms and its first effects. The first point refers to the successful relieve of the financial burden of the pension system on expenditure. While it is clear that pension expenditure will decrease considerably in the future as seen in the projections, it is argued that it will be less than the reforms envisaged. This is caused by several developments.

To start, pensions have been increasing faster than real wages, so that pension expenditures rose. Furthermore, contractual employment has declined through the reforms while self-employment has risen, lowering the amount of contributions. Also, participation in the second pillar was much higher than anticipated for those who could opt in, which obliges the ZUS to make additional transition cost to provide a starting capital. Consequently, the financial optimisation of the pension system has proven to be less effective than initially hoped and expected.

The second criticism focuses on the social dimension of the reforms. The reduction in the public replacement rate means a loss of previously guaranteed income and could form a

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<sup>156</sup> Sierhej, R.

<sup>157</sup> Jarret, 2011.

<sup>158</sup> European Social Observatory, 2010b; Sierhej, R.

<sup>159</sup> Jarret, P.

poverty trap. This loss was to be offset by the introduction of the second and third pillar schemes. Yet those are made for typical long uninterrupted careers. Polish employment data shows that careers are much more unstable and employment becomes more and more flexible, which explains the decrease in contractual employment and the rise in self-employment. Especially women have a low chance of building up rights to a full second pillar pension. Figures also show that participation in voluntary second and third pillar schemes remain low, which might affect the projected replacement rates considerably in the future.<sup>160</sup>

These critiques do not mean the Polish reform has been unsuccessful. On the contrary, its main aim, to reduce future pension spending, has been achieved. It is obvious however that side effects and the full impact of the reform are unclear because of the developments described above.

Finally there is the latest reform in 2010, implemented in 2011, reversing the contribution rate from the ZUS to the funded second pillar to reduce immediate deficits and to prevent a further rise of the government's debt level, but increasing future liabilities and which threatens to undermine the basic concept of the reforms, security through diversity. According to Jarret, P., replacement rates might fall with about 22% due to the reversal of private funded pensions.<sup>161</sup>

### **4.3. Lessons to be learned**

The Polish pension system provides a good example of the difficulties of a political reform. The pressure to change the pension system was perhaps more clear in Poland than in is in many Member States as the mounting costs it experienced and the high contribution rates necessary to reduce deficits, made it clear that the system up until 1999 was unsustainable.

Looking at the goals of the reform, primarily making the system financially sustainable, one can only deem the reforms successful, a judgement shared by the OECD.<sup>162</sup>

Future costs are greatly diminished in the new system, even with the latest partial reversal of the reform by cutting back contributions to the second pillar. As the Polish reform was envisaged as "security through diversity", it set up different second and third pillar options, making for a more flexible system but retaining the possibility for adequate replacement rates. While the retirement age was not linked to life expectancy, the NDC and FDC systems are based on life-time earnings providing an important incentive to work longer.

There are some less successful elements to the reform as well, some of which are already apparent, some which might prove problematic in the future. The new system and especially the second and third pillar are based on a model employee with stable employment and a full career. This is however not the case for Polish employment, meaning that many will not have the possibility to build up enough pension right to obtain a full replacement rate. This is in particular true for women as their employment situation is more precarious, and their earlier retirement age reduces the possibility to build up full replacement rates, certainly in the second and third pillar.<sup>163</sup>

Related to this negative trait of the system is the observation that participation in voluntary second and third pillar schemes remains low. This holds true for savings in general, weakening the financial position of employees when entering retirement. Also, there is the

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<sup>160</sup> European Social Observatory, 2010b.

<sup>161</sup> Jarret, P.

<sup>162</sup> OECD, 2011b.

<sup>163</sup> Chlon-Dominczak, A.

continued existence of special regimes in the pension system such as the system for farmers, which make the system less comprehensible and more budgetary neutral.

A final comment must be made on the effect of the latest reversals in the Polish reforms. While it does not endanger the financial results of the reform in general, it will result in greater fiscal advantages for the Polish state in the short term, but higher costs in the long run. While this is in itself a valid choice, it goes contrary to intergenerational risk sharing, because it postpones costs for future generations.

The Polish pension reform has also instigated a dispute with the European Union concerning the treatment of the funded occupational pillar in calculating the government's debt. These are included in the private sector, but Poland (and other Member States) would like them to be included in the public sector, and thus consider the current scenario as a penalty for recognising their future pension liabilities. Therefore the public debt depends on each definition and amounts to 64.3%,(OECD) 55.4% (EU Maastricht definition) or 53% (National definition).<sup>164</sup>

The dispute is one of the factors which contributed to the 2010 reversal of pension contributions. However in terms of future debt, it remains to be seen if the government did a good deal as it is borrowing from its citizens instead of the private market. The calculations of benefits in the first pillar's notional accounts are based upon the average wage bill, which has been slightly lower than the long-term government bond rate. The contributions withheld by the government following the reversal of the reform in 2011 will be calculated according to GDP growth, which was on average higher than the bond rate, so it is possible the reform will be more expensive than borrowing in the long term.

To sum up, there is much to learn from the Polish reforms. Its scope and ambition was impressive, but it is from the detail that most can be learned. It took long to detail all the special regimes and curtail certain privileges for some groups and professions, while some still remain active. While the costs of the pension system were much reduced, this was done by cutting in public replacement rates. If the replacement rates of certain groups fall below defined minima, it is the Polish social security which has to step in. While old-age poverty is low in Poland, the future might shift cost from pensions to social security, effectively blunting the envisaged cost reduction.

It does emphasise the point that to implement a successful reform, pensions must both be sustainable and adequate. The Polish reforms certainly made the system sustainable, but the adequacy of future pensions might still depend on developments in the labour market and the participation in occupational and private pension plans. For this, the precedent of the government nationalising a part of the contributions for the funded pension plan might reduce confidence of Polish employee to participate in such plans in the future.

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<sup>164</sup> Jarret, P.

## 5. CONCLUSIONS

The Dutch pension system provides a good example of a balanced mixed pillar system, with general public pensions and extensive occupational pensions. Several reforms were made slowly transforming the second pillar to defined contributions. However, the Dutch system also shows that even funded systems are not invulnerable. They are safe from demographic trends, but can be heavily affected by economic downturns. The combination of a semi-mandatory occupational pension and high labour market participation is successful in providing high replacement rates.

The French pension system is mainly based on the public pillar with mandatory occupational pensions. Reforms in the last decade have focused on extending the contribution period and the retirement age and penalising shorter contribution periods as demographic changes form a threat to the sustainability of public pensions. The potential effects of the reform in the form of a later average retirement age are not fully realised because of difficulty in raising the effective old age participation rate.

The Italian pension system has undergone several reforms since 1995 — transforming its public system to notional accounts and building up occupational and private pension plans. Special unemployment rights have been transformed into a mandatory occupational pension. The notional account considers GDP growth and future life expectancy to determine benefits, switching from defined benefits to defined contributions. Reforms have reduced the future expenditure on public pensions, but the participation on voluntary occupational and private pension plans is currently still rather low.

Poland has undergone a major reform changing its single pillar defined benefits system to a mixed pillar system with public notional accounts. Polish future pension expenditure projections are very favourable due to the reform. Possible labour market deficiencies and design of the new system might increase old age poverty and increase social security expenditure.

The four cases detailed above have shown a variety of pension systems existent in Europe. In each country that was examined several and often extensive reforms were undertaken in the last decade to adapt its pension system to future challenges. From these different examples we can draw some conclusions as to how pension systems and their reforms would best be conceived in the future.

It would be impossible to design one perfect system that can be applied under any circumstances. As pensions are an important element in Member States' social policy, the individual and historical context of a Member State and the local political preferences will remain to be very influential in the working of any pension system. Instead of offering one solution to the challenges in pension reforms the cases analysed offer us several. From these solutions and the problems that were encountered, it is possible to make up a set of general recommendations and cautions which would best be heeded when reforming a national pension system.

As the main threat on pensions systems in Europe comes from its ageing population and its budgetary implications, three general policy options seem to be the most successful. The first is to change the retirement age according to life-expectancy, restoring a better ratio between contributors and dependents and thus making the system more stable financially.

The second policy is to switch systems from defined benefits to defined contributions in public and private schemes, which allows absorbing demographic changes and other shocks by making liabilities conditional to certain parameters. A final policy option, coinciding with the reduction in public replacement rates from the other options, is developing a mixed



pillar system, to reduce dependency on public pensions and to encourage private saving. In turn this also relieves some pressure from demographic changes on the public liabilities.

These three options we can observe partially or entirely in the cases analysed in this report. However, the case studies suggest that these three policy options can only be applied when embedded in a larger framework. The policies themselves are no simple solutions which will solve the problems of financial sustainability easily. Either of these policy reforms contains certain potential problems which can only be offset in an inclusive reform using a holistic approach containing both these three and other measures. In this respect, the most successful policies which can be deduced from the cases are the following: diversifying the pension in a mixed pillar system, using defined contributions instead of defined benefits and linking retirement age to life expectancy. Yet as mentioned above, these policies alone will not suffice.

## ANNEX 2: Minimum pensions across EU Member States

### Austria

Austria has an income-tested top-up for low-income earners<sup>165</sup> that ensures a minimum retirement income of EUR 784 per month for single people<sup>166</sup> and EUR 1 175 for a couple.<sup>167</sup>

### Belgium

The minimum pension levels for Belgium represent the means-tested safety net income<sup>168</sup> that can be attributed if elderly persons have no pension rights based on a professional activity or whose pension rights are very low.<sup>169</sup> As of 1 September 2008, the means tested safety-net income per year for the elderly is EUR 10 630.83 for a pensioner living alone<sup>170</sup> and EUR 8 099.78 for an older person living with others per year.<sup>171</sup> The minimum pension levels reported in the MISSOC data regard the earnings-related public scheme.

Thus, in cases of pensioners with low earnings or part-time work throughout their career, there is a minimum annual credit designed to increase the attributed pension entitlements if they have at least 15 years' insurance as an employee, which is necessary to qualify for the guaranteed minimum pension.<sup>172</sup>

### Bulgaria

Information on Bulgaria is very poor because Bulgaria is not contained in the OECD report<sup>173</sup> and because the reporting in the MISSOC table is parsimonious. For the first Pillar, the minimum amount of the contributory old-age pension is determined annually in the Law on the Budget of the State public insurance. The minimum amount of pension for insurance and old-age is BGN 136.08.<sup>174</sup>

### Cyprus

According to MISSOC as of 1 July 2010, 85% of the full Basic Pension is based upon maximum Basic Insurable Earnings. For a single person the amount of the minimum pension is EUR 82.73 per week.<sup>175</sup> This corresponds to EUR 348.50 per month.

### Czech Republic

The minimum granted pension benefit is CZK 2 940 per month consisting of a basic component of CZK 2 170 and a minimum earnings-related pension of EUR 770.<sup>176</sup> In Table 7 we register only the basic component as the earnings-related component probably requires that the pensioner has contributed to the pension system. The average earnings per year amount to CZK 274 500 corresponding to CZK 22 875 per month. Using the yearly average exchange rates between February 2011 and December 2010, according to the ECB, the basic component of CZK 2 170 can be converted into EUR 88.54.

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<sup>165</sup> Ausgleichszulage.

<sup>166</sup> I.e. EUR 9 408 per year.

<sup>167</sup> I.e. EUR 7 050 per person per year.

<sup>168</sup> GRAPA – Garantie de revenu aux personnes âgées.

<sup>169</sup> OECD, 2011b.

<sup>170</sup> I.e. EUR 885.90 per month.

<sup>171</sup> I.e. EUR 674.98 per month.

<sup>172</sup> Pension minimale garantie/gewaarborgd minimumpensioen.

<sup>173</sup> OECD, 2011b.

<sup>174</sup> EUR 70.

<sup>175</sup> 85% x 60% x EUR 162.22.

<sup>176</sup> OECD, 2011b and MISSOC.

## Denmark

Basic pension is DKK 65 376<sup>177</sup> per year if a person has had 40 years of residence in Denmark. If a person has resided in Denmark for a shorter period than 40 years, the person is entitled to a pro-rated benefit.

In the MISSOC data the minimum pension is recorded as 1/40 of EUR 8 777, which is the pension a person can get if they have resided in Denmark for a shorter period. If work income is greater than approximately DKK 260 000, the basic pension is reduced at a rate of 30% against earned income above this level (MISSOC and OECD, 2011b).

A means-tested supplementary pension benefit is paid to the financially most disadvantaged. The pension supplement is tested against all sources of income apart from public pension as for example occupational pensions. This supplement has a maximum of DKK 67 896<sup>178</sup> per year for single persons. From 2004 a new supplementary taxable benefit was introduced of DKK 10 700<sup>179</sup> per year. The benefit is means-tested and targeted to the poorest pensioners without significant cash savings.

Furthermore, there is a supplementary pension<sup>180</sup> from the 1960's, which some authors refer to as one of the first NDC schemes. At a maximum this can amount to DKK 24 200<sup>181</sup> per year at the age of 65. As this system is very effective people who receive transfers such as unemployment insurance, social assistance or early retirement during the normal working-age period have also started paying contributions to this system. Among the poorest pensioners who have resided in Denmark for 40 years, the minimum level of pension amounts to EUR 19 328 per year<sup>182</sup> corresponding to EUR 1 610.67 per month. If a person has worked at the labour market, it is also possible to receive ATP up to EUR 3 249 per year.

## Estonia

A minimum retirement-income-guarantee is provided by the national pension of EEK 2 008.80 per month.<sup>183</sup> Using the average exchange rate between December 2010 and December 2009, according to the ECB, the minimum retirement-income-guarantee corresponds to EUR 128.39 per month.

## Finland

Finland has a national pension<sup>184</sup> that guarantees de facto a minimum pension to those with 80% residence in Finland of the time between the age of 16 and 65 and with a small pension or with no other pension.<sup>185</sup>

The full basic monthly benefit for a single pensioner in 2008 was EUR 558.46 per month.<sup>186</sup> No pension is payable once other pension income exceeds EUR 1 028 per month. Finland has also a statutory earnings-related pension.<sup>187</sup>

<sup>177</sup> EUR 8 777.

<sup>178</sup> EUR 9 115.

<sup>179</sup> EUR 1 436.

<sup>180</sup> Arbejdsmarkedets tillægspension, ATP.

<sup>181</sup> EUR 3 249.

<sup>182</sup> I.e. EUR 8 777 + EUR 9 115 + EUR 1 436.

<sup>183</sup> MISSOC.

<sup>184</sup> Kansaneläke.

<sup>185</sup> MISSOC.

<sup>186</sup> I.e. EUR 6 701.52 per year.

<sup>187</sup> Työeläke.

## France

There is an untargeted minimum pension in France, regardless of the amount of pension received from other basic or supplementary schemes. From September to December 2008, the amount was EUR 7 013.87 for those aged 65 with at least a one-quarter registered career and EUR 7 664.23 for those who had at least 40 actually contributed years. The minimum pension is pro-rated for shorter periods.

## Germany

Pensioners in Germany have access to a social assistance for people with low income. The social assistance amounts to EUR 8 424 per year,<sup>188</sup> in the western federal states in 2008, including average benefits for housing and fuel costs.<sup>189</sup> The German public pension system has an earnings-related PAYG system where the calculation of pensions is based on pension points.

## Greece

Greece has a minimum pension. For persons insured since 1 January 1993, this pension equals 70% of the minimum wage of a married worker fixed by the General National Collective Agreement in 2002. The current minimum amount of the pension is EUR 495.74 per month.<sup>190</sup> This corresponds to EUR 6 940.36 per year as all pensions in Greece have 14 monthly payments. Greece has also a social solidarity benefit,<sup>191</sup> which is an income-tested scheme.<sup>192</sup>

If a person has no income, the benefit per month is EUR 230.00.<sup>193</sup> In total, the minimum benefit amounts to EUR 10 160.36.<sup>194</sup> Besides these safety nets, the public pension system in Greece has an earnings-related system.

## Hungary

Hungary has a minimum pension, which was worth EUR 99<sup>195</sup> per month in 2010.<sup>196</sup> The new pension system in Hungary combines an earnings-related public pension with mandatory fully funded defined-contribution schemes.

## Ireland

The public pension system in Ireland has a basic scheme paying a flat rate to all who meet the contribution conditions (contributory) and a means-tested pension to provide a safety net for the low-income elderly (transition). Based on Missoc information, the minimum value of the means-tested benefit for a single person is EUR 225.80 per week paid for 53 weeks per year.

Furthermore, the government estimates that the pensioners are entitled to cash benefits, excluding health benefits, amounting to EUR 950 per year. In total, the benefits are EUR 12 917.40 per year.<sup>197</sup>

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<sup>188</sup> I.e. EUR 702 per month.

<sup>189</sup> OECD, 2011b.

<sup>190</sup> MISSOC and OECD, 2011b.

<sup>191</sup> EKAS.

<sup>192</sup> OECD, 2011b.

<sup>193</sup> I.e. EUR 3 220 per year.

<sup>194</sup> I.e. EUR 846.70 per month.

<sup>195</sup> I.e. HUF 28 500.

<sup>196</sup> MISSOC and OECD, 2011b.

<sup>197</sup> I.e. EUR 1 076.45 per month.

## Italy

For pensioners insured after 1 January 1996 there is no statutory minimum pension. Pensioners insured before 1 January 1996 can claim a means-tested benefit from age 65.<sup>198</sup> The annual amount of minimum pension<sup>199</sup> is EUR 5 992.61 per year.<sup>200</sup>

According to MISSOC, the old-age pension<sup>201</sup> is brought up to the amount of the minimum pension if the annual taxable income of the pensioner is less than two times the minimum pension. For pensioners over 70 years, there is a higher means-tested benefit of EUR 7 540.

## Latvia

Minimum state pension levels are not available for Latvia.

## Lithuania

There is no statutory minimum pension.<sup>202</sup>

## Luxembourg

The social-assistance safety-net level in Luxembourg is EUR 1 147 per month for a single person.<sup>203</sup> The MISSOC data report the minimum pension if a person has been insured at the labour market. If this is the case there is a rule that no pension shall be less than 90% of the reference amount.

If the pensioner has 40 years of insurance, there is a minimum pension of EUR 1 552 per month. If the pensioner has less qualifying years, the minimum pension is reduced by 1/40 for each missing year.

## Malta

According to MISSOC data, the minimum pension for a single person is EUR 109.37 per week corresponding to EUR 473.94 per month.

## Netherlands

The Netherlands has a basic flat-rate public scheme. In mid 2008, the benefit was EUR 1 011.98 per month. Furthermore, there was an additional holiday allowance of EUR 647.80.<sup>204</sup> Based on these figures, the monthly benefit is set at EUR 1 065.96.

## Poland

Poland has a minimum retirement guarantee under the PAYG scheme. As of 1 July 2010, the amount was PLN 706.29<sup>205</sup> per month.<sup>206</sup> In the new pension system, the minimum pension shall be financed by the state budget and paid when total mandatory old-age pension is lower than the minimum.

<sup>198</sup> MISSOC; OECD.

<sup>199</sup> Pensione minima.

<sup>200</sup> I.e. EUR 499.38 per month.

<sup>201</sup> Pensione di vecchiaia.

<sup>202</sup> MISSOC.

<sup>203</sup> OECD, 2011b.

<sup>204</sup> OECD, 2011b.

<sup>205</sup> I.e. EUR 172.

<sup>206</sup> MISSOC.

## Portugal

Portugal has an indexing reference of Social Support called the IAS,<sup>207</sup> which was EUR 407.41 in 2008.<sup>208</sup> For people aged 65 or above who do not qualify for the earning-related scheme and whose total income does not exceed 30% of the IAS, the monthly social pension was EUR 181.91 in 2008. However, there were 14 monthly payments (change decided in 2011).

Portugal has a Solidarity Supplement for the Elderly (SSE). Pensioners who receive old-age or survivors' pension are eligible for this benefit if they fulfil the SSE means test. For a single person, the SSE is equal to the difference between the beneficiary's income and the Reference Amount (RA) of EUR 4 800 per year. The calculation of the beneficiary's income depends on "family solidarity" as it is composed of: own income, spouse's income; part of the income of their sons' or daughters' households.

The pensioner is excluded from SSE if households of their sons or daughters have equivalent incomes greater than 5xRA. The equivalent income is defined as the total income of the household corrected by the number of individuals in the household where the first adult is attached a weight of 1; subsequent adults a weight of 0.7 and minors a weight of 0.5. Since it cannot be guaranteed that dependants will actually pay their parents, this benefit is not included in the calculation of the minimum pension.

Pensioners of the social pension are, however, also entitled to receive the Solidarity Extra Supplement. The monthly payment of this benefit is EUR 16.83 for pensioners under 70 years old and EUR 33.65 for pensioners who are at least 70. In total, we calculate the minimum monthly benefit as the total of EUR 181.91 and EUR 16.83. With previously 14 monthly payments this corresponded to EUR 231.86 per calendar month.

## Romania

According to MISSOC, the minimum pension is the Social Indemnity for pensioners<sup>209</sup> of EUR 81, which we assume is per month.

## Slovak Republic

In the Slovak Republic, there is no minimum pension and a pensioner needs to have 15 years of pension insurance to be eligible for a benefit.<sup>210</sup> The minimum wage is, however, used as a minimum assessment base for pension purposes. The minimum wage was EUR 295.50 per month as of January 2009.

In the review of the pension system in the Slovak Republic in the OECD report, all pensioners are eligible for social assistance benefits, but unfortunately these benefits are not further defined.

## Slovenia

An insured person entitled to old-age pension<sup>211</sup> is guaranteed the minimum pension<sup>212</sup> in the amount of 35% of the minimum Pension Rating Basis,<sup>212</sup> which is EUR 178.32 per month as of January 2010.<sup>213</sup>

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<sup>207</sup> Indexante dos Apoios Sociais.

<sup>208</sup> MISSOC; OECD.

<sup>209</sup> Indemnizație socială pentru pensionari.

<sup>210</sup> MISSOC; OECD.

<sup>211</sup> Starostna pokojnina.

<sup>212</sup> Pokoninska osnova.

<sup>213</sup> MISSOC.

## Spain

Spain has a minimum pension for a single person payable from age 65 amounting to EUR 587.80 per month with 14 payments per year.<sup>214</sup> This corresponds to EUR 685.77 per calendar month.

## Sweden

According to MISSOC, the guarantee pension<sup>215</sup> is an income tested top-up for people with low levels of benefit from the notional accounts. For a single person, the full guaranteed pension was SEK 90 312<sup>216</sup> as of 1 July 2010.

For those who do not fulfil the requirements for the guarantee pension, there is also a maintenance support for the elderly<sup>217</sup> above the age of 65. The maintenance support for a single person amounts to EUR 5 981.86<sup>218</sup> after housing-costs are paid. This is deducted from information in MISSOC where "garantipension" is 2.13 base amount and "äldreförsörjningsstöd" is 1.3546 base amount.

## United Kingdom

According to OECD, the UK has a tax free weekly benefit<sup>219</sup> that guarantees an income above a certain level for all pensioners who are living on low incomes.<sup>220</sup> This corresponds to GBP 6 450.60 per year. Using the average exchange rate for 2010, this is EUR 7 527.07.<sup>221</sup>

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<sup>214</sup> MISSOC; OECD.

<sup>215</sup> Garantipension.

<sup>216</sup> I.e. EUR 9 406.

<sup>217</sup> Äldreförsörjningsstöd.

<sup>218</sup> I.e. EUR 498.49 per month.

<sup>219</sup> The Pension Credit.

<sup>220</sup> I.e. below the standard minimum guarantee amount of GBP 124.05 for individuals in 2008/09.

<sup>221</sup> I.e. EUR 627.26 per month.



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