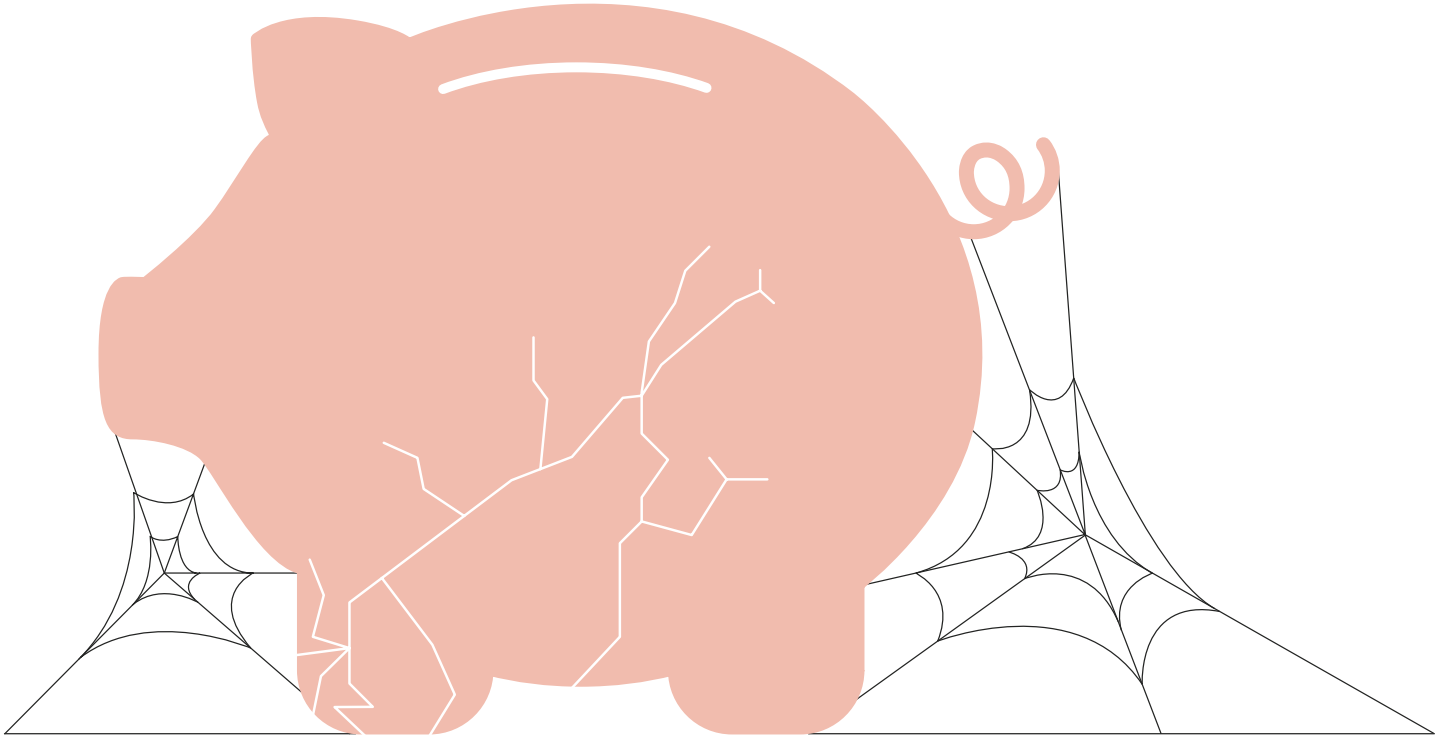
Wilfried
Martens Centre
for European Studies

Live Long and Prosper?

Demographic Change and the Implications of Europe's Pensions Crisis

Susanna Kochskaemper and Jochen Pimpertz



Wilfried
Martens Centre
for European Studies

Live Long and Prosper?

Demographic Change and the Implications of Europe's Pensions Crisis

Susanna Kochskaemper and Jochen Pimpertz

Credits

Wilfried Martens Centre for European Studies
Rue du Commerce 20
Brussels, BE 1000

The Wilfried Martens Centre for European Studies is the political foundation and think tank of the European People's Party (EPP), dedicated to the promotion of Christian Democrat, conservative and like-minded political values.

For more information please visit:
www.martenscentre.eu

Editor: Eoin Drea, Research Officer
External editing: Communicative English bvba
Layout and cover design: RARO S.L.
Typesetting: Victoria Agency
Printed in Belgium by Drukkerij Jo Vandenbulcke

This publication receives funding from the European Parliament.

ISBN

Table of contents

Keywords Pension policy – Pension reform – Demographic change – Population ageing – EU

List of figures

List of tables

About the Martens Centre

Martens Centre profile

The Wilfried Martens Centre for European Studies, established in 2007, is the political foundation and think tank of the European People's Party (EPP). The Martens Centre embodies a pan-European mindset, promoting Christian Democrat, conservative and like-minded political values. It serves as a framework for national political foundations linked to member parties of the EPP. It currently has 30 member foundations and three permanent guest foundations in 24 EU and non-EU countries. The Martens Centre takes part in the preparation of EPP programmes and policy documents. It organises seminars and training on EU policies and on the process of European integration.

The Martens Centre also contributes to formulating EU and national public policies. It produces research studies and books, electronic newsletters, policy briefs and the twice-yearly European View journal. Its research activities are divided into six clusters: party structures and EU institutions, economic and social policies, EU foreign policy, environment and energy, values and religion, and new societal challenges. Through its papers, conferences, authors' dinners and website, the Martens Centre offers a platform for discussion among experts, politicians, policymakers and the European public.

About the Cologne Institute for Economic Research

Cologne Institute for Economic Research profile

The Cologne Institute for Economic Research (Institut der deutschen Wirtschaft Köln – IW Köln), established in 1951, is the largest privately financed economic think tank in Germany. It is located in Cologne and has an office in Berlin and a liaison office in Brussels. As a registered non-profit organisation, its members are employers' and industrial associations, as well as individual companies across most sectors of the economy. The main objective of the IW Köln is to promote a better understanding of the social market economy, based on the principles of competition and entrepreneurship. It aims to initiate debate and to develop the best possible policy strategies for Germany, Europe and the international economy.

The Institute has a research department that works on labour market and educational policies as well as economic and social policy. Its research is published in a wide range of academic and also more popular formats. As well as addressing policymakers, academics and business people, the Institute's communications strategy focuses on the general public and the media. A wide range of services is provided to members. Its experts also serve as advisers, work for commissions and give testimony to government bodies.

About the authors

About Susanna Kochskaemper & Jochen Pimpertz

Dr rer. pol. **Susanna Kochskaemper** has been an economist at the Cologne Institute for Economic Research since 2014 and is a lecturer on health care economics at the University of Cologne. She was previously a research assistant at the Chair of Economic Policy under Professor Dr Johann Eekhoff and at the Institute for Economic Policy under Professor Dr Achim Wambach, both at the University of Cologne. Amongst other topics she has published about European systems of social security, especially health care systems. Her current research focuses on the German system of health care and long-term care.

Dr rer. pol. **Jochen Pimpertz** is senior economist at the Cologne Institute for Economic Research. Since 2011 he has been Head of the Research Unit for Fiscal Policy and Social Security Systems. He was a research assistant at the Chair of Economic Policy under Professor Dr Johann Eekhoff from 1995 to 2001 and has held several positions at the Cologne Institute for Economic Research since then. His current research focuses on reforming the German health care system and public pension scheme, as well as European social policy. He is a lecturer on health care economics at the University of Cologne.

Executive summary

The recent financial and economic crisis has exacerbated the funding shortfalls of Europe's public pension systems, but the main driver of expenditure growth is the ageing of the European population. The demographic challenge, however, is not the same for each EU member state. Moreover, nation-specific pension schemes influence each state's ability to handle demographic challenges. When adapting to the ageing of their societies the member states might even differ in their preferences as to which generation should mainly be burdened with the effects of demographic change. With this in mind, it is too narrow-minded to take a solely fiscal perspective from which to develop European reform strategies which meet the requirements for both fiscal balance and sustainable public pension systems.

Therefore, the EU should support national reform strategies by monitoring public pension reforms as well as improving the single market. However, public pension policy should remain a national competence. In addition, the examples of our Italian and British case studies highlight that long term pension reform should be innovative and involve public, occupational and private elements.

Introduction

Since the economic crisis in 2008 almost all European economies have experienced an increasing stock of government debt, which has created an urgent need for fiscal consolidation. In this context, the pension systems of the EU member states are a cause for concern. Some member states have experienced and are still experiencing unemployment, high debt ratios and the loss of private assets. Therefore, their ability to finance pensions at the pre-crisis level is diminishing. Equally, if public pension expenditure is to remain at a high level or even increase, the future options for economic and fiscal policy might be restricted.

As a result of the crisis, the EU member states agreed on a new mechanism to coordinate fiscal and economic policy. This has changed the political role of various European actors and especially that of the European Commission. Its reporting has changed from that of an *ex post* evaluation to that of an early-warning mechanism. In this context, the Commission now focuses not only on economic and fiscal policy but also on national systems of old-age provision.

Without a doubt, handling the after-effects of the economic crisis is one of the most important tasks for European policy development today. Furthermore, the crisis may have increased the pressure for reform, especially in the field of old-age provision. However, the real challenge for Europe's pension systems existed before the crisis emerged. Throughout the EU life expectancy is increasing while fertility rates remain low. Both of these developments are having a considerable impact on the financing of old-age provision. Furthermore, this demographic shift will continue to exist, even after the crisis has been resolved.

Therefore it is important to focus on long-term scenarios when reforming pension systems. In this regard, the problem that must be solved is remarkably similar for all EU member states: how to ensure an adequate income for pensioners whilst avoiding the cost of pension provision becoming too high for the younger generations to finance. Despite this similarity, the pension schemes of the member states differ in their organisation. Hence, it is not only important to discuss what kind of reforms to adopt but also where the main drive for reforming the pension systems should come from. Is there a case for uniform European action? Or are the member states responsible because of the differences in their pension schemes?

This paper takes a closer look at the European pension systems and the challenges they face in the future. It gives an overview of demographic trends within the EU and their influence on the different types of pension systems (Section 2). It also provides an in-depth analysis of the possible reform options (Section 3). Many European countries have launched significant pension reforms during the past few years.

These have addressed a number of the key elements of pension systems. We will compare the situations of four member states—Denmark, Germany, Italy and the UK— in more detail in order to gain a deeper understanding of the different institutional settings (Section 4). Section 5 draws conclusions and offers political recommendations.

1. Characterising Europe's pension systems

European pension systems have some key features in common: contribution-based as well as tax-financed elements, supplementary occupational schemes and private schemes can be found in almost every member state. However, both the individual role of each element and the interaction of the constituent pillars differ considerably between the systems.

A detailed description of each of the 28 pension schemes is neither possible, given space limitations, nor helpful in providing the overall picture. Therefore, in this section we develop a classification system for the key elements and their role in the system of old-age provision (Table 1).

Contemporary literature on pension systems generally follows one of the two prominent types of classification: either the differentiation between Bismarckian and Beveridgean systems or Esping-Andersen's typology of the welfare state in corporatist, liberal and social democratic welfare regimes.[1] In this analysis we use the former, whilst adding some additional criteria. The different elements of old-age provision are classified in a three pillar model, differentiating between public, occupational and private pension schemes.

All European statutory *public pension schemes* (first pillar) can be classified as pay-as-you-go (PAYG) systems. This means that the revenues from one period are used to finance the pensioners' benefits in the same period—no savings are made. Revenues are generated by a mixture of taxes and income-related contributions with one source usually dominating. In some statutory public pension schemes, such as the Danish one, capital-funded elements supplement the PAYG scheme.

Though quite similar in their basic construction, public pension schemes vary in respect of their scope. Entitlements (the benefits the pensioners receive) and membership (the proportion of the population covered by a certain pension scheme) differ considerably between the member states. This might be due to the fact that two different normative aims underlie the institutional construction of Europe's pension systems.[2] In the Beveridgean model, *poverty prevention* can be identified as one of the main purposes of the public pension system. The first pillar mainly provides basic protection, with flat-rate or means-tested benefits. By contrast, *income maintenance* is the key purpose of the public pension scheme in the Bismarckian model.

---

[1] G. Esping-Andersen, 'Die drei Welten des Wohlfahrtskapitalismus. Zur Politischen Ökonomie des Wohlfahrtsstaates', in S. Lessenich and I. Ostner (ed.), *Welten des Wohlfahrtkapitalismus. Der Sozialstaat in vergleichender Perspektive (Frankfurt/Main: Campus Verlag, 1998), 162–73.*

[2] G. Bonoli, 'Two Worlds of Pension Reform in Western Europe', *Comparative Politics* 35/4 (2003), 7–9.

Here, individual benefits are earnings-related. Social assistance for pensioners is usually not organised within the public pension scheme but within the general minimum welfare system. This might be why the public pension system is mandatory for all adult residents in most of the Beveridgean models. In contrast, Bismarckian-type pension schemes are only mandatory for employees.

In the Beveridgean pension systems, income maintenance is instead achieved by the *occupational* (second pillar) and *private* (third pillar) schemes, which therefore traditionally play a more important role than in the Bismarckian models. Usually these schemes are capital funded, although they may be organised as a PAYG scheme as well. Capital-funded occupational and private schemes can be based on either a defined benefit (DB) pension plan or a defined contribution (DC) pension plan. In both plans the individual benefits for retirees depend on the contributions paid during their working lives. They differ, however, in terms of which party bears the risks. A DB plan promises a specified monthly benefit predetermined by a defined formula. It is based on an estimate of economic and financial assumptions. Here, the provider of these plans—the employer or the insurance company—usually bears the investment risk. Conversely, in a DC plan the benefit to be paid out is not known in advance, thus the insured person usually bears the investment risk.

Table 1 - Classification of European pension systems

First pillar: statutory insurance scheme	
Membership	Employees or entire population
Type	• PAYG • Contribution-based • Tax-financed • Capital-funded
Aim	Income maintenance and/or minimum benefit
Benefits	• Earnings-related • Flat-rate • Flat-rate means-tested
Second pillar: occupational pension scheme	
Membership	Employees/self-employed • Mandatory • Voluntary
Type	PAYG • Contribution-based Capital-funded • Defined contributions • Defined benefits
Third pillar: private pension scheme	
Membership	Employees or entire population • Mandatory • Voluntary

Source: Cologne Institute for Economic Research.

2. Demographic trends and their impact on pension systems

The current debate on pension policy is mainly driven by the question of what effect the global financial and economic crisis has had and is still having on old-age provision. However, even if many pension systems have been (and are still being) affected by the crisis, the future challenges for pension policy will be of another kind. Over the coming decades, population ageing is expected to reach an unprecedented level in the EU. Hence, the converse is also true: the capability of national pension schemes to cope with demographic change will be determined by the governments' ability to handle the aftermath of the global financial and economic crisis.

However, a discussion of reform measures requires a deeper understanding of the effects which the demographic change will have on the different national pension systems. Therefore, we will first analyse the various systems before addressing the different reform proposals. In this section, particular emphasis will be placed on two questions:

- Will the demographic change be the same in all EU member states?
- Will it affect the national pension systems in the same way?

To answer these questions we will compare data for the EU28 (Section 2.1). Then we will analyse the effects of a changing environment on the constituent elements of the different types of pension schemes (Section 2.2).

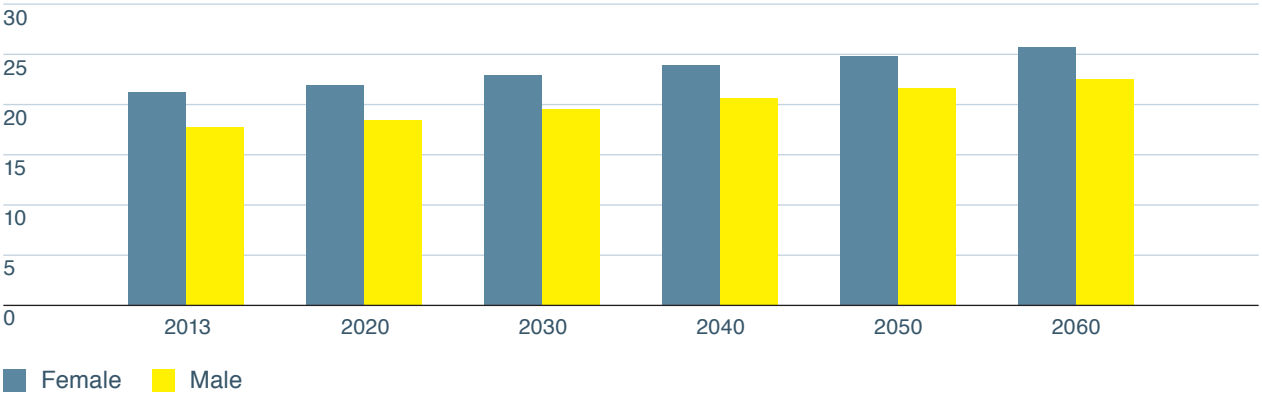
2.1 Demographic challenges

The population of the EU is growing older. Three different trends are driving population ageing: an increase in life expectancy, low fertility rates and the ageing of the 'baby boomer' generation:

Life expectancy has increased remarkably during the last century. Improvements in healthcare, nutrition and living standards have extended the average lifespan. This trend is expected to continue in all European member states. In 2012, average life expectancy at birth was 76.8 years for men and 82.4 years for women

in the EU28. For pension systems, life expectancy at old age is of particular interest. In 2012, on average in the EU28, women aged 65 could expect to live an additional 21.1 years, and men of the same age 17.7 years.[3] In 2060, these figures are forecast to be an additional 25.6 years for women and 22.4 years for men[4] (Figure 1). These developments will lead to a much higher number of people aged 65 and above than there are at present.

Figure 1 - Life expectancy of women/men aged 65 and older, EU28



Source: Eurostat, 'EUROPOP2013'.

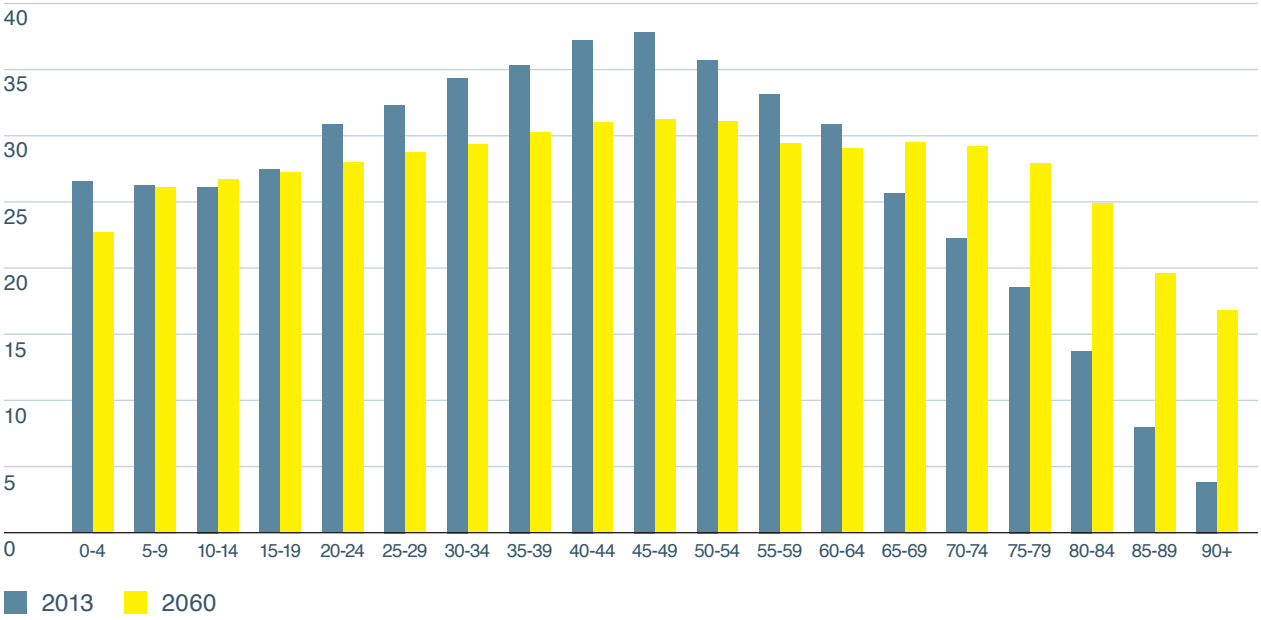
In the EU28 the total fertility rate is below replacement level, which means that the number of children being born is too small to keep the population constant. In 2013, fertility rates across the EU28 averaged 1.6 children per woman,[5] while, leaving aside net immigration, the replacement level is 2.1. It is very often assumed that the decline in the average birth rate set in in the early 1970s. However, it started even earlier than this. Since the early 1970s the number of births has consistently fallen below the replacement rate in many member states. Furthermore, average birth rates are expected to remain low. Although average

[3] Eurostat, 'Life Expectancy by Age and Sex', code: demo_mlexpec, last updated 23 April 2015.
[4] Eurostat, 'EUROPOP2013 – Main Scenario – Population on 1st January by Sex and Single Age Year', code: proj_13npms, last updated 8 December 2014.
[5] Eurostat, 'Fertility Rate by Age', code: demo_frate, last updated 21 April 2015.

fertility rates are projected to increase during the coming decades, the total fertility rate in the EU28 is only forecast to rise to 1.8, and therefore will still be below the level that ensures population replacement.[6]

Finally the ageing of the so-called baby boomer generation will speed up the ageing of the European population. In Western European countries especially, there was an enormous increase in births after the end of the Second World War. This phenomenon is often referred to as the 'baby boom'. These 'baby boomers' are in late middle age today and are still part of the EU labour force (see Figure 2). However, they will retire within the next decade, whilst subsequent cohorts are underrepresented. As a consequence, the quantitative ratio between people aged 65 plus and younger people will change rapidly.

Figure 2 - The ageing of the baby boomer generation 2013–60, EU28

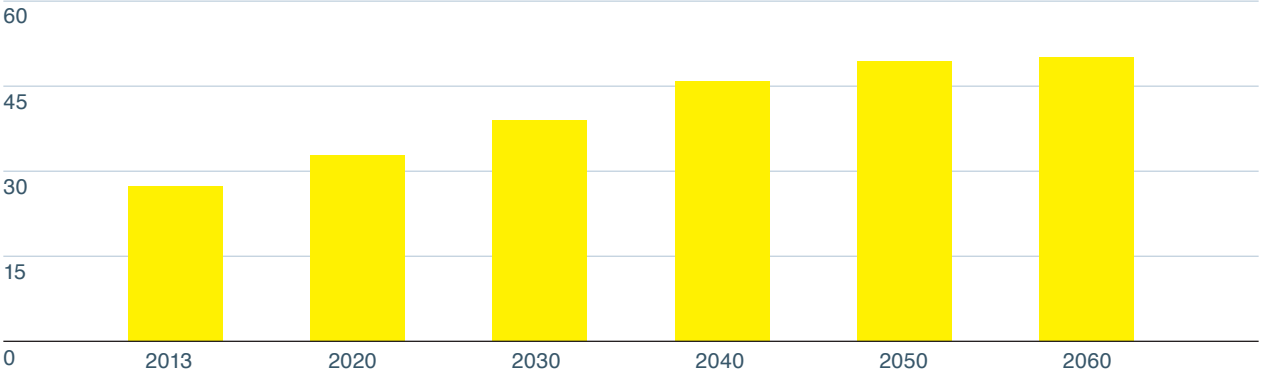


Source: Eurostat, 'EUROPOP2013'.

[6] Eurostat, 'EUROPOP2013'.

Put together, these demographic trends will result in a much smaller number of people aged between 15 and 64 years, the labour force. In its main scenario, Eurostat forecasts that the labour force of the EU28 will shrink from 335 million people in 2013 to 290 million people in 2060. At the same time the number of people aged 65 and older will increase from 92 million to 148 million.[7] Eurostat thus projects that the EU old-age-dependency ratio—the ratio of people aged 65 and older to people aged between 15 and 64—will increase from 27.5% in 2013 to 50.2% in 2060 (Figure 3).

Figure 3 - Old-age-dependency ratio 2013–60, EU28



Source: Eurostat, 'Population: Structure Indicators', code: demo_pjanind, last updated 13 April 2015.

Note: Ratio of people aged 65 and older relative to people aged 15 to 64.

There is an ongoing political discussion about whether the estimated decline of the labour force by 45 million people by 2060 could be moderated by immigration. From a theoretical perspective, there are at least three preconditions which would have to be fulfilled for this to work. First, if the increase in the old-age-dependency ratio of the European population is to be halted, immigrants would have to come from outside the EU28. Second, they would have to be young enough to compensate for the growing gap in the labour force over a longer period of time. The less the immigrants adopted the fertility behaviour of Europe's established societies, the more successful this would be. Yet, moderating the ageing of the European population

[7] Eurostat, 'EUROPOP2013'.

would only help to finance old-age provision if the immigrants could find a job. Thus the final precondition is that they would need to be well qualified.

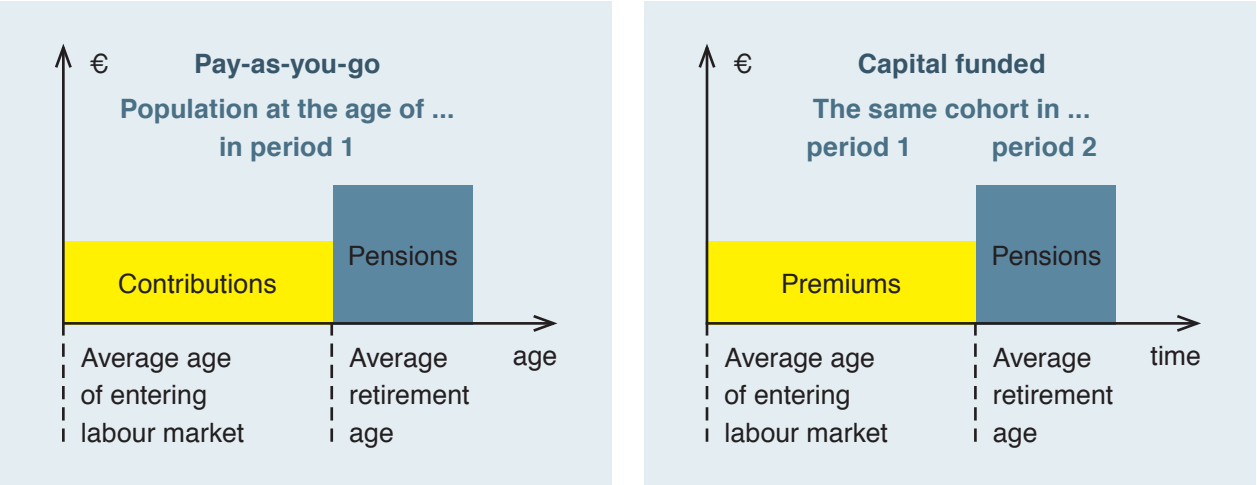
2.2 Understanding the challenges for European pension systems

What effects will these trends have on member states' pension systems? In order to answer this question, we will first distinguish between two distinct types of pension scheme and describe them in a simplified form (Figure 4). Then we will highlight the effects that the three demographic trends have on each pension scheme.

The first type is a PAYG pension scheme. This system organises old-age provision as a large intergenerational insurance policy, where all revenues are used to finance current expenditures. Figure 4 illustrates this mechanism. Here, income is redistributed between employees paying contributions and retirees receiving pensions within the same period. The old-age provision of today's employees will be guaranteed by the contribution payments of the subsequent generation of employees.

A capital-funded pension scheme, by contrast, operates on a different principle. Here, each insured cohort provides individual contributions for their own retirement period. These contributions (premiums) are paid during working life (period 1) and are used to build up a stock of capital. This stock is dissolved in the subsequent period (period 2) in order to finance retirement. Therefore, the same cohort's income is redistributed across two different periods. Conversely, in a PAYG scheme, income is redistributed between different generations within the same period.

Figure 4 - Different types of pension schemes



Source: Cologne Institute for Economic Research.

Due to these differences the two types of pension schemes are affected by demographic changes in different ways.[8] We will now analyse the impact of demographic change on PAYG schemes before taking a closer look at capital-funded schemes.

PAYG schemes have to deal with all three identified trends of demographic change (Figure 5). An increase in life expectancy expands the average retirement period—given a constant retirement age. In an idealised illustration the hatched area in Figure 5a represents the total expenditure increase caused by the increased life expectancy of current retirees. When life expectancy rises pensions have to be paid for a longer period of time. This causes a financial imbalance. Per capita expenditures rise in sum while contribution payments in the PAYG scheme remain constant.

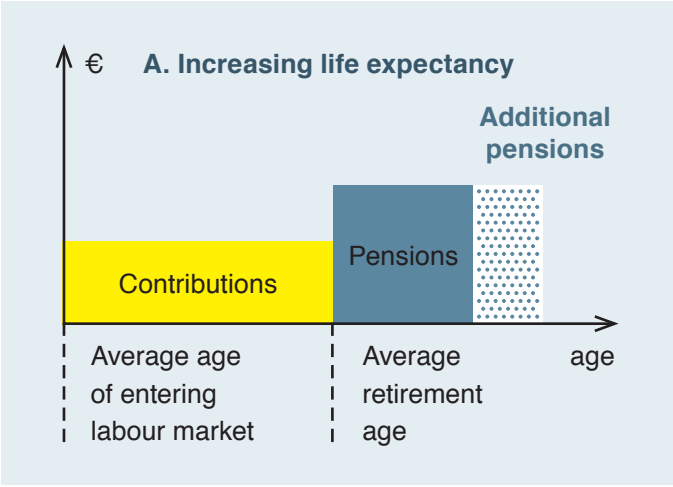
In the case of the ageing baby boomer generation, the number of pensioners rises whilst the number of employees paying contributions remains constant in the same period. The hatched area in Figure 5b represents the total expenditure increase resulting from benefits being paid to a larger group of retirees.

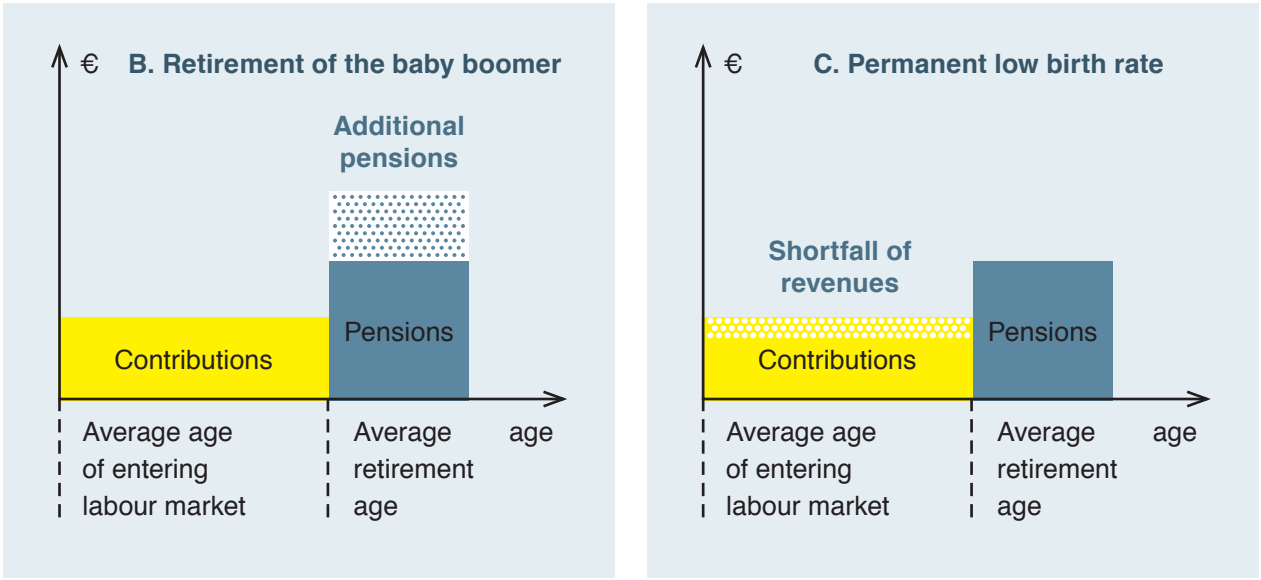
[8] OECD, *OECD Pensions Outlook 2014* (Paris: OECD Publishing, 2014), 22.

If birth rates remain below replacement level permanently, this will lead to a smaller labour force in the medium and long term. As a consequence, there will constantly be fewer persons contributing to the pension scheme. This development not only results in shrinking overall revenues (aside from other influences such as high labour market participation or wage growth), but also causes a time lag between the shrinking labour force and the fall in the number of retirees in each period. The ratio of pensioners to employees insured increases. This is why the hatched area in Figure 5c represents the sum of the contributions that are lacking to finance current pensions in each period.

An additional note: if a PAYG pension scheme is financed by taxes instead of earnings-related contributions, or even if it includes some tax-financed elements, the effect of a shrinking labour force will be similar. Prima facie it seems that in a tax-financed scheme retirees bear at least a part of the costs caused by their own pension payments. Yet, pensioners have to pay income tax in contribution-financed systems, too. Moreover, due to the fact that, on average, old-age income is lower than employment income, a shrinking labour force will affect the taxable income base as well. Therefore, a shrinking labour force will cause a financial imbalance for PAYG pension schemes in both cases.

Figure 5A - PAYG pension scheme





Source: Cologne Institute for Economic Research.

Note: All effects are based on the assumption that the individual contribution and pension levels remain the same.

In a capital-funded scheme neither low birth rates nor the ageing of the baby boomer generation affect old-age provision directly (Table 2). If the labour force is underrepresented in one period, the cohorts concerned might pay less in sum, but this will not affect the old-age provision for these cohorts: in the following period the number of retirees is smaller as well, thus old-age provision per capita remains unchanged—aside from other influences. The same applies for the baby boomer cohort. The number of employees paying contributions will rise during the working period and thus, if the contribution per capita remains constant, more capital stock will be accumulated due to the higher number of people insured. In the following period, this stock will be paid off to a larger number of retirees, too, so that ultimately the pension per capita will be the same. This is the case because within a single cohort per capita revenues (plus interest) equal later per capita expenditures. Differences in the size of cohorts do not affect the financial stability of a funded pension scheme. Only an increase in life expectancy is able to unbalance the relationship between contributions and pension payments.

Table 2 - The impact of demographic change on pension systems

	Increase in life expectancy	Retirement of the baby boomer generation	Low fertility rates
First pillar: Statutory insurance scheme (PAYG)			
Per capita expenditures	Increase	Increase	
Per capita revenues	–	–	Decrease
Second pillar: Occupational pension scheme (capital-funded)			
Per capita expenditures	Increase	–	–
Per capita revenues	–	–	–
Third pillar: Private pension scheme (capital-funded)			
Per capita expenditures	Increase	–	–
Per capita revenues	–	–	–

Source: Cologne Institute for Economic Research.

An increase in life expectancy extends the average retirement period—given a constant retirement age. If pension promises are calculated based on an underestimated life expectancy, future liabilities cannot be completely fulfilled as per capita expenditure rises while the capital stock built up in the previous period remains constant.[9]

To summarise, the three developments which are responsible for the ageing of Europe's population—increasing life expectancy, low birth rates and the ageing of the baby boomer generation—will lead to two observable developments. First the sum of the pensions being paid out in the coming decades will increase considerably, especially in PAYG pension systems. This will be the case because in both schemes pensions will have to be paid for longer on average and to a larger number of people in the near future. Sec-

[9] OECD, *OECD Pensions Outlook 2014*, 23.

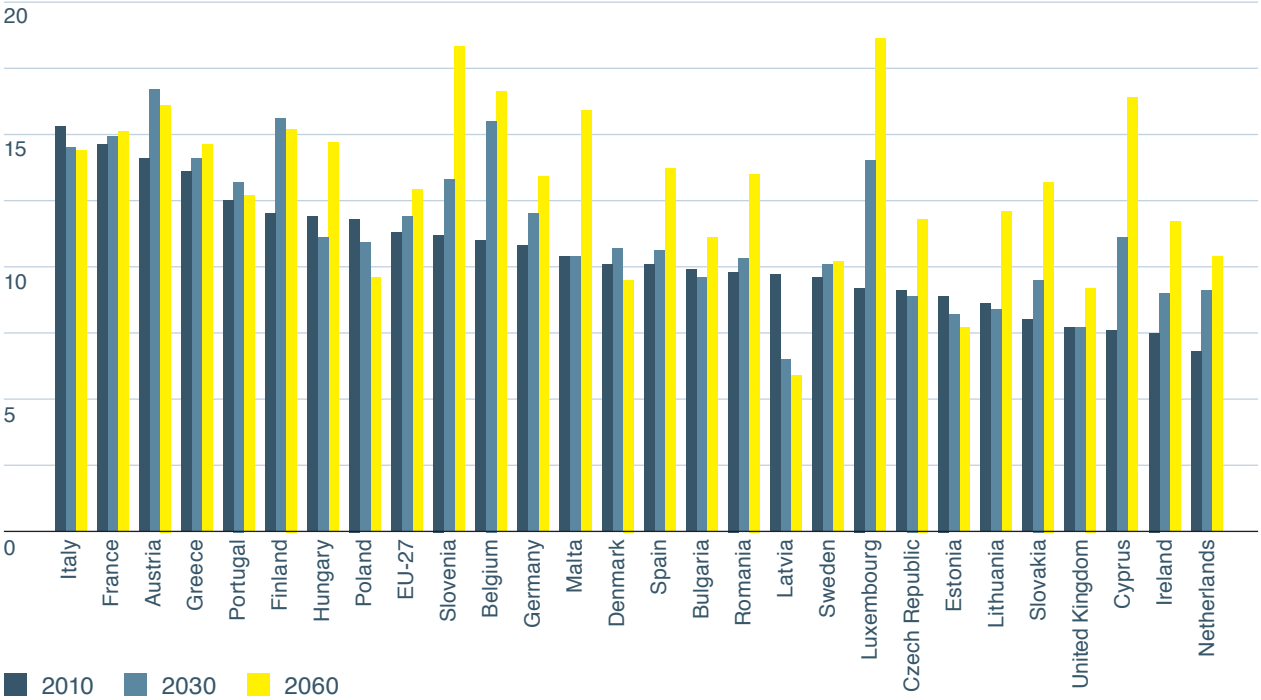
ond, the labour force will become smaller. Therefore, without any adjustments a growing gap will appear between the contributions (taxes on income) and the liabilities of PAYG pension schemes (Table 2).

For occupational and private pension schemes the effects of population ageing are identical if they are based on a PAYG arrangement. Funded schemes, however, are only affected by one demographic trend—independent of whether they are part of a statutory, an occupational or a private old-age provision scheme. Neither a smaller work force nor a larger number of retirees has any effect on a capital-funded scheme's sustainability. Within single cohorts, revenues (plus interest) equal later per capita expenditures of the pension scheme. Only an increase in life expectancy, revealed during the period of insurance, requires adjustments. If the average life expectancy of a cohort rises, the capital stock that has been saved will not be sufficient to provide the individual pension agreed at the beginning of the insurance period. In this case per capita expenditures rise within the pension scheme (Table 2).

2.3 Different challenges within the EU

A closer look at existing data reveals that the future challenges which pension policies will have to deal with are not exactly the same for each member state. First, the share of GDP spent on pensions varies widely within the EU28. In 2010 the ratio ranged from 15.3% in Italy to 6.8% in the Netherlands (Figure 6). Besides factors such as the current old-age-dependency ratio, these differences might also be due to the national preferences which influence the pension model chosen by the individual member states. In cases where the aim of the public pension system is only to offer basic protection, the pension expenditures' share of GDP tends to be lower than in systems where income maintenance is the underlying aim.

Figure 6 - Pension expenditure as a percentage of GDP, 2013–60



Source: Eurostat, 'Pension Expenditure Projections (Baseline Scenario)', code: tsdde520, last updated 13 April 2015.

Note: Pension expenditure is gross public pensions (before income taxes and social security contributions) as a sum of the different categories of pension benefits, some of which (e.g. disability pensions) may be paid to people who have not yet reached standard retirement age. Projections are made on the basis of Eurostat's population projection—'EUROPOP2012'—and commonly agreed underlying economic assumptions that have been prepared by the European Commission Directorate General for Economic and Financial Affairs (DG ECFIN) and the Economic Policy Committee (Ageing Working Group, AWG).

It is assumed that some of the member states will face a rapid growth in retirement expenditures in the future whereas others will have to deal with quite moderate changes in comparison.[10] Moreover, the future growth of pension expenditure does not correlate with the level seen in 2010. Focusing on the member states with the largest shares of Europe's population, Germany will face an increase of 2.6 percentage points, to 13.4%, by 2060. Spain will face a similar development, from 10.1% in 2010 to 13.7% in 2060, whilst the UK's pension expenditure is forecast to be just 9.9% of GDP in 2060. By contrast, France will face an increase of just 0.5 percentage points, but starting from the much higher level of 14.6% in 2010. Italy will experience a relief of 0.9 points, but nonetheless will be confronted with a share of 14.4% by 2060.

The 2015 update of the *EU Ageing Report* confirms this general trend.[11] Nevertheless, the ranking of member states has changed: in 2010, Italian pension expenditure totalled 15.3% of GDP—the highest share among EU member states—followed by France (14.6%), Austria (14.1%) and Greece (13.6%) (Figure 6). In 2013, the order had changed, with Greece on top with a share of 16.2%, followed by Italy (15.7%) and France (14.9%). As far as individual nations are concerned, the short-term variations in the proportion of pension expenditure can best be explained by variations in GDP, not by demographic changes.

However, what is the cause of the divergent developments forecast in all EU member states in the long run? One possible explanation is that demographic change will take different paths throughout Europe. The magnitude, speed and timing of population ageing are likely to vary.

First, current life expectancy, as well as its development to 2060, differs significantly within the EU28 (Figures 7a and 7b). With regard to female life expectancy at the age of 65 in 2013, France had the highest remaining life span of 22.9 years. In 2060 the remaining life expectancy of French women at 65 is forecast to be 26.6 years. Although starting from a much lower level in 2012, life expectancy will rise much faster in all other EU member states until 2060. Similar results can be observed when comparing male life expectancy at the age of 65.

---

[10] European Commission, DG ECFIN and the Economic Policy Committee (AWG), *The 2012 Ageing Report: Economic and Budgetary Projections for the 27 EU Member States (2010–2060)*, Joint Report (Brussels, 2012), 101.

[11] European Commission, DG ECFIN and the Economic Policy Committee (AWG), *The 2015 Ageing Report: Economic and Budgetary Projections for the 28 EU Member States (2013–2060)* (Brussels, 2015), 74. N.B. In this study we use data from the *2012 Ageing Report* since Eurostat's more recent data sources have not yet been synchronised.

Figure 7a - Female life expectancy at the age of 65, 2013–60

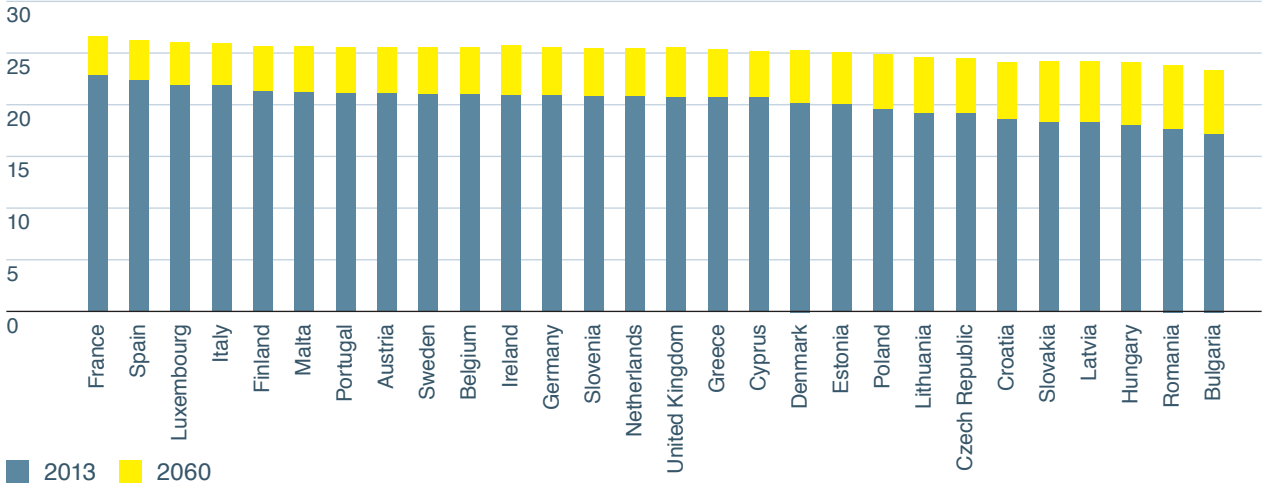
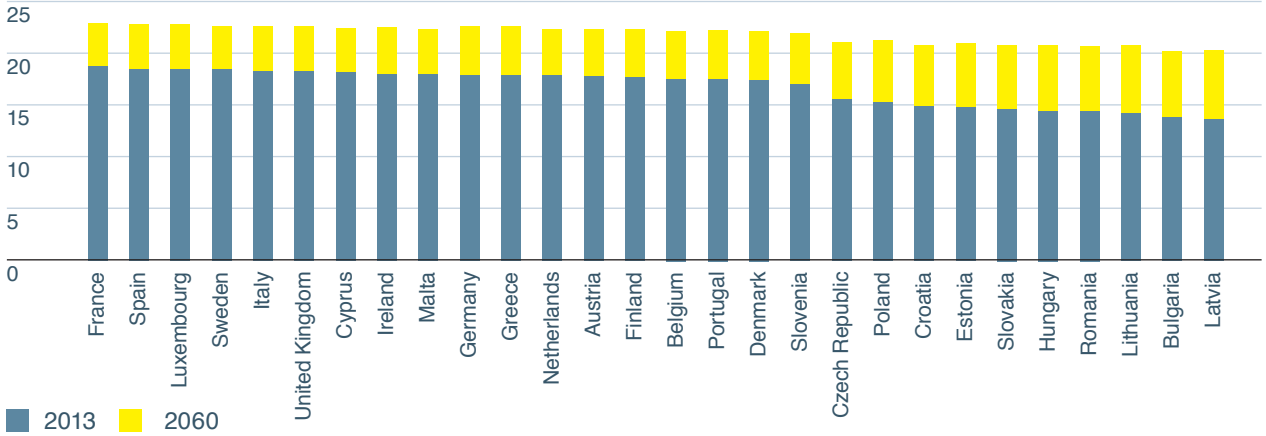


Figure 7b - Male life expectancy at the age of 65, 2013–60



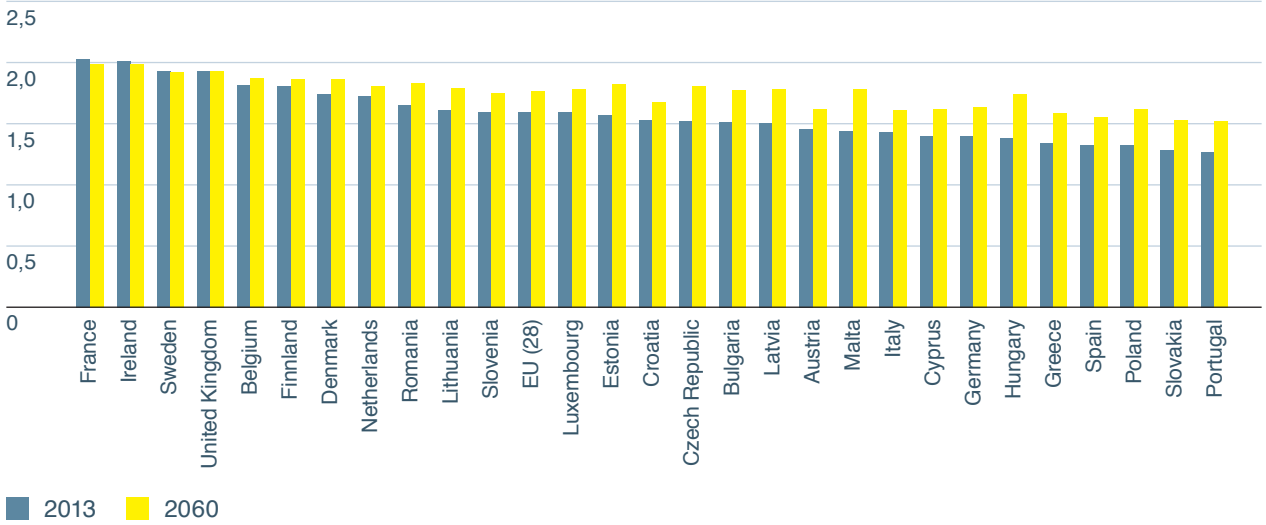
Source: Eurostat, 'EUROPOP2013 – Life Expectancy by Age and Sex', code: proj_13nalexp, last updated 8 December 2014.

In the coming decades average life expectancy in the EU28 will rise. However the projected developments are not the same across all member states. The increase in life expectancy is expected to slow in the established European member states, while the Eastern European member states will rapidly catch up with the rest. This is primarily because mortality rates are already low in Western and Southern Europe. Therefore, these member states will not benefit from improvements in health care as much as the Eastern European countries. These differences, however, will gradually diminish until 2060, when life expectancy will align.

The second reason for the divergent development in the EU is that birth rates differ widely among the EU member states. France and Ireland almost reached the replacement rate of 2.1 children per woman in 2013 and are projected to stay at this level until 2060. Many other member states, however, are characterised by lower birth rates. Therefore some birth rate forecasts are rather optimistic. In Germany, for example, a fertility rate of 1.6 children per woman is predicted for 2060, although the current birth rate of 1.4 children per woman has remained unchanged in recent decades. Figure 8 illustrates that nation-specific birth rates will develop in different ways within the EU28.

Finally the effect of the ageing of the baby boomer generation varies considerably among the EU member states. There is a particular difference between Eastern and Western European countries in the timing and magnitude of this effect.

Figure 8 - Age-specific fertility rates, 2013–60

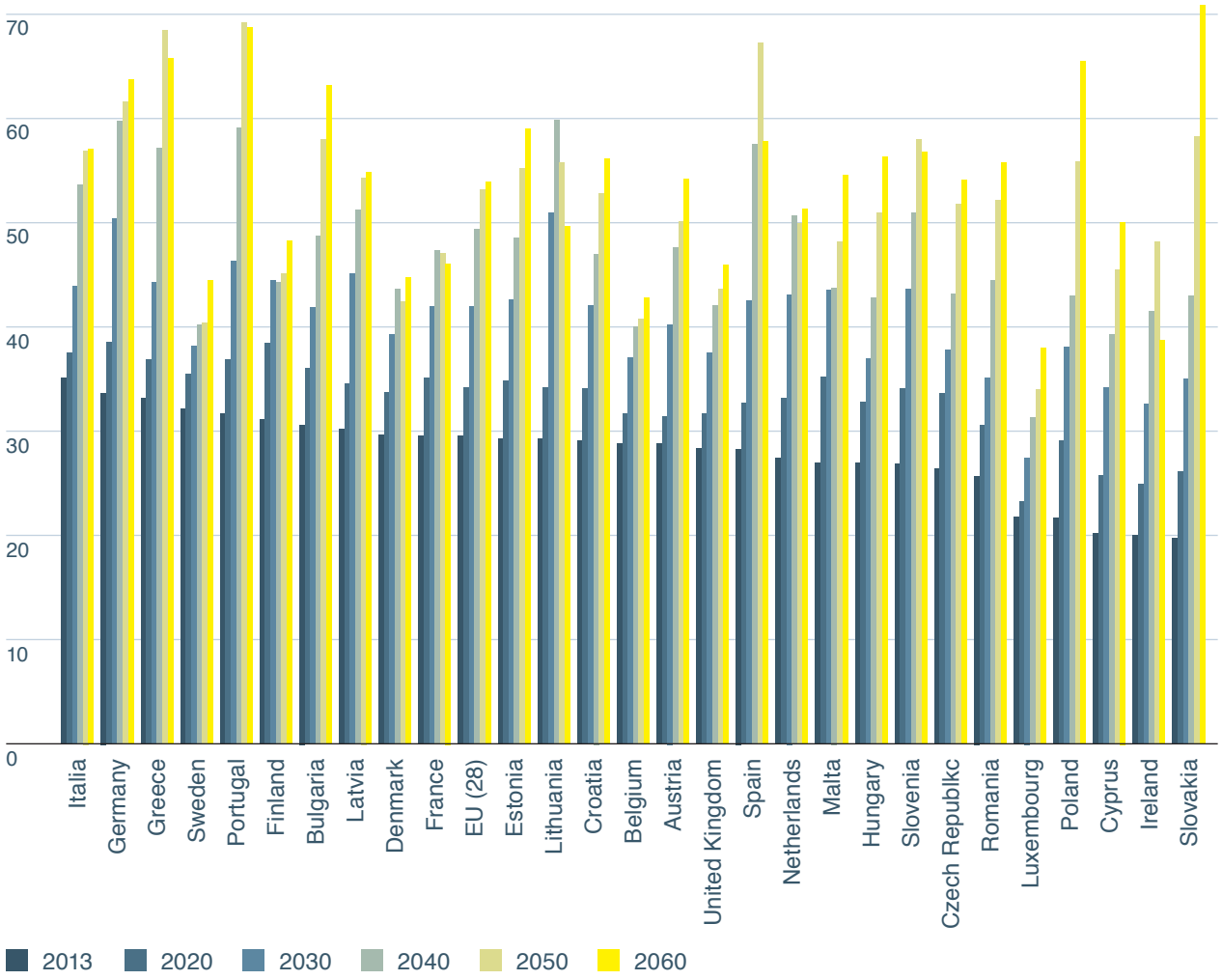


Source: Eurostat, 'EUROPOP 2013'; Eurostat, 'Fertility Rate by Age'.

Note: The age-specific fertility rate is the ratio between the number of births occurring to women between ages x and x+1 and the number of person years lived by women between x and x+1 years, over one calendar year.

Altogether the different demographic trends within the EU result in nation-specific challenges—as illustrated by the development of the old-age-dependency ratios over the coming decades (Figure 9). In Germany, for example, the old-age-dependency ratio was 31.3 in 2013 and will increase to 53 in 2060. This increase will speed up between 2020 and 2040 and slow down after this period. The Italian demographic changes will be similar. The UK faces almost the same period of accelerated ageing, but on a lower level. The UK's old-age-dependency ratio is forecast to be 42.7 in 2060, based on it being 26.4 in 2013. In most of the eastern member states the acceleration of ageing takes place at a later point in time. While some may hope that the ageing of their state's population can be stopped and reversed, this is only true for a few countries. Denmark, for instance, has to face demographic ageing until 2040. After this a slight decrease in the old-age-dependency ratio is predicted until 2050, followed by a smaller increase from 2050 to 2060.

Figure 9 - Projected old-age-dependency ratio, 2013–60



Source: Eurostat, 'EUROPOP2010 – Projected Old Age Dependency Ratio', code: tsdde511, last updated 11 December 2014.

Note: Projected number of persons aged 65 and over expressed as a percentage of the projected number of persons aged between 15 and 64.

However, it is not only the nation-specific demographic changes that explain the divergent development of the ratio of GDP to pension expenditure among the EU member states. The individual institutional design of a country's pension system plays an important role in its vulnerability to population ageing. As analysed in Section 2.2, the construction of a country's pension system affects its sustainability in a changing environment. For instance, PAYG pension schemes may be affected by demographic ageing in the same way, but the fiscal consequences will differ considerably depending on their scope. Schemes which only offer basic protection will face a far lower increase in pension expenditure than those with the aim of income maintenance. Thus, before discussing reform options against the backdrop of nation-specific demographic prerequisites and four pension scheme case studies (Section 4), reform options will be discussed in general (Section 3).

3. How to face the demographic challenge: an overview

There are different options for reforming pension systems to counteract the effects of demographic change. However, to list the details of all the advisable reform options for the EU28 would far exceed the scope of this study. There are so many options because the pension schemes of the EU member states pursue different objectives: income maintenance, basic protection or a mixture of these aims. Furthermore, they do so in different combinations of mandatory and voluntary elements within the three pillars of old-age provision. Finally each member state also chooses a specific combination of PAYG and capital-funded elements. Therefore, we will concentrate on four case studies that represent some of the typical issues and different options for reform (Section 4). However, prior to that, we will identify a set of reform options which are appropriate in the context of the different demographic challenges and institutional settings.

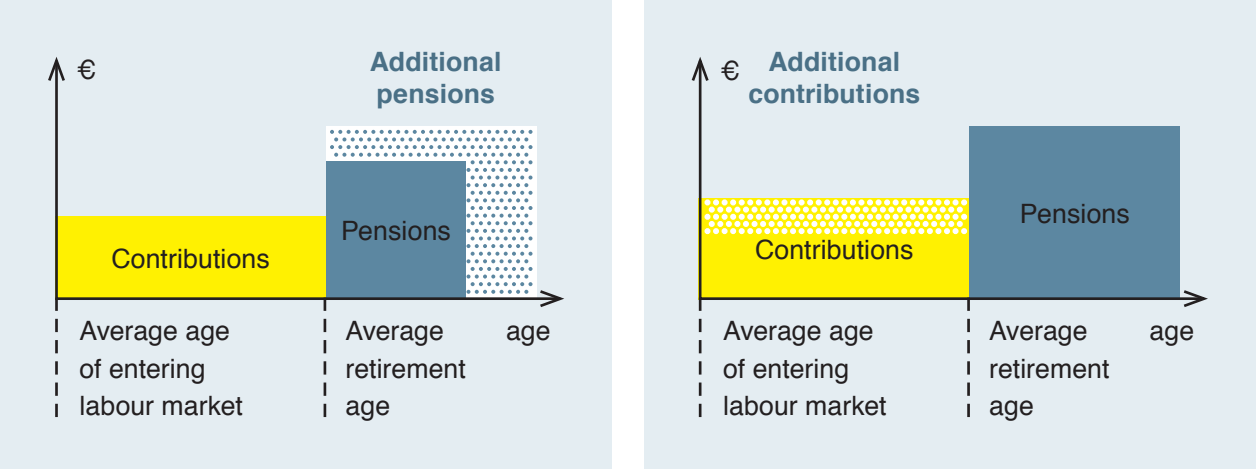
As discussed above, both PAYG and capital-funded schemes are affected by an increase in life expectancy. However, the increase in the number of pensioners due to the retirement of the baby boomer generation and the shrinking labour force due to low birth rates only affect PAYG pension schemes. As funded schemes are more stable in the face of demographic change, reforms of the second and third pillars of a pension system might accompany political adjustments to the PAYG schemes. In order to understand different policy measures and their impact we will look at the individual pillars separately (Sections 3.1 and 3.2). Political action to deal with demographic change may not be limited to direct adjustments of the pension system. Reforms of other sectors might also influence the financial stability of a country's pension system and these will be discussed in Section 3.3. We will then briefly summarise some of these additional political measures in Section 3.4.

3.1 Reform options for PAYG pension schemes

Different measures can be used to deal with the deficit in a PAYG pension scheme caused by an ageing population. Here again, we use the simplified model developed in Section 2 in order to show the impact of these reforms.

If expenditures exceed revenues in a PAYG pension scheme, the first option is to increase individual contributions, so that revenues once again equal expenditures. Figure 10 illustrates this reform: the blue hatched area represents the additional pensions which have to be paid because of an increased number of pensioners resulting from the ageing of the baby boomer cohort and/or rising life expectancy. The yellow dotted area depicts the additional contributions. These have to be collected in order to re-stabilise the pension scheme should both the retirement age and the per capita benefits remain constant. By choosing this option, however, it is solely the labour force that is paying contributions that bears the economic burden of the demographic change. The smaller the labour force is compared to the group of retirees, the higher the burden.

Figure 10 - Raising individual contributions



Source: Cologne Institute for Economic Research.

If this effect is to be avoided, another reform option is to reduce the individual pension to the extent that contribution payments once again equal the benefits to be paid (Figure 11). The blue hatched area represents the additional pensions which have to be paid due to a higher number of pensioners. The blue dotted area depicts the extent to which individual benefits would have to be reduced in order to keep the pension scheme stable. The effect of this adjustment would be the same if it was a decline in the size of the labour

force which had imbalanced the PAYG pension scheme. If individual entitlements are reduced, the older generation will be the sole cohort to be burdened by the effects of demographic change.

Figure 11 - Cutting individual benefits *Source:* Cologne Institute for Economic Research.

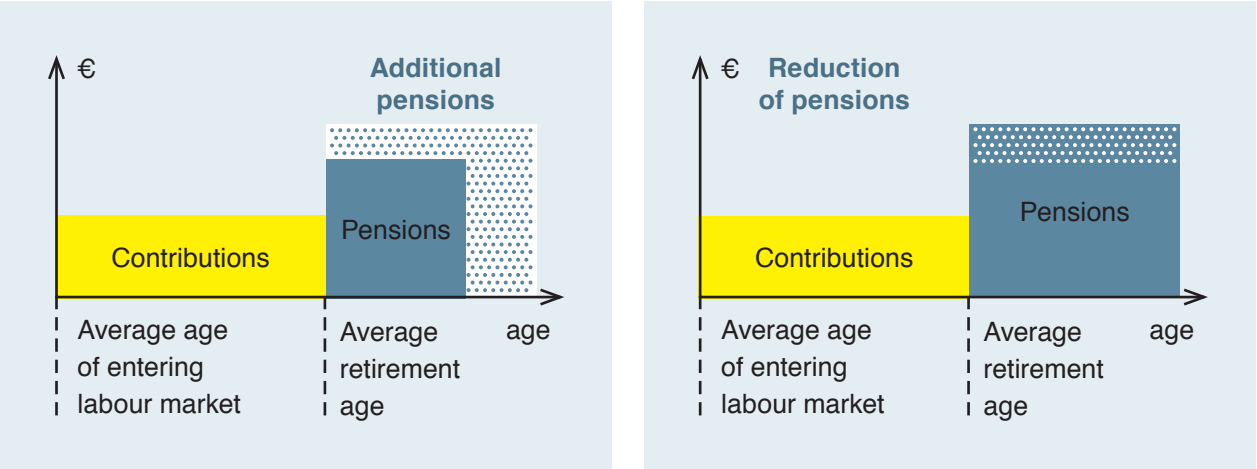
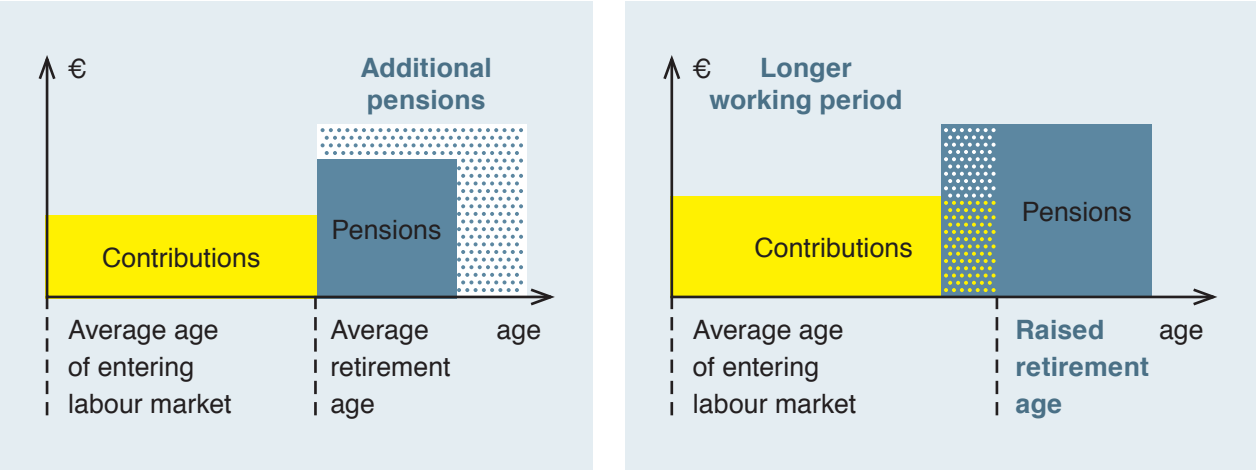
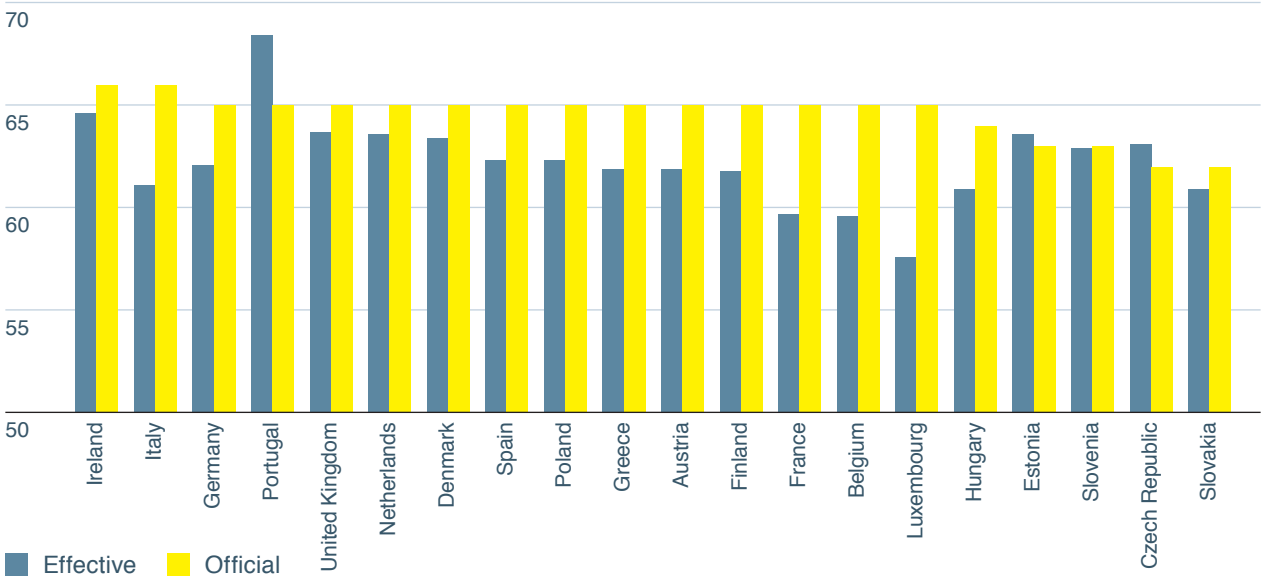


Figure 12 - Raising the retirement age *Source:* Cologne Institute for Economic Research.



A third option is to raise the retirement age (Figure 12). Once again, the blue hatched area represents the additional pensions which have to be paid due to the higher number of pensioners. The pension scheme can be kept sustainable if the retirement age is deferred. By implementing this measure, two effects can be achieved at the same time. First, the average retirement period is reduced, which means that pension expenditures decrease. Second, the extended working period means that additional contributions will be paid into the fund. Therefore, the revenues of the pension scheme will increase. The reduction of pension payments is represented by the blue dotted area. The additional revenues are depicted by the yellow dotted area. The effect would be exactly the same if the labour force shrank in size.

Figure 13a - Effective and official retirement, age of men, 2013



Source: OECD, *Pensions at a Glance 2013: OECD and G20 Indicators* (Paris: OECD Publishing, 2013), doi: 10.1787/19991363.

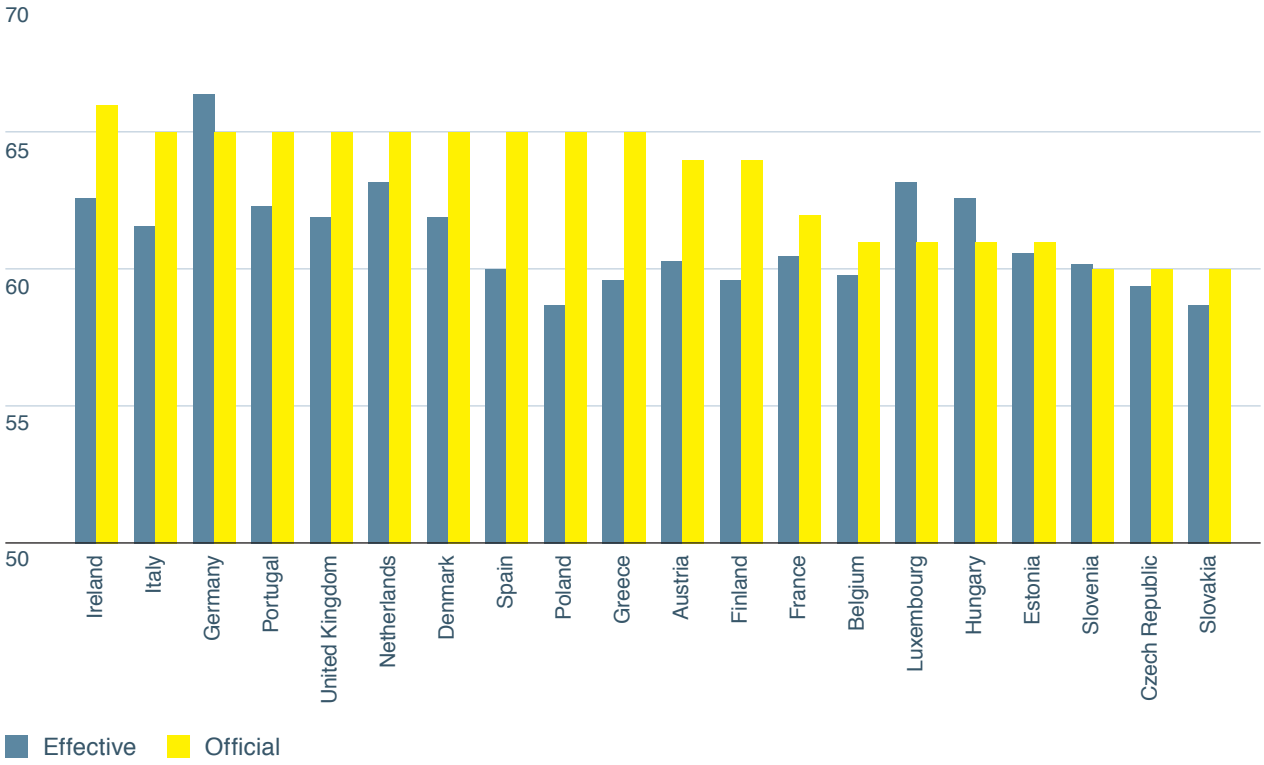
Note: EU member states that are OECD countries; average effective age of labour market exit and normal statutory retirement age.

The retirement age varies considerably among the EU member states. For men, the highest legally defined pensionable age is 66 years—in Ireland and Italy. In Germany it is 65, but the normal retirement age is being increased gradually to 67 years by 2031. Only in a few member states is the normal pensionable age below 65 years, the lowest currently is 62 years in Slovakia (Figure 13a). However, aside from the legally defined retirement age, some pension schemes also offer the opportunity to retire early or, vice versa, provide incentives to retire later. This is why the effective age of exit from the labour force deviates significantly from the statutory retirement age in almost all member states. It is notable that it is only in Portugal, Estonia and the Czech Republic that the effective retirement age is greater than the statutory level.

Yet there is not only a divergence between the legal and the effective retirement age. In some countries the statutory retirement age for women is lower than for men as well (Figure 13b). This is particularly the case in Austria and Poland, where the retirement age for women is five years below the level for men, and in the UK and Italy, where the normal retirement age for women is four years below. Once again the effective retirement age deviates considerably.

This also means that the effective retirement age has to be the target of reforms. PAYG pension schemes will only remain sustainable if the effective retirement age is deferred. Therefore, existing regulations will have to be reviewed and probably changed if they currently offer incentives to retire early.

Figure 13b - Effective and official retirement, age of women, 2013



Source: OECD, *Pensions at a Glance 2013: OECD and G20 Indicators* (Paris: OECD Publishing, 2013), doi: 10.1787/19991363.

Note: EU member states that are also OECD countries; average effective age of labour market exit and normal statutory retirement age.

A further question is whether an increase in the retirement age, and thus respectively a longer working period, should result in additional entitlements or not. In order to answer this question we will first take a look at the two extreme ends of the scale: additional contribution payments leading to full additional entitlements versus additional contribution payments leading to no additional entitlements. In the first case a PAYG scheme will still be imbalanced in the following period. This is because pension payments will increase due to both a rising number of pensioners caused by increasing life expectancy and a rise in average pension entitlements. Both will cause additional financial burdens which will again lead to an extra strain on members of the labour force.

In the second case the generation which works for a longer period in life will benefit from the increasing retirement age, even if they do not achieve additional pension entitlements. This is because the retirement age will not need to be adjusted by the same number of years as life expectancy increases. In order to keep a PAYG scheme sustainable contributions have to equal pension payments in each period. If revenues rise due to additional contribution payments, resulting from a longer working period, it will be not necessary to adjust the retirement age in line with life expectancy completely. Therefore, even though employees will have to work longer, they will benefit from a longer retirement afterwards. In other words, the increase in the retirement age can be interpreted as the price for receiving pension payments for a longer period in the future.

As a consequence, a longer working period should not lead to full additional entitlements. Additional prorated entitlements can be granted though. Yet in this case, the retirement age will have to be raised further so that the additional contribution payments equal the additional benefits in any given period.

In summary, raising the retirement age will only ensure a PAYG scheme remains sustainable if the following rules are applied:

- the effective retirement age, not just the official one, should be the focus of reforms;
- a longer working period cannot lead to full additional entitlement; and
- the extension of the working period should be determined only by demographic factors.

The latter requirement might be especially problematic within the political context. As life expectancy has been increasing for years, an extensive adjustment of the retirement age would be necessary in order to keep the pension systems sustainable.

However, different measures can be taken in order to deal with the effects of demographic change. As shown above, each of them burdens mainly one generation. If broader social acceptance of the pension systems' reform is to be achieved, it might be useful to combine different measures. For example, the retirement age could be raised and additionally both benefits reduced and contributions increased at the same time so that all generations share the burden that the inevitable reforms impose.

3.2 Reforming funded pension schemes

As analysed in Section 2, funded pension schemes are less affected by demographic change than PAYG schemes. Only the increase in life expectancy imposes the need for adjustments. In principle, insured persons are only entitled to a pension based on their individual contribution record (plus interest). If life expectancy increases during the contract period there are three possible reactions:

- annuities can be reduced, so that the capital stock of the insurance can be used for a longer pension period;
- contributions can be increased to equal the gap between the capital stock calculated to be available so far and the additional payments caused by increasing life expectancy; or
- the pension age can be deferred, so that the monthly contribution remains unchanged, but is paid for a longer time in order to guarantee an unchanged level of pension payment for a longer period of time.

Depending on the institutional framework of a funded retirement scheme—for example, whether it is based on a DC pension plan, which guarantees a payment based on the amount paid in, or a DB pension plan, which guarantees a minimum monthly payment—as well as state regulations regarding, for example, accounting rules, either of these measures or a combination of both can be used.

The political challenge here is not about dealing with the effects of demographic change. Since the financial crisis other questions have increasingly been on the political agenda—especially regarding the vulnerability of private pension schemes to interference in the financial markets. Additionally, the question of how to strengthen the funded elements of national pension systems is becoming increasingly important. Because the sustainability of PAYG schemes is particularly challenged by demographic change, those elements of old-age provision which are based on funded schemes are being promoted. If the entitlements gained from public pension schemes have to be reduced, broader support of these measures might be more likely if funded schemes are in place that are able to guarantee income maintenance. In order to promote private saving for retirement there are several policy options:

One possibility is to inform the public about current demographic developments and their impact on the PAYG pension scheme. This might encourage younger people to look for alternative ways to provide for their retirement, for example by taking out private pension insurance. However, recent research suggests that people might be reluctant to purchase private insurance—even though they know that public pension provision will be reduced in the future.[12]

In this case, there are further policy options which can strengthen the role of private pensions in financing retirement. However, they all share one underlying problem: state actors rather than individuals must decide on different factors, such as the institutional form which these options take or the extent of private saving that is adequate. Each regulatory framework results in individuals deciding on certain factors and ignoring other possible options. The problem with this is that the pension schemes which political actors could promote might, in the future, turn out to be less profitable or less adequate than other forms of private saving. This has to be considered when making the decision about which policy options to choose.

The policy options that could increase private saving for old age are automatic enrolment, the provision of financial incentives and compulsion:

[12] O. S. Mitchell, J. Piggott, M. Sherris and S. Yow, *Financial Innovation for an Aging World*, NBER Working Paper Series no. 12444 (Cambridge, MA, 2006), 17–18. J. R. Brown, *Rational and Behavioral Perspectives on the Role of Annuities in Retirement Planning*, NBER Working Paper Series no. 13537 (Cambridge, MA, 2007).

• Automatic enrolment means that people are signed up automatically to private pension schemes but have the ability to opt out. This can be made more or less difficult to do depending on the political importance of private saving.

• A financial incentive, for example a tax subsidy, could also be implemented in order to raise the attractiveness of private provision. Both of these options still leave people with the decision of whether to choose private provision or not. Nevertheless, they influence individuals' behaviour and therefore will have an impact on private saving when implemented. How strong this effect will be, however, is difficult to predict. It depends on different factors, such as the actual degree of inertia in the case of automatic enrolment, the financial attractiveness of the pension scheme promoted and the contribution rate.

• The strongest political instrument is to make enrolment into private pensions compulsory. Yet this also has the greatest political limitations and disadvantages: as the contribution rate has to be set politically, it forces people to use a certain amount of their financial means for private saving in predetermined investments. People with a low income might then have to divert funds from other necessary expenses, such as the education of their children. Additionally, mandatory contributions to a private pension scheme might be perceived as a tax, discouraging some people from working.[13]

3.3 Reforming other sectors of the economy

Other policies can facilitate the reform of the pension system. For example, the revenues of PAYG schemes depend directly on the performance of the labour market. High employment rates as well as high labour intensity will generate high contributions and tax revenues. Therefore, labour market policies can improve the sustainability of pension systems, for example, by trying to enhance the labour market partici-

[13] OECD, *OECD Pensions Outlook 2014*, 108–10.

pation of people with few qualifications or by allowing late exit possibilities.[14] This also includes having an educational policy that addresses the adequate qualification of all young persons. Furthermore, migration policy can help to increase the labour force and thereby improve the situation of PAYG pension schemes.

However, even though these policies have a positive impact on public pension systems, they can only support pension reform measures. They are not suited to being used exclusively to stabilise PAYG pension schemes. There are two reasons for this. First, both their potential and their accuracy are far smaller than those of direct reforms. Labour market, education and migration policies alone are not able to overcome the effects of demographic change. Second, imposing reforms in other sectors to ensure pension system stability runs the risk of overlooking other important factors which might be equally important. Therefore, direct reforms of the pension system are unavoidable. However labour market, education and migration policies can positively support the necessary adjustments within the public pension systems and thus facilitate the acceptance of these reforms.

3.4 Summary

In order to provide some structure to the reform options outlined, we have expanded our scheme developed above (Table 3).

[14] European Commission, Economic Policy Committee (AWG), Social Protection Committee (Indicators Sub-Group) and DG ECFIN and DG Employment, Social Affairs and Equal Opportunities, *Joint Report on Pensions: Progress and Key Challenges in the Delivery of Adequate and Sustainable Pensions in Europe*, Occasional Paper 71 (Brussels, November 2010), 76–7.

Table 3 - Reform options

	Demographic change			Reform options
	Increase in life expectancy	**Ageing baby boomer generation**	**Low fertility rate**	
First pillar: Statutory insurance scheme (PAYG)				
Expenditures	Increase • in total • per capita	Increase • in total • per capita		• Cutting benefits per capita • Raising retirement age
Revenues			Decline • in total	• Raising contribution per capita • Raising retirement age
Second pillar: Occupational pension scheme (capital-funded)				
Expenditures	Increase • in total • per capita			• Reducing annuities • Deferring pension age
Revenues				• Raising contributions • Deferring pension age
Third pillar: Private pension scheme (capital-funded)				
Expenditures	Increase • in total • per capita			• Reducing annuities • Deferring pension age
Revenues				• Raising contributions - Deferring pension age

Source: Cologne Institute for Economic Research.

4. Case studies

Different pension systems react differently to demographic changes and thus need different political approaches. To gain a deeper understanding of these differences, we include four case studies in this section. The focus is on four countries that represent the two underlying aims of public pension schemes—income maintenance and basic protection. Germany and Italy represent the Bismarckian type of public pension system, which offers a high net replacement rate compared with the OECD average.[15] Denmark's and the UK's statutory pension schemes, on the other hand, represent the Beveridgean model. They only offer basic protection. For each member state the key characteristics of the pension system are briefly summarised, followed by a short description of recent pension policies that have been implemented in order to deal with demographic change.

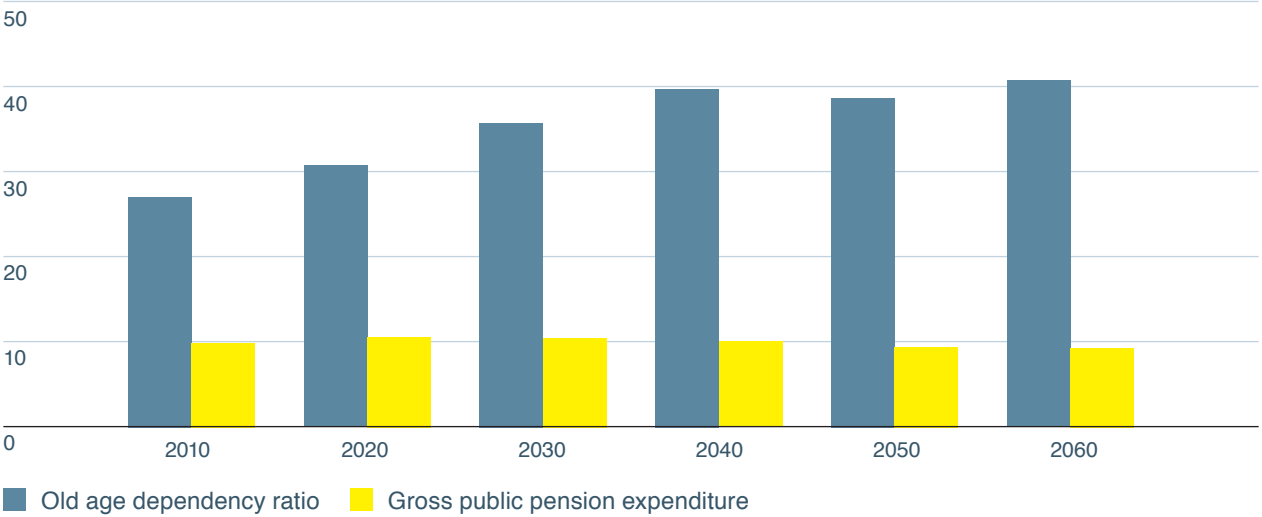
The choice of countries illustrates the wide range of both different systems of old-age provision and different approaches to dealing with future challenges. Even though the pension systems resemble one of the two examples above, all four still differ in their institutional design. Furthermore, the member states have chosen different policy measures to promote private saving for old age. Italy and the UK have implemented automatic enrolment into occupational schemes, while Germany subsidises private saving for retirement. In Denmark, by contrast, occupational pension schemes are part of collective agreements between the relevant employer associations and unions. Therefore they are compulsory for the vast majority of employees.

4.1 Denmark

Pensions policy in Denmark has to deal with the continuous rise of the old-age-dependency ratio from 27.6 in 2013 to 40.6 in 2040. Initially, projected gross public pension expenditure will increase from 10.1% of GDP in 2010 to 10.8% by 2020. However, this will be followed by a slight but steady decline in the following decades.

[15] OECD, *Pensions at a Glance 2013*, 143.

Figure 14 - Old-age-dependency ratio 2013–60, Denmark



Source: Eurostat, 'EUROPOP2010'; Eurostat, 'Pension Expenditure Projections'.

Note: Old-age-dependency ratio is the projected number of persons aged 65 and over expressed as a percentage of people aged between 15 and 64; 2010 = 2013; gross public pension expenditure as a percentage of GDP.

The Danish pension system can be described as a Beveridgean pension model. The Danish public pension scheme offers only basic protection for pensioners, with a net pension replacement rate of 30.1% compared to the income of a full-time career worker at average earnings.*16* It combines two pension schemes—the Folkepension and the Danish Labour Market Supplementary Pension (*arbejdsmarkedets tillægspension*, ATP). The Folkepension is a tax-financed pension scheme to which all Danish citizens are entitled. The prerequisite for receiving a full public pension is residence of 40 years in Denmark. Pro-rated benefits are paid for shorter periods. The minimum requirement for entitlements is residence for at least three years between the ages of 15 and 65. The Folkepension is a flat-rate benefit which is reduced if earnings exceed a certain level (approximately 75% of average earnings).

[16] OECD, *Pensions at a Glance 2013*, 143.

Table 4 - Old-age provision in Denmark

First pillar: Statutory insurance scheme	
Folkepension	
Membership	Entire population
Type	PAYG, tax-financed
Aim	Basic protection
Benefits	Flat-rate, means-tested (additional supplementary pension benefit for the most disadvantaged pensioners)
ATP	
Membership	Employees and people receiving state transfers
Type	Capital-funded, flat-rate contribution (varies depending on number of hours worked)
Aim	Basic protection
Benefits	Based on individual contribution record
Second pillar: Occupational pension scheme (capital-funded)	
Membership	Employees, quasi-mandatory
Type	Capital-funded
Aim	Income maintenance
Benefits	Dependent on individual contribution record (plus interest)
Third pillar: Private pension scheme (capital-funded)	
Membership	Voluntary, employees and self-employed
Type	Capital-funded
Aim	Income maintenance
Benefits	Dependent on individual contribution record (plus interest)

Source: Cologne Institute for Economic Research.

Pensioners without significant cash savings receive a means-tested supplementary pension benefit. The Folkepension's benefits are roughly the same as social benefits: a single-person in need aged 30 or older currently receives €1,433 per month plus benefits for housing.[17] A single pensioner receives a maximum Folkepension of around €1,590 per month.[18]

Employees and recipients of transfer incomes are additionally insured under the ATP scheme. This compulsory pension scheme is a capital-funded, collective-insurance-based pension scheme. The monthly contribution is not earnings-related but a fixed amount and it varies only depending on the number of hours worked. Benefits are related to the individual contribution record. They vary depending on the number of years worked and the total contributions paid. Currently, the maximum benefit is around €263 per month.[19]

In 2015, the pension age is 65 years. It will increase gradually to the age of 67 by 2022. Retirement before the pension age of 65 is only possible if individuals have been members of an unemployment insurance scheme for at least 30 years and have paid voluntary early-retirement contributions during this period. Additionally, they must satisfy the conditions for entitlement to unemployment benefits at the time of transition to the voluntary early-retirement scheme. A labour market exit can be deferred, however, for up to 10 years. In this case, pensions are increased in line with the ratio of the period of deferral to average life expectancy at the time the pension is drawn (e.g. life expectancy at age 68 is 17.1 years, a one-year deferral from age 67, increment = 1/17.1 = 5.8%).20 Despite these rules for early retirement and deferral, the effective age of labour market exit is below the OECD average at 63.4 years for men and 61.9 years for women.[21]

In Denmark, income maintenance for pensioners is achieved by combining the public pension scheme with quasi-mandatory occupational pension schemes. These pension plans have been negotiated as part of collective agreements by the relevant employer associations and unions. They are compulsory for all companies covered by the agreement and there are only very limited opt-out possibilities. Therefore, in

[17] Germany, Federal Ministry of Labour and Social Affairs, *Sozialkompass Europa: Soziale Sicherheit in Europa im Vergleich (Dänemark.* Alter, Federal Ministry of Labour and Social Affairs (Berlin, 2015).

[18] Ibid.

[19] Ibid.

[20] OECD, *Pensions at a Glance 2013*, 241.

[21] Ibid., 129

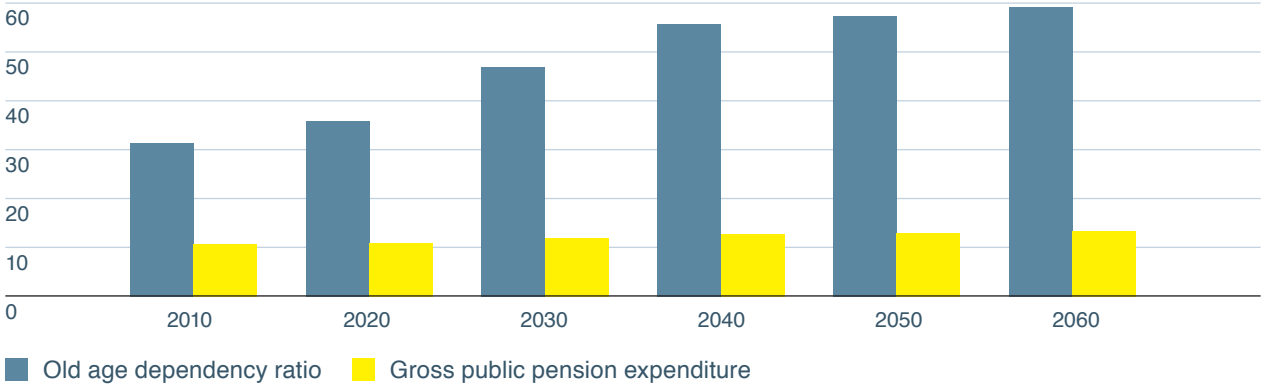
2013 almost 90% of all full-time employees were covered by an occupational pension scheme.[22] These are fully funded, profit-based and usually pay an annuity during the retirement period.

These occupational schemes included, the total net replacement rate in the Danish public and occupational pension systems is 77.4%.[23] Additionally, voluntary private pension plans exist in Denmark. In 2011, 23.6% of the working age population was covered by a private pension plan. [24]

4.2 Germany

Compared to Denmark, the German old-age-dependency ratio starts at a higher level. From 2040 onwards there will be less than two persons of working age per pensioner. This development is regarded as the main driver for gross public pension expenditure. It is forecast to rise continuously over the coming decades—from nearly 11% of GDP in 2010 to 13% in 2050 and still higher after that.

Figure 15 Old-age-dependency ratio 2013–60, Germany



Source: Eurostat, 'EUROPOP2010'; Eurostat, 'Pension Expenditure Projections'.

[22] Ibid., 239.
[23] Ibid., 143.
[24] Ibid., 189.

Note: Old-age-dependency ratio is the projected number of persons aged 65 and over expressed as a percentage of people aged between 15 and 64; 2010 = 2013; gross public pension expenditure as a percentage of GDP.

The aim of Germany's public pension scheme can be interpreted as income maintenance. The German pension system's main features still follow the ideas of Otto von Bismarck, who introduced old-age insurance in Germany in the nineteenth century. Only employees are insured within the public pension scheme. The German public pension scheme's net replacement rate of 55.3% for a full-time worker at average earnings is above the OECD average. The statutory insurance scheme is earnings-related—benefits are calculated on the basis of 'pension points'. Each year of individual contribution payments earns a certain amount of pension points—depending on personal income liable for contributions relative to average wage income. The value of these pension points depends on different factors: the development of average gross wages, changes to the contribution rate to the statutory pension scheme, the development of the subsidised private pension scheme, and the ratio between retirees and contributors. Furthermore, it is adjusted for early retirement or retirement deferral. If old-age income from all income sources is below the minimum welfare level, pensioners receive means-tested benefits from social assistance.

Table 5 Old-age provision in Germany

First pillar: Statutory insurance scheme (Gesetzliche Rentenversicherung)	
Membership	Employees
Type	PAYG; contribution based
Aim	Income maintenance
Benefits	Dependent on individual contribution record and various macroeconomic factors
Second pillar: Occupational pension schemes	
Membership	Employees, voluntary
Type	Five different methods of implementation, capital-funded
Aim	Income maintenance
Benefits	Dependent on individual contribution record (plus interest)

Third pillar: Private pension schemes	
Membership	Employees, voluntary, financial incentive: allowance or tax relief
Type	Capital-funded
Aim	Income maintenance
Benefits	Dependent on individual contribution record (plus interest)

Source: Cologne Institute for Economic Research.

Since 2012, the statutory retirement age has gradually been increasing by one month each year, and from 2023 onwards it will increase by two months each year, with the aim of reaching 67 years by 2031. In May 2015, it was at 65 years and 4 months. However, in 2013, the effective retirement age was 62.1 years for men and 61.6 years for women,[25] even though the pension benefit is reduced by a permanent deduction in the case of early retirement. Conversely, postponing the age of retirement is rewarded with a higher pension accrual of 0.5% for each additional month worked.

Although projections for Germany predict one of the largest old-age-dependency ratios within the EU28 in the coming decades, the individual costs of early retirement were considerably reduced in 2014 for some older employees. Persons with an individual contribution record of at least 45 years are now allowed to retire at the age of 63 without suffering from any reduction in pension benefit.

Occupational pension schemes are voluntary in Germany. The occupational pension system is quite complex because there are five different institutional designs for occupational pension plans:

- direct entitlement (*Direktzusage*),
- support funds (*Unterstützungskasse*),
- pension funds (*Pensionskasse*),
- direct insurance (*Direktversicherung*), and
- retirement funds (*Pensionsfonds*).

[25] Ibid.,128.

They differ in terms of their legal organisation and therefore in the liability assumed by the employer. Support funds, pension funds and retirement funds are legally independent enterprises which offer occupational insurance on behalf of the employer. Conversely, direct entitlements are organised by the employer itself. Direct insurances are private capital-funded life insurance policies which the employer takes out on behalf of its employees. In theory, the employer is free to choose which occupational pension plan is offered to its employees. Collective agreements, though, can limit this choice. However, it is not only the variety of institutional designs which makes Germany's occupational pension schemes unique within the EU. They also differ compared to other products available on the financial market. As occupational pension entitlements result from a labour contract, employers bear the liability and not the insurance companies. In 2011, 56.4% of employees subject to social insurance contributions maintained an occupational scheme.[26]

In order to increase private saving, in 2002 Germany introduced a subsidy and tax promotion for certain private pension plans (the 'Riester' pension, named after former Minister of Labour and Social Affairs Walter Riester). In 2014, around 16 million of these Riester pension plans were being maintained, with approximately one-fifth of them having been suspended.[27] In addition, further tax relief is given on endowment life insurance policies: if the saving phase lasted at least 12 years and the contract was concluded before the end of 2004, the share of income from the one-off payment will be free of income tax. If the contract was concluded in 2005 or later, half of the share of the income will be tax-free. However, it is not possible to clarify whether this subsidy promotes old-age provision or asset accumulation in general as it provides a one-off payment instead of a monthly pension.

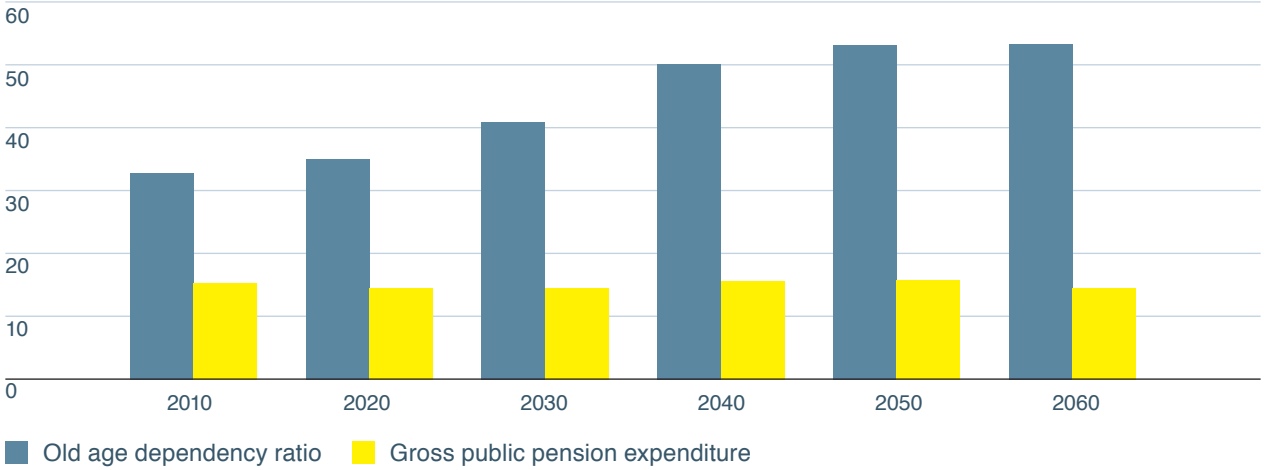
4.3 Italy

The ageing of the Italian population is following quite a similar trajectory to that of Germany, although the old-age-dependency ratio will not reach the German level in 2050 or 2060. On the other hand, the share of GDP used for gross public pension expenditure was already the highest in the EU28 in 2010. In the coming

[26] Ibid., 189.
[27] Germany, Federal Ministry of Labour and Social Affairs, *Entwicklung der Riester-Verträge: Bestand in Tsd.*, Berlin, 2014.

decades the ratio will develop inconsistently. First it is forecast to decline from 15.3% of GDP to 14.5% in 2030. The ratio will then increase to 15.6% and 15.7% in 2040 and 2050 before falling to 14.4% by 2060.

Figure 16 Old-age-dependency ratio 2013–60, Italy



Source: Eurostat, 'EUROPOP2010'; Eurostat, 'Pension Expenditure Projections'.
Note: Old-age-dependency ratio is the projected number of persons aged 65 and over expressed as a percentage of people aged between 15 and 64; 2010 = 2013; gross public pension expenditure as a percentage of GDP.

Italy's pension system is orientated along the lines of the Bismarckian model. Its public pension scheme is a mandatory insurance for all private sector employees. As its net pension replacement rate was relatively high at 78.2% in 2013,[28] its aim can be described as income maintenance. In 1995, Italy introduced a new public pension scheme, based on notional defined contribution (NDC) plans. In theory, these so-called notional accounts mimic the effects of a funded scheme. Contributions paid to the PAYG scheme are registered on individual accounts and generate notional interest, while the interest rate is set by the government. Virtually accumulated contributions and notional returns are converted into an annuity when pension age is reached. This annuity rate not only depends on contributions paid but also on life expectancy.

[28] Ibid., 143.

Table 6 Old-age provision in Italy

First pillar: Statutory insurance scheme (Assicurazione Generale Obbligatoria)	
Membership	All private sector employees (special schemes exist for the self-employed)
Type	PAYG, contribution based
Aim	Income maintenance
Benefits	Dependent on contributions, pension age and life expectancy
Second pillar: Occupational pension schemes	
Membership	Private sector employees; voluntary, but automatic enrolment
Type	Capital-funded
Aim	Income maintenance
Benefits	Dependent on individual contribution record (plus interest)
Third pillar: Private pension schemes	
Membership	Voluntary, employees and self-employed
Type	Capital-funded
Aim	Income maintenance
Benefits	Dependent on individual contribution record (plus interest)

Source: Cologne Institute for Economic Research.

As notional accounts only mimic the effects of a funded scheme they are affected by demographic changes in the same way as any other PAYG scheme. Their parameters are decided by politics and not by markets. Therefore, any necessary change to these parameters due to demographic pressure might create equivalent challenges to those faced in other PAYG schemes.[29] The political advantage of NDC schemes, however, is transparency and the clear relationship between contribution payments and benefits.[30]

[29] World Bank, *Notional Account: Notional Defined Contribution Plans as Pension Reform Strategy* (Washington, DC: World Bank, 2005), 2–3.
[30] Ibid., 5.

Theoretically, these schemes do not need any rules for either early or late retirement. As benefits are only linked to contribution payments (plus notional interest) and life expectancy, pension annuities can be automatically adjusted. The possibility of early retirement, however, can be linked to certain minimum requirements. Incentives to retire early but then depend on social assistance due to low pension benefits later have to be avoided.

By reforming its public pension scheme in such a comprehensive manner, the unequal treatment of different generations was deliberately accepted. A closer look, however, suggests that some elements of Italy's pension system might have been a political compromise as a result of implementing such an extensive change. When Italy introduced the new NDC scheme in 1995, a long transition period was chosen: only labour market entrants from 1996 onwards were automatically insured under the NDC scheme. Pensions for employees who were already participating in the labour market were calculated according to the old rules or through a mixture of old and new rules depending on their contribution record.[31] Furthermore, in the years following the reform the World Bank noted the existence of a sustainability gap in the Italian system. It pointed out that the contribution rate was too low and that pension accounts were being credited with more contributions than had been paid.[32]

The latest reform in 2011 abolished the gradual implementation of the NDC scheme. Since 2012 all benefits have been calculated on the basis of the new scheme. Only entitlements for employees who were working before 1996 and to which access was gained before 2012 are calculated using the old rules. Additionally, the legal pension age will increase gradually for men and women in line with life expectancy and is planned to reach 67 by 2021. The pension age for women is also increasing from 60 to 66 by 2018 in order to match that of men.

In 2012, the effective age of labour market exit was 61.1 years for men and 60.5 years for women.[33] In the same year, a new early retirement scheme was introduced: employees under the NDC scheme or the mixed system will be able to retire between 62 and 70 years, if a minimum of 20 contribution years have

[31] In this case, pensions are based on average earnings over the last five years before retirement. For employees who were insured under the former system for less than 18 years, pensions are calculated on average earnings in a period covering between the last 5 and 10 years.
[32] World Bank, *Notional Account*, 4.
[33] OECD, *Pensions at a Glance 2013*, 128.

been achieved. Early retirement, however, is only possible if the pension amount is not lower than 1.5 times the level of social assistance. People who were fully enrolled in the old scheme before the 2011 reform can only retire at 62 if contributions have been paid for at least 42 years and 1 month (men) or 41 years and 1 month (women). It has been announced that these requirements are to be adjusted to match the increase in life expectancy.

In Italy, voluntary occupational pension schemes are organised as open or closed pension funds. The latter are part of a collective agreement between employer and employee associations and operate mainly at the sector level. Reforms undertaken during the last decade have also tried to strengthen private saving for retirement. In 2007, the Italian government reformed the occupational pension sector by introducing automatic enrolment into private pension plans: private sector employers build up earnings-related reserves, which are disbursed as severance pay should the employment relationship come to an end—the 'Trattamento di Fine Rapporto' (TFR). Since 2007, this TFR has been transferred to private pension funds. Employees have a period of six months in order to decide whether to opt out of this arrangement.

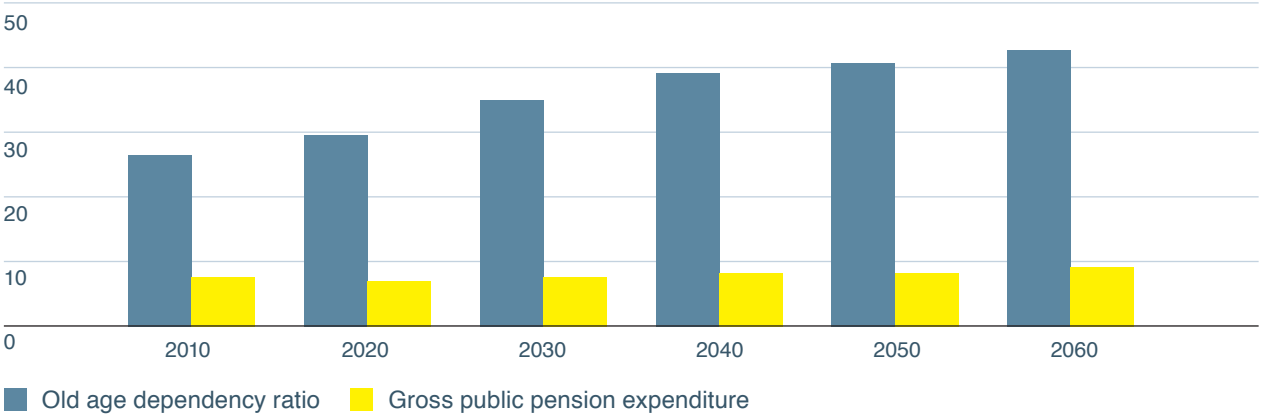
Despite this reform, the coverage rate of private pension plans is still relatively low compared to that of other countries, where private schemes traditionally play an important role (such as the UK). In 2011, only 7.5% of the working age population was covered by an occupational pension plan and just 6.9% by a personal pension plan.[34] In 2013, around just 16% of the working age population was enrolled in either an occupational or a private pension plan.[35]

[34] OECD, *Pensions at a Glance 2013*, 189.
[35] OECD, *OECD Pensions Outlook 2014*, 153.

4.4 The UK

Even the UK is facing a period of significant population ageing. However, its old-age-dependency ratio will not reach the level of Italy's or Germany's. Furthermore, gross public pension expenditure was only 7.7% of GDP in 2010 and is only projected to increase moderately. In 2040 and 2050 the ratio is forecast to be 8.2%. Even the predicted 9.2% in 2060 is below Germany's level today.

Figure 17 Old-age-dependency ratio 2013–60, UK



Source: Eurostat, 'EUROPOP2010'; Eurostat, 'Pension Expenditure Projections'.
Note: Old-age-dependency ratio is the projected number of persons aged 65 and over expressed as a percentage of people aged between 15 and 64; 2010 = 2013; gross public pension expenditure as a percentage of GDP.

The UK's pension system exemplifies the Beveridgean model. It is based on the ideas of William Beveridge, developed in the 1940s. Currently, the UK's pension system is based on three pillars: State Pensions, occupational pensions and personal pensions. In 2013, the gross pension replacement level of the public pension scheme was 32.6% for a full-time career worker at average earnings—the second lowest in the

OECD.[36] Therefore, it can be classified as a system which provides basic protection only. The public pension scheme, the State Pension, is sub-divided into the Basic State Pension, Pension Credit (a minimum income guarantee for the poorest pensioners) and the Additional State Pension, which was voluntary until 2012. Employees were able to opt out of the latter if they signed up to an occupational or personal pension scheme.

Table 7 Old-age provision in the UK

First pillar: Statutory insurance scheme	
Basic State Pension (will be replaced by the single-tier state pension)	
Membership	Employees and self-employed persons
Type	PAYG, contribution-based
Aim	Minimum benefit
Benefits	Flat-rate (based on individual contribution record)
Pension Credit (will be replaced by the single-tier state pension)	
	Means-tested benefit for the poorest. Savings Credit: benefit dependent on individual private pension income, reverse means-tested
Additional Pension (State Second Pension; Graduated Retirement Benefit; State Earnings-Related Pension Scheme) (will be replaced by the single-tier state pension)	
Membership	Employees
Type	PAYG, contribution-based
Aim	Income maintenance
Benefits	Earnings-related

[36] OECD, *Pensions at a Glance 2013*, 143.

Second pillar: Occupational pension schemes	
Membership	Employees; voluntary, but gradually automatic enrolment
Type	Capital-funded
Aim	Income maintenance
Benefits	Dependent on individual contribution record (plus interest)
Third pillar: Private pension schemes	
Membership	Employees and self-employed
Type	Capital-funded
Aim	Income maintenance
Benefits	Dependent on individual contribution record (plus interest)

Source: Cologne Institute for Economic Research.

The Pensions Act 2014 introduced a new State Pension. From 2016 onwards the different sub-divisions will be replaced by one statutory single-tier state pension. It will offer a flat-rate pension, dependent on the individual's number of 'qualifying years'—usually the years in which National Insurance (NI) Contributions37 were paid, provided that earnings were above a minimum amount.[38] In the future, a minimum of 10 qualifying years will be necessary to gain any State Pension. In order to get the maximum State Pension 35 qualifying years will be necessary (instead of the current 30 qualifying years). According to OECD calculations the future gross pension replacement rate will decline to 21% for average earners with the new State Pension[39]—compared to 32.6% in 2013.[40]

[37] NI is a global insurance for state benefits, e.g. unemployment benefit, maternity allowance and retirement pensions. It is paid by employers and employees on earnings; the self-employed contribute both a percentage of net profits and a fixed payment.

[38] NI credits can also be collected during unemployment or while having a break from work to raise children.

[39] OECD, *Pensions at a Glance 2013: OECD and G20 Indicators – Highlights: United Kingdom* (Paris: OECD Publishing, 2013).

[40] OECD, *Pensions at a Glance 2013*, 135.

Presently, the State Pension age is 65 for men; for women it is still in the process of being increased from 60 to 65. In 2012, however, the effective age of labour market exit was 63.7 years for men and 63.2 years for women and therefore below the official retirement age for men.[41] In order to raise the pension age, under the Pensions Act 2014 the State Pension age was increased to 67 for both men and women, which will be implemented gradually by 2028.

The deferral of retirement remains possible under the Pensions Act. If retirement is deferred, the payment of NI Contributions is no longer required. Deferral is also combined with the earning of extra State Pension increments. The value of those increments, however, will be reduced with the introduction of the new State Pension. Currently, the deferral of the State Pension earns an individual about 10.4% extra for each year (1% for every five weeks). In the future this will be approximately 5.8% for each year (1% for every nine weeks). Thus, the government has also reacted to demographic change in this way.

Even though public pension replacement rates in the UK are among the lowest across the OECD, the total net replacement rate of 78.1% was around the OECD average in 2013.[42] This is the case because both occupational and private pensions traditionally play an important role in retirement income in the UK. In 2013, about 50% of the working age population was enrolled in a voluntary private pension plan.[43]

In order to encourage individuals to save even more for their retirement, automatic enrolment in an occupational pension plan was introduced in 2012. Employers are required to automatically enrol all employees who are not already covered by a private pension. People can choose to opt out within one month of enrolment and the contributions already made are refunded. However, employers will automatically re-enrol employees who have opted out on a three-year cycle. Implementation of the process is due to be completed by February 2018 and started with the largest employers in 2012. Furthermore, occupational and private pension schemes are given tax advantages: there is tax relief on private pension contributions of up to 100% of annual earnings. Additionally 25% of the pension pot is tax free in most pension schemes.

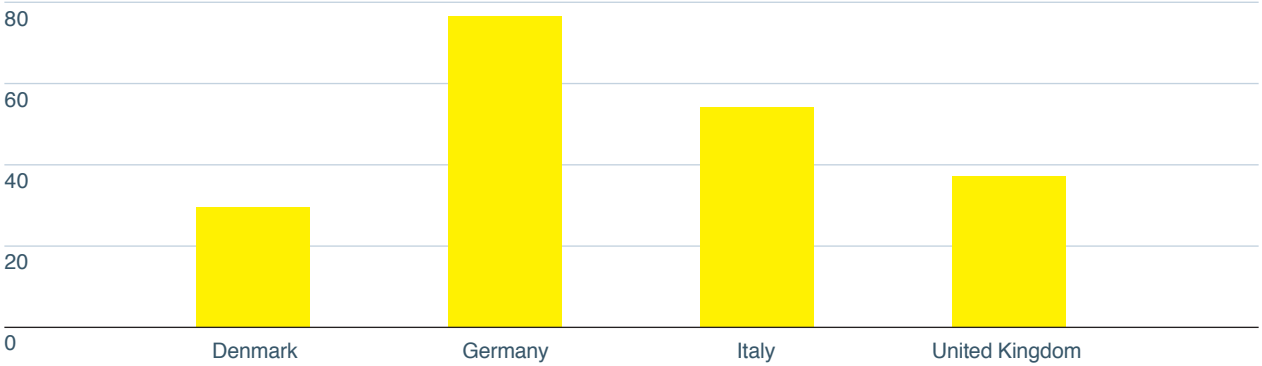
41 Ibid.,128.
42 Ibid., 143.
43 OECD, *OECD Pensions Outlook 2014*, 153.

In summary, the latest reform of the statutory public pension scheme maintains the UK's tradition of keeping the public system small and providing basic coverage only. The government has also reacted to the increase in life expectancy by raising the pension age. An unlimited deferral of the State Pension remains possible, while the Pensions Act 2014 also retained the system of rewarding later claims to entitlements. However, the amount of extra money will be reduced in the future.

4.5 Summary

Our case study reveals that the four pension systems which we have compared are characterised by certain combinations of PAYG and capital-funded elements. Even though they have some elements in common, these combinations make each system unique. Furthermore, the scope of the public pension scheme in place depends on whether income maintenance or poverty prevention is the main goal of the system. As a consequence the net pension replacement rates differ widely (Figure 18). Table 8 summarises and compares the main features of the four pension systems.

Figure 18 Net public pension replacement rate, 2013



Source: OECD, *Pensions at a Glance 2013*, 142.

Note: Net pension replacement rate is defined as the net public pension entitlement as a percentage of net pre-retirement earnings for a full-time male worker at average earnings, taking account of the personal income taxes and social security contributions paid by workers and pensioners.

Table 8 Main features of pension systems in Denmark, Germany, Italy and the UK

Statutory insurance scheme				
	Denmark	**Germany**	**Italy**	**UK1**
Membership	Entire population	Employees	All private sector employees	Employees and self-employed persons
Type	PAYG, tax-financed	PAYG, contribution based		
Aim	Basic protection	Income maintenance		Minimum benefit
Benefits	Flat-rate, means-tested (additional supplementary pension benefit for the most disadvantaged pensioners)	Dependent on individual contribution record and different macroeconomic factors	Dependent on contributions, pension age and life expectancy	Flat-rate (based on individual contribution record)
Occupational pension schemes				
Membership	Employees and people receiving state transfers	Employees, voluntary	Private sector employees; voluntary, but automatic enrolment	Employees; voluntary, but gradually automatic enrolment
Type	Capital-funded, flat-rate contribution (variation with number of hours worked)	Capital-funded		
		Five different ways of implementation		
Aim	Basic protection	Income maintenance		
Benefits	Based on individual contribution record	Dependent on individual contribution record (plus interest)		

Third pillar: Private pension schemes				
Membership	Voluntary, employees and self-employed	Employees, voluntary, financial incentive: allowance or tax relief	Voluntary, employees and self-employed	Employees and self-employed
Type	Capital-funded			
Aim	Income maintenance			
Benefits	Dependent on individual contribution record (plus interest)			

Source: Cologne Institute for Economic Research.

5. Key conclusions and policy recommendations

Before setting out recommendations for the role of the EU and the member states in pension policy, we summarise our findings in some key conclusions. They reflect both the actual challenges for the member states' pension systems and the different pension policies which the member states are choosing to implement in order to deal with these challenges. Considering both aspects, we have arrived at the following conclusions.

5.1 Key conclusions

1. The recent crisis has exacerbated the funding shortfalls of public pension systems, but the main driver of expenditure growth is demographic change.

The population of the EU is growing older. An increase in life expectancy and low fertility rates are leading to an increasingly high ratio of older to younger people. This development is imposing a challenge on the member states' public pension systems. The question of how to finance an adequate income for pensioners acquired new urgency during the recent financial crisis: given the increasing government debt, public pension expenditures were, and still are, a cause for concern.

The ageing of Europe's population will lead to two developments. First the sum of pensions being paid in the coming decades will increase substantially, especially for those countries operating PAYG pension systems. This is because pensions will have to be paid for longer on average and a larger number of people will be retiring in the future. At the same time the size of the labour force will fall. Therefore, PAYG pension systems will face an increasing sustainability gap.

2. The demographic challenge is not the same for each of the member states.

A closer look at existing data reveals that the future challenges faced by pension policy are not exactly the same for each member state. The magnitude, speed and timing of population ageing vary: current life

expectancy, as well as its development to 2060, differs significantly within the EU28. The same is true for fertility rates. Furthermore, the effect of the ageing of the baby boomer generation varies considerably among the EU member states. There is a particularly clear difference between Eastern and Western European countries in the timing and magnitude of this effect.

3. A solely fiscal perspective is too narrow given the complexity of the problem. The nation-specific pension system has to be the focus when reforms are recommended.

Focusing on empirical data only entails the risk of misguided policy decisions. A narrow fiscal perspective might misjudge the complexity of the problem. As the national pension systems differ in many aspects, it is doubtful that suitable reform measures can be based on fiscal indicators alone:

- National pension systems are characterised by a particular combination of PAYG and capital-funded elements. This combination differs between the member states. Each specific combination reacts differently to demographic change and thus also requires different adjustments.

- Fiscal consolidation can also be achieved by other reform measures. Concentrating on public pension systems only might neglect these alternatives.

- Public pension systems do not only differ in their specific combination of PAYG and capital-funded elements but also pursue different normative aims. Therefore, different strategies might be suitable depending on whether income maintenance or poverty prevention is the main purpose of the system.

4. National preferences might lead to different reform strategies.

Different reforms induce different financial burdens for different groups—as shown in Section 3. Furthermore, there are different options for developing occupational or private pension schemes.

The case studies in Section 4 revealed both the differences between the national pension systems and the different reform strategies which the member states are pursuing. However, nation-specific reform strategies cannot be explained by the type of pension system alone. This leads to the conclusion that different national preferences might also influence the decision about which reform path to choose—for example which generation should mainly be burdened with the effects of demographic change.

5.2 Policy recommendations

The question of who should be the main driver of pension policy reform—the EU or the member states themselves—cannot be answered without a deeper analysis of Europe's pension systems. Our findings and the conclusions we have drawn lead us to make the following recommendations:

1. Pension policy should remain a national issue.

In the aftermath of the recent crisis the role of the European Commission has changed—for example, with the introduction of the European Semester. Today, the European Commission's analysis offers an early warning of macroeconomic imbalances. It is in this context that the national pension systems were brought into focus. The joint public pension projections produced by the European Commission encourage transparency. Using these reports, the situation of each pension system can be compared and different reform paths can be evaluated. This might increase the pressure to reform, but it also raises the question of the legitimacy of uniform European action.

This question goes far beyond a legal assessment. From an economic perspective, nation-specific preferences can best be evaluated and met by national entities. Supranational action is only indicated in instances where national policies lead to distortions in other nation-states or the EU as a whole.

This is not the case for national pension policy. Fiscal reasons alone cannot justify supranational action. If this was the case then almost all political sectors would have to be monitored and controlled by the EU—

for example public health policy and education policy—because they all influence fiscal consolidation and economic growth. This would be contrary to the current consensus on the division of the responsibilities between member states and the EU.

2. The EU should support national reform strategies by monitoring public pension systems.

Comparing different public pension systems is helpful in identifying obvious conflicts. National governments might be forced to evaluate their social policy in general and their pension policy in particular. Furthermore, the Commission's reporting might help to induce necessary debates within the member states—for example about intergenerational justice. The EU can support national debates by providing and exchanging information, and by evaluating single member states. Raising the retirement age, for example, might be a recommendable strategy for all EU member states due to both the need to moderate demographic challenges for PAYG pension schemes as well as to strengthen the potential output of a national economy. Yet, as these fundamental discussions go far beyond old-age provision, the role of the EU cannot go further than initiating these discussions about mutually reinforcing policies. It is for the member states to determine which reform path to choose for old-age provision because only they can be responsible for answering the underlying normative questions.

3. The EU should also support national pension policy by improving the single market in other sectors.

One of the core responsibilities of the EU is the promotion of the EU single market. By carrying out this task the EU can also support the public pension schemes of the member states indirectly. As economic prosperity has a positive impact on fiscal sustainability, a successful single market strategy can help to extend governments' ability to take action on social policy. For example actions to increase labour mobility or labour market participation improve overall economic performance, which in turn can positively influence the sustainability of PAYG pension schemes. In this context, it is also necessary to deal with all the questions connected with labour mobility, such as the portability of entitlements achieved in public, as well as occupational, pension schemes.

4. Pension reform strategies should be gradual and innovative.

From an economic point of view, the adaptation of pension schemes to meet demographic challenges should evolve steadily instead of being a disruptive change reacting to medium-term fiscal needs. This is because individuals' strategies for old-age provision are based on long-term expectations. Disruptive changes to pension policies might devalue investment strategies chosen in the past and which cannot be changed without significant losses. Moreover, fundamental changes to pension systems might counteract a strategy of strengthening capital-funded elements because long-term expectations might be unsettled whilst individual long-term investment rests upon stable prospects.

However, which reforms are chosen depends not only on a pure economic analysis but also on political willingness, which reflects national preferences. What makes the Italian reform encouraging is that even more innovative reform paths seem possible. Even though the Italian model of notional accounting is not the same as the one described in economic theory, a more economically perfect reform model might have failed to gain the political support necessary for implementation. The Italian experience clearly shows the political compromises that are often necessary to achieve fundamental reform strategies in public pension systems.

5. The further reform of pension models will need to involve all three pillars (public, occupational and private) and cannot just be based on fiscal considerations.

As the demographic challenge becomes more apparent in the decades ahead the pressure on government finances will increase. As shown in our analysis, this is true for both types of public pension models—Bismarckian and Beveridgean. Therefore, reforms of public pension schemes will be unavoidable. They might, however, be more acceptable to the public if they are accompanied by reforms of occupational and private pension schemes. The latter can be used in order to guarantee income maintenance when retiring, as the British case illustrates.

The results of our analysis show that when defining the EU's role in pension reform policy a solely fiscal perspective is too narrow from an economic point of view. Fiscal consolidation is necessary and, therefore, every support in achieving sustainable state budgets should be given by the EU. Yet, as far as old-age provision is concerned (and other aspects of social security such as health care) the main driver should not be the fiscal imbalance but demographic change. The latter will remain when the aftermath of the financial and economic crises has been overcome. Therefore, policy recommendations at the EU level should be given with great care. Consultations should always take into consideration nation-specific preferences as well as the mix of different elements of old-age provision in each member state. Only then can a long-term and sustainable pension reform policy be supported successfully.

Bibliography

Bonoli, G., 'Two Worlds of Pension Reform in Western Europe', Comparative Politics 35/4 (2003), 399–416, accessed at http://www.econ.jku.at/members/WinterEbmer/files/papers/bonoli.pdf on 30 November 2014.

Brown, J. R., Rational and Behavioral Perspectives on the Role of Annuities in Retirement Planning, NBER Working Paper Series no. 13537 (Cambridge, MA, 2007), accessed at http://www.nber.org/papers/w13537 on 3 February 2015.

Economic Policy Committee, *Pension Expenditure Projections* (Brussels, 2015), accessed at http://ec.europa.eu/eurostat/web/products-datasets/-/tsdde520 on 12 March 2015.

Esping-Andersen, G., 'Die drei Welten des Wohlfahrtskapitalismus. Zur Politischen Ökonomie des Wohlfahrtsstaates', in S. Lessenich and I. Ostner (ed.), *Welten des Wohlfahrtkapitalismus. Der Sozialstaat in vergleichender Perspektive* (Frankfurt/Main: Campus Verlag, 1998).

European Commission, DG ECFIN and the Economic Policy Committee (AWG), *The 2012 Ageing Report: Economic and Budgetary Projections for the 27 EU Member States (2010–2060),* Joint Report (Brussels, 2012), accessed at http://ec.europa.eu/economy_finance/publications/european_economy/2012/2012-ageing-report_en.htm on 15 May 2015.

European Commission, DG ECFIN and the Economic Policy Committee (AWG), *The 2015 Ageing Report: Economic and Budgetary Projections for the 28 EU Member States (2013–2060)* (Brussels, 2015), accessed at http://ec.europa.eu/economy_finance/publications/european_economy/2015/ee3_en.htm on 5 June 2015.

European Commission, Economic Policy Committee (AWG), Social Protection Committee (Indicators Sub-Group), DG ECFIN, and Directorate General for Employment, Social Affairs and Equal Opportunities, *Joint Report on Pensions: Progress and Key Challenges in the Delivery of Adequate and Sustainable Pensions in Europe,* Occasional Paper no. 71 (Brussels, November 2010), accessed at http://ec.europa.eu/economy_finance/publications on 1 December 2014.

Eurostat, 'EUROPOP2010 – Projected Old Age Dependency Ratio', code: tsdde511, last updated 11 December 2014, accessed at http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=proj_13npms&lang=en on 24 April 2015.

Eurostat, 'EUROPOP2013 – Age-Specific Fertility Rates', code: proj_13naasfr, last updated 8 December 2014, accessed at http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=proj_13npms&lang=en on 24 April 2015.

Eurostat, 'EUROPOP2013 – Life Expectancy by Age and Sex', code: proj_13nalexp, last updated 8 December 2014, accessed at http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=proj_13npms&lang=en on 24 April 2015.

Eurostat, 'EUROPOP2013 – Main Scenario – Population on 1st January by Sex and Single Age Year', code: proj_13npms, last updated 8 December 2014, accessed at http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=proj_13npms&lang=en on 22 April 2015.

Eurostat, 'EUROPOP2013 – Population Projections at National Level, Assumptions', code: proj_13na, last updated 8 December 2014, accessed at http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=proj_13npms&lang=en on 22 April 2015.

Eurostat, 'Fertility Rate by Age', code: demo_frate, last updated 21 April 2015, accessed at http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=proj_13npms&lang=en on 22 April 2015.

Eurostat, 'Life Expectancy by Age and Sex', code: demo_mlexpec, last updated 23 April 2015, accessed at http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset =proj_13npms&lang=en on 23 April 2015.

Eurostat, 'Pension Expenditure Projections (Baseline Scenario)', code: tsdde520, last updated 13 April 2015, accessed at http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=proj_13npms&lang=en on 23 April 2015.

Eurostat, 'Population: Structure Indicators', code: demo_pjanind, last updated 13 April 2015, accessed at http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=proj_13npms&lang=en on 22 April 2015.

Germany, Federal Ministry of Labour and Social Affairs, *Entwicklung der Riester-Verträge: Bestand in Tsd.* (Berlin, 2014), accessed at http://www.bmas.de/DE/Themen/Rente/Zusaetzliche-Altersvorsorge/statistik-zusaetzliche-altersvorsorge.html;jsessionid=2D02259BA03E17EB135CBC0D4631FAEF on 15 April 2015.

Germany, Federal Ministry of Labour and Social Affairs, *Sozialkompass Europa: Soziale Sicherheit in Europa im Vergleich* (Berlin, 2015), accessed at http://www.sozialkompass.eu/onlineversion.html on 12 March 2015.

Mitchell, O. S., Piggott, J., Sherris, M. and Yow, S., *Financial Innovation for an Aging World,* NBER Working Paper Series no. 12444 (Cambridge, MA, 2006), accessed at http://www.nber.org/papers/w12444 on 3 February 2015.

OECD, *OECD Pensions Outlook 2014* (Paris: OECD Publishing, 2014), doi: 10.1787/9789264222687.

OECD, *Pensions at a Glance 2013: OECD and G20 Indicators* (Paris: OECD Publishing, 2013), doi: 10.1787/19991363.

OECD, *Pensions at a Glance 2013: OECD and G20 Indicators – Highlights: United Kingdom* (Paris: OECD Publishing, 2013), accessed at http://www.oecd.org/unitedkingdom/OECD-PensionsAtAGlance-2013-Highlights-United-Kingdom.pdf on 10 January 2015.

World Bank, *Notional Account: Notional Defined Contribution Plans as Pension Reform Strategy* (Washington, DC: World Bank, 2005) accessed at http://documents.worldbank.org/curated/en/2005/01/6323988/notional-accounts-notional-defined-contribution-plans-pension-reform-strategy on 7 March 2015.

The recent financial and economic crisis has exacerbated the funding shortfalls of Europe's public pension systems. However, although the ageing of Europe's population is a general trend observable in all member states, its scale and timing will impact differently on a national level. By analysing demographic trends and utilising a case study approach, this research highlights the challenges facing national pension systems in the years ahead. Politically, it will be on the basis of national preferences that further pension system reform will occur in the future.

With this in mind, it is too narrow-minded to take a solely fiscal perspective from which to develop European reform strategies which meet the requirements for both fiscal balance and sustainable public pension systems. Therefore, the EU should support national reform strategies by monitoring public pension reforms as well as improving the single market. However, public pension policy should remain a national competence. In addition, the examples of the Italian and British case studies highlight that long term pension reform should be innovative and involve public, occupational and private elements.

Wilfried
Martens Centre
for European Studies