2 Population aging and financial and social sustainability challenges of pension systems in Europe: A cross-national perspective

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This chapter examines the economic and demographic factors that threaten the viability of European pension systems over the next 50 years. In the short to medium term, the principal challenge is indeed a structural rebalancing of public finances, by applying austerity measures and reducing reliance on debt-financing, while at the same time promoting jobs growth and minimizing adverse impacts on vulnerable population groups. In the longer term, population aging remains the key challenge, although its magnitude, speed and timing vary across the European countries under review. Longevity gains and falling fertility levels, especially in Central and Eastern European countries where emigration is another contributing factor, imply that the cohorts of elderly are growing in number just as the cohorts of working population supporting them are starting to decline. The implications on the size and shape of public services and finances as well as on future growth and on living standards are considerable. This chapter argues that a review of fundamentals is required, for all concerned – individual countries as well as EU institutions – in moving forward, by examining whether, and how, recent policy reforms compromise the pension income adequacy of future retirees, and what policies can improve the prospects for both the financial and social sustainability of public pension systems.

2.1 Introduction

Unexpected events cause shock and uncertainty, which then bring a wave of introspection and questions about past practices and likely future developments. The shocks to economic systems caused by the financial near meltdowns in 2008/2009 have begun to recede now, but the question remains how its effects are likely to linger with us in the decades to come. How such a shock, combined with other long-term challenges such as population aging, is likely to affect the fabric of the welfare state that we, the Europeans, had got used to.

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The current state of affairs is nothing to brag about. Many European economies are now saddled with structural debts, partly as a result of spending choices during the boom years and partly in implementing the unavoidable and for the most part effective stimulus packages during 2009/2010. Although signs of economic recovery are visible, as most European economies are returning to positive economic growth (during 2010 and 2011), it is not clear how steady this development is. The effects on employment are lagging behind, as unemployment is persisting at around the 10% mark for the EU on average (during 2011). Moreover, most EU countries have also now embarked on various budgetary consolidation measures (starting during late 2010, and taking on a momentum of its own during 2011) and the impact of cutbacks required for fiscal consolidations on the vulnerable groups of the society, particularly children and pensioners, could run deep.

Furthermore, population aging remains a key long-term challenge for many European countries, and its magnitude, speed and timing vary across European countries (Lanzieri, 2011). The implications on the size and shape of government budgets and as well on future growth and living standards, not just for the current elderly but also for the rest of the society, can be considerable. All of this has serious implications for the financial and social sustainability of public welfare systems across the European countries.

In the 50 years following the end of World War II, population aging (be it longevity gains or in terms of a higher emancipation of women) has been posited in the context of a societal development showing consistent upward economic progress –an outlook that can no longer be automatically taken for granted. In an area where the welfare of elderly people has been broadly defined relative to the well-being of the working age population, it cannot now be assumed that the well-being of the comparator, working-age population is on a continued upward track. To the extent that structural damage of the crisis has holed the economies of the European countries, the sustainability of the pension systems and the expectations of the pensioners will be conversely – and, for the most part, adversely – affected.

So, what constitutes 'sustainability'? A unanimously approved definition will remain elusive, especially as the term 'sustainability' can be expected to refer to different things in different contexts. In the context of analyses included in this chapter, the definition needs to be factual and scientific, a clear statement of a quantifiable destination while –most important in the current context – serving as a call to action towards the achievement of common goals and values. The most widely quoted definition of sustainability is from the Brundtland Commission of the United Nations (on March 20, 1987): "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations, 1987).

As for *financial sustainability* aspects, the European Commission position (in its Sustainability Report 2009) is that there is no clear-cut definition of a sustainable financial position. They say that, as a first instance, the definition 'involves a (public) debt level that does not entail – either now or in the foreseeable future – interest payments so large that they cannot be paid'. Thus, the financial sustainability is the ability of a government to service its own obligations (including welfare payments as well as the costs of its current and future debts) through future revenues (Economic Policy Committee, 2009b). An uncomfortable fact, according to this definition, is there are currently five countries in Europe (at least) that are probably bankrupt and face serious insolvency issues, and whose situation has become increasingly contagious to other Eurozone countries.

A less discussed and also less clearly defined goal is that of *social sustainability*, which encompasses the ideas of adequacy of pension incomes and a solidarity and cohesion across generations. The notion of social sustainability requires that a balance is achieved between the distribution of resources across different generations at a single point in time (such as between young and old), and ensuring that future generations of old and young have the same or greater access to social resources as their counterparts in the current generation (for a discussion, see Zaidi *et al*., 2010). Social sustainability also captures a wider conception that goes beyond incomes and provision of public services (such as access to affordable and good quality health and social services). In fact, what has become obvious is that the societies experiencing population aging will have to embrace the need for mutually beneficial and satisfying relationships between generations. Without the awareness of importance of socially cohesive intergenerational relationship and public policies, a strong risk of perverse 'competition' for limited resources across young and old will develop – to the detriment of both generations and society in general. Social sustainability requires developing effective solutions which are cooperative and mutually beneficial to current and future generations. Fiscal stresses arising out of austerity measures are putting additional strains on the solidarity between young and old generations.

It is crucial to highlight here that without success in solving the financial sustainability issues, the idea of social sustainability becomes more and more simply that – an idea. In the short to medium term, government actions to deal with financial sustainability issues will result in cuts all around, which will affect present and future generations of pensioners. The choice elements resolve around choosing the lesser of the evils.

Also, in a world in which each individual saves for his or her own retirement, aging of the population would be little problematic. The problem lies in the fact that the public PAYG pension schemes, and also funded pension schemes, that provide retirement income insurance to the elderly by promising benefits that are unrelated to labor and capital market developments (for example, in defined benefit pension schemes). On account of this (implicit) insurance, shocks have to be borne by the working cohorts, who are projected to shrink in size because of lower fertility. Thus, it is the institutional setting of the pension provision, combined with the population aging phenomenon, which together give rise to sustainability problems.

At all events, the questions Paul Gauguin asked at the turn of 19th century in moments of personal turbulence comparable to the public contexts we live in now – D'où Venons Nous / Que Sommes Nous / Où Allons Nous.[2] (Where Do We Come From? What Are We? Where Are We Going?) – have become particularly pertinent for policymakers of current times. It is now the time to frame the answers to his third question, *i.e.* our future direction, in identifying challenges linked with the financial and social sustainability of the European welfare states. This chapter addresses specifically the financial sustainability of European public pension systems and, correspondingly, the welfare of our pensioners in the 2040s, 2050s and onwards. While recognising that each country has its own approaches, and varying extent of challenges linked with the crisis and population aging, there will be a need to ensure that the pension elements of any policy package are executed with lessons learned from the crisis as well as from mutual experiences of challenges faced and policy reforms adopted. A review of fundamentals is essential in making a fresh assessment of the social objectives of pension policy, and to

[2] It is the title of Gauguin's 1897 painting, displayed at the Boston Museum of Fine Arts, Boston, USA.

re-examine whether, and how, recent policy reforms compromise the goals of pension income adequacy, and what policy measures can improve the intertwined financial sustainability of pension systems while maintaining some level of pension income adequacy.

The shape and design of future pension policies, and how they – in response to the current crisis and impending population aging challenges – will affect the welfare of future pensioners will be discussed in this chapter. The analysis undertaken comes in five parts. Section 2.2 sets the context by highlighting sustainability challenges arising from population aging, and the financial, fiscal, and economic crises. Section 2.3 analyses the aggregate impact of pension reforms, using the indicator 'Benefit Ratio', as calculated by the Working Group on Ageing of EU's Economic Policy Committee.[3] Section 2.4 extends the discussion on pension income adequacy by examining how pension reforms have reshaped the structure of pension systems across (selected) EU countries. These results are derived from the simulations of pension income entitlements for future retirees, undertaken by OECD (2009 and 2011).

The next part (Section 2.5) presents data on changes in the entitlement of public pension income during the period 2006-2046. The indicator in use is the net 'Theoretical Replacement Rate', as provided by the Indicators Sub-Group of the EU's Social Protection Committee. Like OECD calculations, it is calculated for stylised workers, approximating impact of pension reforms for the income entitlement of future retirees. Section 2.6 discusses policy challenges that EU countries face going forward, with a dual focus on pension policy challenges as well as the fiscal and labor market policy.

2.2 The financial sustainability concerns

2.2.1 The population aging phenomenon and its challenges

No challenge is said to be "as certain as global aging, and none is as likely to have as large and enduring an effect - on the size and shape of government budgets, on the future growth in living standards, and on the stability of the global economy and even the world order".[4] Many areas of the world are facing an unstoppable and often rapid aging of their populations, largely as a consequence of falling fertility levels and birth rates and rising life expectancy levels. An essential starting point for this chapter is therefore to assess the varying extent of population aging challenges faced by the European countries.

Since the study of population aging is often driven by concerns over the burdening of the retirement income system, the old-age demographic dependency ratio is used as a related measure of population aging.[5] Figure 2.1 shows the ratio of over 65s to working age (15-64)

[3] Note here that this chapter various ways to assess the impact of pension reforms. Hinz and Bovenberg and Van Ewijk in their chapters included in this volume provide discussions on functions of pension schemes.

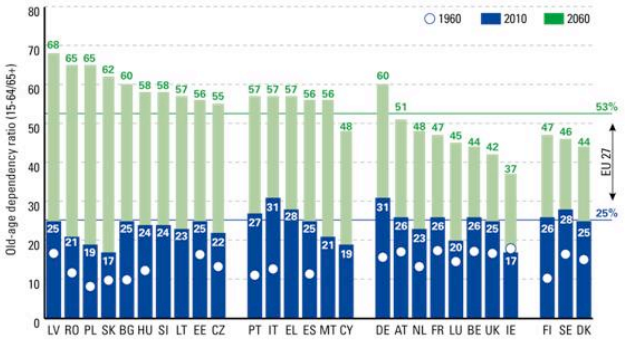
[4] Quote from Richard Jackson, Center for Strategic and International Studies Global Ageing Initiative, at National Press Foundation presentation, May 22, 2011, and also from White House Conference on Ageing: 20 July 2005.

[5] Another indicator commonly used is the 'System dependency ratio' (SDR) in public pension schemes, as given by the ratio of the number of pensioners to the number of insured workers. It is not included here for reasons of brevity, and also because the projection of the SDR also relies on additional assumptions about the evolution of labor market participation of future workers (in particular labor force participation rates of workers aged 55-64).

population in the 27 EU countries, with the trend between 1960 and 2010 (actual, blue) and between 2010 and 2060 (projected, green)[6] – 2010 is taken as the central year from which we can look half a century backwards as well as forwards. For convenience of analysis, the evidence is presented by clustering countries into four groups: Central and Eastern European countries; Southern-Mediterranean European countries; Central-Western European countries; and the North-Western European countries of Scandinavia (Denmark, Finland and Sweden).

It is instructive to look at the changes in the dependency ratio over the 100-year span from 1960. During 1960, the dependency ratio was about 19% for Ireland and France, implying 19 older persons for every 100 working age persons. Belgium, Austria, Sweden and the UK were only marginally lower, at 18%, but most other countries, in particular those belonging to Central and Eastern European bloc, have lower values. The most notable rise during the period 1960-2010 is observed for Italy and Germany, where the dependency ratio almost doubled to about 31%.

Figure 2.1 The demographic old-age dependency ratio (Number of 65+/Number of 15-64) across 27 EU countries, 1960, 2010 and 2060



[Note Figure 2.1]
Source: Results reported here are taken from the latest Eurostat publication (Lanzieri 2011). The projected results for 2060 are drawn from the Eurostat Population Projections 2010-based (Europop2010), on the basis of the assumptions of the convergence scenario.
See Appendix 2.A.2 for the country abbreviations.

The projected average for the EU27 in 2060 is 53%, and this is a staggering increase from the average 25% recorded in 2010. This implies that, on average, the EU is projected to move from

[6] These projected figures are taken from the Eurostat Population Projections 2010-based (Europop2010). They should not be considered as forecasts but as one of the possible future demographic developments, which could occur if certain assumptions about future trends in fertility, life-expectancy and net migration, will hold. One of the main assumptions is that the values of these three main drivers of population change are set to converge across countries in the very long run (for details, see 'Demography Report 2010' of the European Commission).

having four working-age people for every person aged 65+ to a ratio of two to one.[7] This steep rise will exert not just significant, and fairly unsustainable, additional demands on future public finances in the form of rising expenditures on pensions, health and long-term care (all other things being equal) but also they will have an adverse impact on growth potential at national levels.

Note also the list of countries on the left-hand side of the graph – a bloc of countries from the former communist states of Central and Eastern Europe (CEE). The unique conjunction of rising longevity and low fertility as well as emigration makes population aging a truly challenging phenomenon in many CEE countries.[8] For example, the dependency ratio in Poland rises from one of the lowest in 1960 (at 9.5%) to one of the highest in 2060 (65%). Similar drastic rises are expected in Latvia, Romania and Slovakia. This situation will greatly impact on the ability of these Eastern European countries to address the challenges of pension income adequacy and sustainability in the future, and they may require support from the rest of the EU in meeting these challenges.

Note also that these national trends also do not reveal the differences in mortality and life expectancy between socio-economic groups within countries. From the best performing Nordic countries to the former communist states of Europe, the improvements in mortality that have occurred in the past few decades have been among the socio-economically advantaged groups, and least or non-existent among the disadvantaged (Leon, 2011; Andreev *et al*. (2009); Shkolnikov *et al*. 2009; Leinsalu *et al*., 2009). These differences have important implications for the analysis of pension systems and also for the design of future pension policies (for a discussion on the pension implications of socio-economic differences in life expectancy, see Whitehouse and Zaidi, 2008).

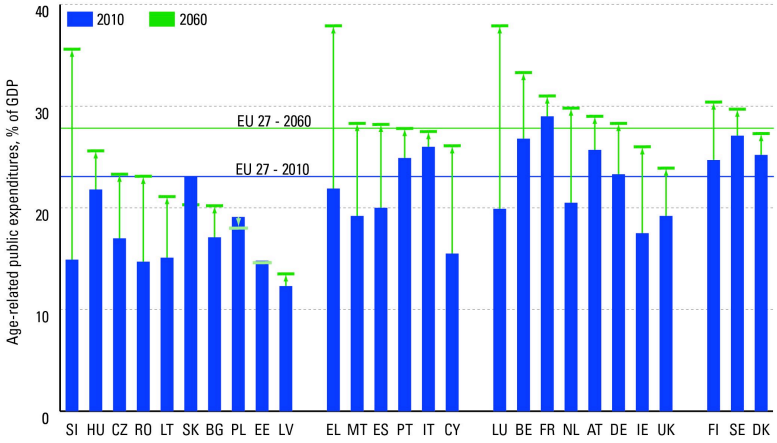
Some argue that the world has yet to reach a limit of human life expectancy (Oeppen and Vaupel, 2002), while others – referring to the global increase in obesity – raise the concern that the increase in life expectancy in Europe and other high-income countries may come to an end (Olshansky, 2005). However, as yet, there is no conclusive evidence about the changing trends in life expectancy, and it is unclear what consequences there will be for an uninterrupted demographic transition in European countries.

Population aging challenges can also be viewed in terms of rising age-related government expenditure, pertaining mainly to pensions, healthcare and long-term care (see Figure 2.2 below). This rise in the public provision of age-related transfers and services is observed despite the fact that many EU countries had enacted pension reforms during the 1990s and 2000s, largely to motivate workers to extend their working careers but also involving a partial switch to private funded pension schemes (*e.g.* in Bulgaria, Estonia, Latvia, Poland, and Sweden).

[7] These baseline projections are carried out on the basis of commonly agreed assumptions, and they ensure clarity and comparability across countries. However, given the uncertainty surrounding these assumptions, sensitivity tests have also been carried out with respect to assumptions about the life expectancy, fertility rate and net migration. For a discussion on sensitivity to alternative assumptions, see Eurostat (2010).

[8] See Leon (2011) for possible reasons underlying the current low life expectancy in CEE countries in comparison to Western Europe. The discussion there, and also in Velkova *et al*. (1997), imply that the improvements in conditions amenable to medical intervention, in particular dealing with non-communicable diseases, will see a faster rise in life expectancy in CEE countries and thus close the gap with the Western European countries.

Figure 2.2 Projected changes in the age-related public expenditures, (on pensions, healthcare, long-term care, education and unemployment), as % of GDP, during 2010-2060



[Note Figure 2.2]
Source: Economic Policy Committee (2009b), Table II.1.2, p. 29.
See Appendix 2.A.2 for the country abbreviations.

On average, age-related government expenditures are projected to increase by 4.6%-points of GDP by 2060 in the EU. There are however notable differences across EU countries. The increase in public age-related spending is likely to be considerable in Luxembourg and Greece (18.2 and 16.0%-points of GDP by 2060, respectively), but also in Slovenia, Cyprus, Malta, the Netherlands, Romania, Spain, and Ireland (on average, 10%-points of GDP or more in these nine countries). The second group of countries consists of Belgium, Finland, Czech Republic, Lithuania, Slovakia, the UK, Germany and Hungary and here the cost of aging is more restricted but still high: between 4 and 7 %-points of GDP. The changes in Bulgaria, Sweden, Portugal, Austria, France, Denmark, Italy and Latvia, are expected to be more moderate: 3%-points of GDP or less; for Estonia and Poland there is even a decrease (for more details, see Economic Policy Committee (2009b).

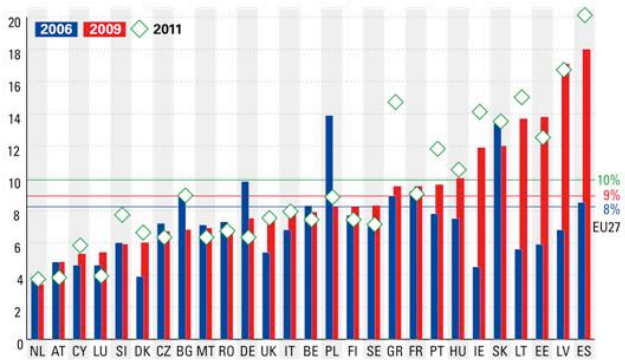
2.2.2 The jobs crisis

In 2011, most EU countries have recovered to positive economic growth, albeit tentatively in some countries. This return to growth has resulted in a steadier influx of government revenues, and the higher growth points to better prospects for a fiscally sustainable development path for EU countries. However, this recovery in growth has not been accompanied by comparable improvements in employment.

Figure 2.3 gives an account of unemployment rates across EU countries, during 2006, 2009 and 2011. On average, the unemployment rate rose from 8% to 9% during 2006-2009, and further to 10% during 2011. There have been wide variations across countries: the unemployment rate in Latvia and Spain has doubled during 2006-2009, and reached in excess of

20% in 2011 for Spain. The unemployment rate in the Netherlands and Austria, by contrast, remained steady, .closer to 5% level during the whole of this period.

Figure 2.3 Unemployment rate in %, during 2006, 2009 and 2011



[Note Figure 2.3]
Source: Various publications of European Commission's publications from Directorate Economic and Financial Affairs (ECFIN). The latest data drawn from Statistical Annex of European Economy, SPRING 2011.
See Appendix 2.A.2 for the country abbreviations.

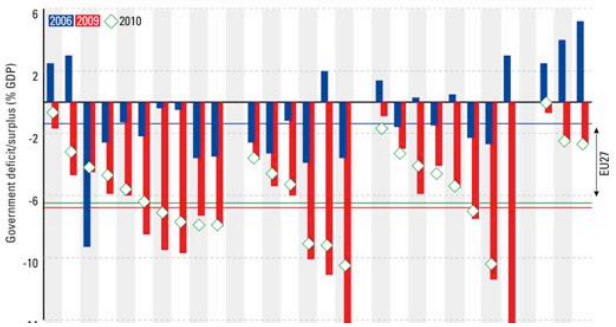
Once again, the CEE countries, with five out of the seven countries with the highest unemployment rate during 2011, stand out as a grouping. For example, in Latvia and Lithuania, the unemployment rate is in excess of 15% during 2011. Thus, it is obvious that workers in CEE countries face the much greater likelihood of a disrupted working career, which will adversely affect their accumulation of pension rights, in public schemes as well as privately. The future challenges in sustaining economic growth and competiveness in CEE countries can be expected to be disproportionate in comparison to other Central-Western EU countries. The worker position is compounded by the young market economy status that CEE countries have, as we shall refer to later, and also by the fact that the youth's employment prospects suffered disproportionately more than the other age groups during the recent crisis.

2.2.3 The fiscal crisis

During 2009, the key policy challenge across the World has undoubtedly been to counteract the recession. Consequently unprecedented fiscal (and monetary) policy measures were put in place (quite rightly), so as to stimulate economies and stabilize financial markets. Heavy public spending either in the form of large fiscal stimulus packages or in automatic stabilizers put enormous additional strain on public finances during 2009, and almost all European governments faced a significant deterioration in their public finances. Government deficits

among EU states rose substantially, from an average of – 1.4% of GDP in 2006 to about – 6% in 2009 and 2010 (see Figure 2.4 below), leading to an accumulation of large government debts. This fiscal situation raises fresh concerns regarding the sustainability of public finances in many EU states, which remains a live and ongoing challenge in many EU countries, not least due to the population aging phenomenon.

Figure 2.4 Government deficit (-) / surplus (+) in EU countries, in terms of % of GDP, 2006, 2009 and 2010



[Note Figure 2.4]
Source: Eurostat (2011).
See Appendix 2.A.2 for the country abbreviations.

As discussed in detail in Zaidi and Rejniak (2010), CEE countries face serious sustainability challenges, attributed largely to their young market economy status. Having made the transition to the market economy during the 1990s, these countries have not had the benefit of prolonged periods of economic growth and also have gone through the political transition towards democratic institutions relatively recently. While EU accession and increased opportunities of trade cooperation and foreign direct investment strengthened their transition to the market economy, it is nonetheless somewhat ironic that the same greater links with the global economy that followed EU membership were a big factor in making these countries particularly vulnerable to economic shocks.

Note also that the EU countries have sided with the 'austerity now' arguments and have therefore already embarked on various budgetary consolidation measures (during 2010/2011). Such a choice is in some cases driven by the IMF and the EU conditionalities, so as to raise market confidence on public governance in these countries, and also due to these countries' own ambitions to deal with their structural problems. The CEE countries may have been driven additionally by a desire to join the Eurozone countries (ibid, p. 8).

2.2.4 Aging as a contributory factor for financial sustainability challenges

A specific question is therefore how the combination of aging populations and fiscal crisis will affect EU countries' financial sustainability in the future. The gains in longevity have indeed been a positive trend, particularly in CEE countries where until now life expectancy has been lower than that in other EU countries. But, rising longevity combined with falling fertility has led to shrinking working age populations in many EU countries. An additional challenge for the CEE countries is the emigration of a large number of workers to other EU countries.

Another clear lesson from the public finance crisis is the need to further refine the quality, consistency and independence of the evidence base from which policy decisions are made: the more high-quality evidence is admitted to this debate as the accepted starting point for discussion on what to do next, the easier it becomes to formulate policy responses and persuade the public about the need for, and the consequences of change. The EU's Economic Policy Committee's Working Group on Aging has made important progress in this respect, by collating results on the indicator of financial sustainability gap (namely: S2), which can be analysed here to highlight the varying extent of sustainability challenges faced by EU countries (Economic Policy Committee, 2009b). The analysis of the S2 indicator presented below draws from those included in Zaidi (2010b), but with a focus on how population aging contributes to the financial sustainability challenges.

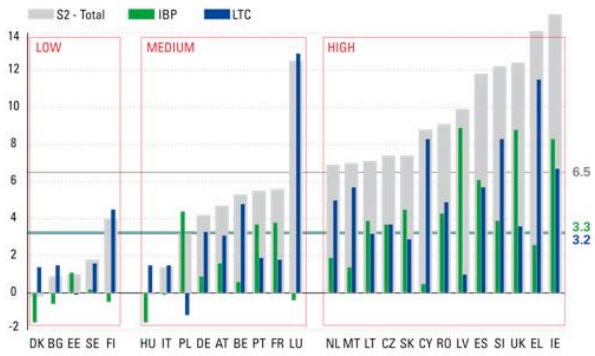
The S2 indicator approximates the gap (as % of GDP) that must be closed off permanently in order to ensure that the government will be able to finance all future public budget obligations. The indicator provides a compact measure to approximate the size of risks to public finance sustainability when a long-term perspective is taken. The S2 indicator can be deconstructed into two components (IBP and LTC), so as to also point to the sources of the risks and appropriate policy responses required.

- *Firstly*, there is the gap arising due to the adverse fiscal position in the base year. The component is referred to as the Initial Budgetary Position (IBP). The IBP will exert a negative pressure in many countries because of the budget deficit during 2009, largely due to economic downturn experienced during 2008-2009.
- *Secondly*, there are the additional costs related to population aging and expenditures on pensions, healthcare and long-term care. This component is referred to as the Long Term Changes (LTC).

The S2 sustainability indicator is derived from the intertemporal budget constraint that a government faces. It imposes that current total liabilities of the government, *i.e.* the current public debt and the discounted value of all future expenditure, should be covered by the discounted value of all future government revenue over an infinite horizon. The advantage of this measure (over the traditional public pension liability measures) is the information contained in the decomposition, where we can disentangle the long-term impact of population aging from that of the current fiscal imbalances faced by European countries.

It needs to be emphasised here that the picture that emerges in Figure 2.4 errs on the 'optimistic' side, because the bulk of the raw data used in the calculation of the S2 indicator was collected prior to the onset of the current public finance crisis. Arguably, the revised projections will, when adjusted in line with the current economic realities of large government deficit and debt and (un)employment, present a less comfortable picture, and a darker prognosis.

Figure 2.5 Sustainability gap (S2 indicator) across EU countries and the contribution of the Initial Budgetary Position (IBP), and the Long Term Changes (LTC), 2009



[Note Figure 2.5]
Source: Economic Committee (2009b), Table III.1.1, p.35.
See Appendix 2.A.2 for the country abbreviations.

Results presented in Figure 2.5 show that, at the EU27 level, the total S2 gap is 6.5% of the GDP. On average, the contribution of two components is almost the same: 3.2% for the IBP and 3.3% for the LTC. Wide variations across EU countries are also observed, and countries are divided into categories of High, Medium and Low risk of financial sustainability. As many as 13 EU countries are being considered high risk countries. Among them, Ireland, Greece, the UK, Slovenia and Spain have a sustainability gap in excess of 10% of GDP. Latvia, Romania and Cyprus also do not fare well, at just below 10%.

Countries also differ remarkably in terms of sources of risks, *i.e.* the contribution of the IBP and the LTC. Within the high risk countries, the contribution of the LTC is particularly high in Greece, Slovenia, Cyprus, Malta and the Netherlands, whereas the relative contribution of the IBP is large in the UK, Latvia and Slovakia. Within the group of medium and low risk countries, Luxembourg and Finland and also Belgium and Germany stand out for a larger contribution of the LTC. As for the IBP contribution, Poland is most notable, but also France and Portugal.

How have policymakers been responding to these sustainability challenges? In many EU countries, the policy responses within the remit of labor market policies has been to enhance the employment rate of the working age population, especially for those within traditional low employment groups (*e.g.* mothers with young children, older workers, and disabled persons with reduced work capabilities). Pension policy has sought to complement labor market policy, with greater incentives towards longer working careers, improvements in the coverage of public pension schemes, the provision of suitable mechanisms to encourage private personal savings and, where possible, a scaling down of pension benefit provisions to improve affordability of public pension schemes (for further details on pension reforms in EU countries, see Zaidi and Grech, 2007; OECD 2009, 2011). These reforms have contributed towards improvements in the

financial sustainability as well as ensuring a better fairness between and within generations and between men and women. Some pension reforms have also addressed the issue of pension income adequacy, especially those that improved the coverage and the indexation of minimum pensions.

Nonetheless, it can be argued that until recently the issue of adequacy has not been a priority in many of these reforms, and this paper provides a glimpse into how the current generations of workers are expected to fare with respect to their incomes when they will be retiring. On the basis of the information available, three possible ways can be adopted to examine the evolution of pension incomes of future retirees in EU countries:

1. To examine changes in the *benefit ratio* that measures the evolution of pension expenditures per pensioner in relation to the wages per worker. The period under consideration for these analyses is between 2007 and 2060, and these results provide the macro impact of the pension reforms across EU countries.
2. To discuss the likely *impact of pension reforms on the structure of future pension* systems, by analysing changes in the net replacement rate for low, average and high wage workers. These analyses, for those workers who enter into employment during 2006 and retire in 2046, show the cumulative effect of reforms that happened since early 1990s, for stylised cases of male workers who spent their full career working. These results are an approximation of the impact of pension reforms on the redistributive structure of pension systems.
3. To analyse the *changes expected in the average first pension* as a proportion of the average wage, by using the case of stylised male workers on average wage throughout their working careers and by covering all mandatory and important pension schemes. This indicator, so-called theoretical replacement rate (TRR), is calculated first for those retiring in 2006 having accumulated pension rights under the current pension policies. Then, the base TRR is compared with the prospective TRR of those retiring in 2046 accumulating rights under the new reformed pension system, so as to measure how pension reforms will affect future pension entitlements.

These three streams of analysis provide insights into how pension incomes for future retirees are likely to be affected, and the next three sections of this paper address them one by one.

2.3 The macro impact of pension reforms: Progression of the benefit ratio

Evolution of benefit ratio over time charts the likely development of two measures: the relative value of the average pension (total public pension spending divided by number of pensioners) and the average wage (approximated by the GDP per hours worked). All other things being constant, a decline in the benefit ratio over time points to a fall in the generosity of public pensions, relative to wages.

The projected reduction in the benefit ratio can also be a sign of improving public finances. However, it can also lead to greater expenses in the form of social assistance from the government if the falling benefit ratio resulted in an increase in the poverty among older people in the future. Moreover, falls in the benefit ratio may occur because the pension system has moved partly towards private schemes, and thus revenues and expenditures from public pension

schemes will be lower in the future. Such observations should be kept in mind when interpreting results for the changes in the benefit ratio presented below.

Figure 2.6 Changes in the benefit ratio % (average public pensions/average economy-wide wage) across 27 EU countries, for the period 2007-2046

[Note Figure 2.6]
Source: The 2009 Ageing Report, p.11.
Note: EU27 – unweighted average.
See Appendix 2.A.2 for the country abbreviations.

The results presented here are derived from the recently completed assessment of aging related public expenditures by the European Commission. Figure 2.6 shows that the projected benefit ratio will be declining in the majority of EU countries, over the period 2007-2060 (Economic Policy Committee, 2009a, pp. 111). There are also important variations across EU states. The main findings with respect to the development of the benefit ratio can be summarised as follows.

The decline in the benefit ratio is quite strong for Poland (– 54%), Sweden (– 39%), Austria (– 30%), Slovakia (– 27%) and France (– 25%). With the exception of Slovakia, this decline in public pension generosity will not be offset by other mandatory private pension schemes because the fall in the benefit ratio will still be more than 20%. Thus, in the absence of any counteracting policy changes to improve adequacy, future retirees in Poland, Sweden, Austria and France run the risk of being more often poor than is the case now.

The magnitude of decline in the benefit ratio is also quite strong for Estonia and Latvia, and these countries were identified with a high at-risk-of-poverty rate for the elderly during 2008 (see Zaidi 2010a for updated results on poverty among the elderly across EU countries). In both countries, the expected decline will be partially offset by the new private pensions, although a decline of about 18% is still expected in Estonia. Thus, Estonia is expected to be facing a risk of continuing to be a high poverty risk country for its older population in the future.

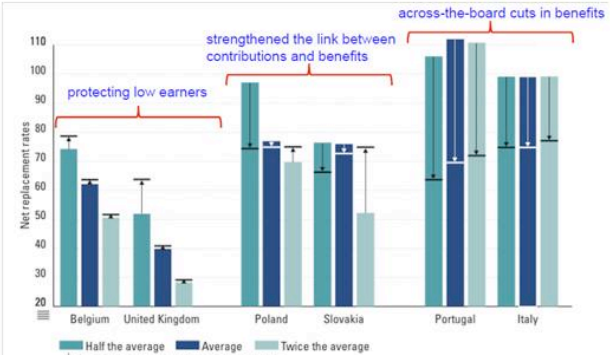
Portugal could be identified as the country where the poverty risk for the elderly population is expected to be higher in the future, because of its falling benefit ratio. In Italy, on the other hand, the benefit ratio remains among the highest in 2060, despite the fall observed during the period 2007-2060. Greece is in a league of its own, as it remains the country with by far the highest Benefit Ratio, despite a fall during the period in question. However, these results do not show the probable impact of the most recent reforms in the public pension system in that country which involves cuts in pension payments and raising of the retirement age for both men and women. Spain and Cyprus are also countries that will continue to have a high benefit ratio in the future.

2.4 Simulating the impact of reforms on the structure of future pension systems

An informative way to analyse future changes in pension systems is to compare the Net Replacement Ratio (NRR) for stylised worker before and after pension reforms on low, average and above average wage workers. These results are provided in 'Pensions at a Glance' (OECD, 2009; Chapter 2). Results for 12 EU countries are included in Table 2.A.1 (Appendix 2.A.1) and they simulate the impact of reforms for those workers who entered the labor market in 2006. They compare the pension entitlement of a person who spent a full career under the reformed pension system with the pension entitlement that would have been received had the system not been changed. The results for six countries are shown in Figure 2.7, and they are reported in terms of the NRR: that is, the value of the pension in retirement, after taxes, compared with the level of earnings when working.

For each country, the first bar shows the position of low earners: workers earning 50% of the economy-wide average each year of their entire working life. The middle bar shows the NRR for average earners and the third bar for above average earners (workers earning 150% of the average). By comparing the impact of reforms across these three earnings groups, results provide an indication of changes in redistributive aspects of pension systems, arising from the cumulative reforms that have taken place during the past 10-15 years.

Figure 2.7 Changes in the benefit ratio % (average public pensions/average economy-wide wage) across 27 EU countries, for the period 2007-2046



[Note Figure 2.7]
Source: OECD (2009), p.80.

Depending on the effect of the pension reforms on the retirement incomes of workers at different earnings levels, countries can be divided into three groups, and they are analysed below.

Reforms protecting low wage earners
Results for the UK and Belgium are presented first and they stand for the group of countries where pension reforms have protected low earners. In these two countries, pension reforms are likely to leave the pension entitlements of average and above-average earners unchanged, but they will increase the benefits for low earners (by nearly 23% for the UK, and 6% for Belgium). Similar results are observed for the Czech Republic, although the differences across workers with different earnings are less noteworthy. In France and Finland, the reforms will result in a decrease in pension entitlements across the board, but the decrease in the benefits for low earners is less than that for workers with average and above-average levels of earnings. Germany offers the unique prospect of observing a rise in the pension entitlements for low earners to be accompanied by a decline for workers who have average and above-average earnings.

Reforms strengthening links between pension contributions and benefits
Poland and Slovakia represent the second group of countries. Results for these countries show that pension reforms are likely to strengthen the link between pensions in retirement and earnings when working. Such reforms are justified on the grounds that the reformed system will be fairer than a redistributive system and that it would reduce work disincentive distortions in the labor market. However, these reforms have also raised concerns regarding the adequacy of pension benefits for future retirees. In Poland, there is a strong decline in the pension entitlement of those who are low earners: – 22%. In contrast, the pension entitlement is expected to fall only slightly for average earners and there will be a rise for high earners (+ 8%). The reform impact in Slovakia is along the same lines as observed for Poland, but the decline in

the pension entitlements for low earners is smaller (– 13%) and the rise observed for high earners is considerably higher (+ 22.7%).

Across-the-board cuts in pension benefits

The third group of countries falls in the category in which reforms will result in a similar impact on benefits for low, average and above-average earners. Portugal and Italy are likely to experience across-the-board cuts in pension benefits. Portugal is set to observe the highest decline in the NRR, followed by Italy. Despite these across-the-board cuts, these countries will continue to offer an impressively high net replacement rate (around 70%).

In summary, no single trend exists and more information of this sort is required for other EU countries, especially for CEE countries. The adequacy concerns will be arising for Poland and Slovakia as well as for Portugal and Italy. In contrast, the pension systems have become more redistributive than before in Belgium and the UK (and also in Germany and Ireland), and these countries are addressing issues of elderly poverty. Other trends observed are that Hungary had been moving in the other direction to the neighbouring Poland and Slovakia: higher replacement rate and rising (thus, raising further concerns regarding the financial sustainability in Hungary).

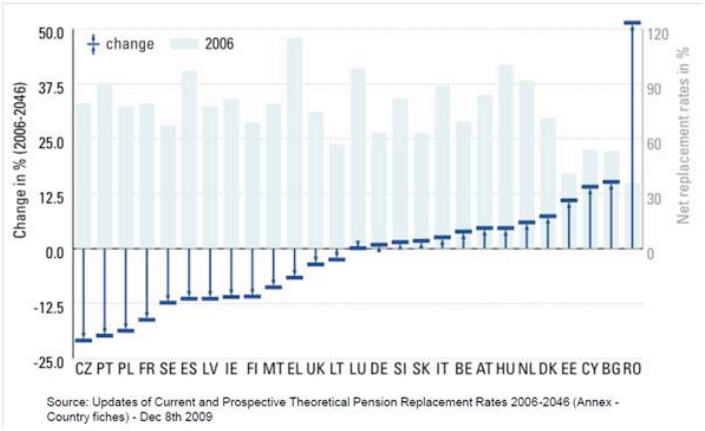
2.5 Changes in the average first pension to reflect impact of pension reforms

Another indicator pertinent in the analysis of the adequacy of pension incomes of future retirees is to examine the changes expected in the average first pension as a proportion of the average wage. The indicator in use is the net 'Theoretical Replacement Rate' (TRR), and it is the change in the TRR that is adopted by EU member States to reflect the impact of pension reforms in their countries (see Social Protection Committee 2009).

In the base case scenario, the prospective TRR is calculated for a male worker entering into the labor market in 2006, staying in employment for a full career (40 contribution years), earning average wage, retiring at 65 and accumulating pension rights under the reformed pension system. The first pension income entitlement for this hypothetical worker is divided by the projected average wage in the immediate previous time period to calculate the TRR. This prospective TRR is then compared with the base TRR for someone who would have accumulated pension rights under the current pension policies and have retired in 2006. The change will then approximate how pension reforms will affect future pension entitlements.

The calculations for the base TRR for 2006 are carried out by respective countries and provided to the Indicators' Sub-Group of the Social Protection Committee. The calculations for prospective TRR are carried out using the OECD model for all EU countries except Belgium, France, Italy, Cyprus and Austria who used their own national models. The calculations cover pension entitlements from public pensions and mandatory private schemes as well as other private schemes with a significant role in the pension incomes of future retirees.

Figure 2.8 Changes in the theoretical replacement rate (net), for the period 2006-2046, for a stylised full career male worker on average wages retiring at 65



[Note Figure 2.8]
Source: Updates of Current and Prospective Theoretical Pension Replacement Rates 2006-2046 (Annex Country fiches), December 8th, 2009.
See Appendix 2.A.2 for the country abbreviations.

Figure 2.8 displays the change in the TRR from the current situation to the prospective situation in 2046. There are wide variations across EU states. The TRR (net) is projected to decline in twelve countries, and the most notable fall is observed for the Czech Republic (– 21%-points), Portugal (– 20%-points), and Poland (– 19%-points). Closely behind them are Sweden (– 13), Spain and Latvia (– 12) and Ireland and Finland (– 11). This decline in the TRR is a reflection of reforms that have taken place in these countries over the recent past, which has lowered future benefits. An increase in the TRR is expected for eight EU states, and the most notable of them is Romania (+ 52 p.p.). Other significant increases are observed for Bulgaria (+ 15) and Cyprus (+ 14). For the last-mentioned three countries, the base TRR was relatively low in 2006.

2.6 Policy implications

The cross-national perspective presented in this chapter substantiates the wide variations that exist in the challenges faced by EU countries in ensuring both the financial sustainability of pension systems as well as maintaining adequacy of pension incomes. In reality, no single solution fits all these varying circumstances, especially in view of the differential impact of the recent financial, economic and fiscal crises, as well as the varying extent of population aging challenges. Most EU national governments nonetheless face a common challenge in the near future as they look for a mix of economic and social policies which will not only strengthen a sustainable recovery from the crisis and help them stay clear of dangers of a return to recession

but also ensure a permanent financial sustainability in public finances in view of population aging. Achieving this delicate balance between current and future economic and social policy issues requires not only the political will to make tough policy decisions, but also political dexterity in persuading the public that its own interest lies in making sacrifices to ensure sustainability of future welfare systems in Europe.

As for the fiscal policy challenges, an obvious conclusion is that budgetary consolidations are required in many EU countries so as to achieve a permanent sustainability in public finance systems. The question is not whether to consolidate or not, but its timing and also how to limit the size of the welfare state without compromising its overarching social objectives. There has appeared a consensus across EU countries towards 'austerity now', and it is important that countries also prepare themselves for corrective expansionary measures if this strategy puts economic recovery at risk.

The salient challenges for labor market policies involve activation and an improved re-integration of groups with typically low employment prospects, particularly mothers, older workers, and people with disabilities. Undoubtedly, a longer and less disruptive working career will promote both financial and social sustainability of public pension systems. Not so obvious is how best to encourage behaviors towards extending working life, so as to devote the gains in the life expectancy to working lives. Not so obvious is to determine how to compensate mothers for childcare responsibilities but without affecting incentives for them to return to work. How to improve financial education and change behaviours towards greater work and savings towards retirement? What policies to be aimed at improving employers' attitude towards hiring and retaining older workers? What improvements in the health and safety environment of work places those are absolutely essential for a greater employment of older workers? Each country will have to find the most appropriate labor market policy package to deal with these challenges.

As for pension policy implications, the EU countries will have to continue closing off early retirement pathways and raise pension eligibility age in accordance with development of life expectancy. This is despite the fact of low youth employment rates and low labor demand in general in the European economy now, so as to ward off any chances of returning to and staying with the culture of early retirement. In light of the financial market breakdown, it is not so obvious anymore whether a move towards the private funded 2nd pillar still remains the right course? Or, are parametric adjustments to the public pay-as-you-go system sufficient? What regulations are required, at the national and the European level, especially in view of lessons learned from the financial crisis? What simpler, more direct, policies to address poverty in old age, especially those that do not stigmatise poor older people? Is raising social minimum pension levels to the level of national poverty line the way forward and whether is it politically feasible? What balance between incentives to work and save is required, but without compromising provision of a social safety net in the form of a social pension? Certainly, there are more questions than answers, and these issues are best resolved in the national policymaking, and surely lessons can be drawn from experiences of other countries.

While recognising that each country will have its own approaches, there is a need to ensure that its processes are based on sound economic, financial and fiscal fundamentals – approaches that would avoid a repeat of the 2008-2009 crashes and the subsequent aftershocks. And also, that the pension elements of any packages are properly planned and executed, having learned useful lessons from the crisis. Thus, in the process, each country has been looking for a solution fitting to its own economic circumstances, in alignment with its existing and past pension

policies, appropriate to the pace in the aging of its population and also in line with their citizens' aspirations towards the type and size of the welfare state. A review of fundamentals has been essential for all concerned, particularly in re-examining whether, and how, policy reforms towards stimulating economies out of the recession and introducing cuts in fiscal consolidation measures compromise the pension income adequacy of future retirees, and what policies can potentially improve both the sustainability and the pension income adequacy.

Despite the difference between countries, with respect to the speed and the impact of population aging and with respect to the policy reforms implemented and their likely long-term effects, population aging is a common trend and thus many countries face similar problems, although obviously the extent and details of these problems differ between countries. As a result, as stressed above, each country should take measures that fit best in this country's tradition. Nonetheless, the similarity of the problems faced by different countries would imply that they can learn from each other, which does not mean that they should strive for uniform measures that neglect country-specific circumstances.

The crisis in the sustainability of public finance and concerns about adequacy of future pension incomes also highlight the need to further refine the quality and the independence of the evidence base from which challenges for each nation can be identified and appropriate policy decisions made. The more high-quality comparative evidence that can be admitted to this debate as the accepted starting point for discussion on what to do next, the easier it becomes to formulate policy responses and persuade the public about the need for, and the consequences of a policy change. The results presented in this chapter, while far from the *best possible* evidence, certainly represent the *best evidence possible*, given uncertainties about the future. One can argue that these quantitative results offer a critical departure from having no such information available, as was the case until recently, in Europe, and they give pertinent information about what future holds for pension income sustainability in Europe.

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Appendix 2.A.1

Table 2.A.1 Impact of pension reforms on net replacement rates by earnings level, stylised estimates from OECD for full career workers, 2009

Countries	Earnings level	Before (%)	After (%)	Change (% points)	Change (%)
Reforms that protected low earners					
Germany	Half the average	56.4	59.2	2.8	5
	Average	66.6	61.3	– 5.3	– 8
	Twice the average	66.4	60.3	– 6.1	– 9
France	Half the average	79.7	76.2	– 3.5	– 4
	Average	78.2	65.7	– 12.5	– 16
	Twice the average	70.8	60.2	– 10.6	– 15
Finland	Half the average	75.9	73.2	– 2.7	– 4
	Average	71.4	62.4	– 9.0	– 13
	Twice the average	72.4	63.8	– 8.6	– 12
UK	Half the average	51.9	63.8	11.9	23
	Average	39.8	40.9	1.1	3
	Twice the average	28.3	29.2	0.9	3
Belgium	Half the average	74.2	78.7	4.5	6
	Average	62.1	63.7	1.6	3
	Twice the average	50.6	51.7	1.1	2
Czech Repub.	Half the average	86.7	95.3	8.6	10
	Average	58.1	64.1	6.0	10
	Twice the average	44.6	49.4	4.8	11
Reforms that strengthened the link between contributions and earnings					
Poland	Half the average	97.1	74.4	– 22.7	– 23
	Average	76.9	74.9	– 2.0	– 3
	Twice the average	69.7	75.0	5.3	8
Slovakia	Half the average	76.4	66.3	– 10.1	– 13
	Average	75.9	72.7	– 3.2	– 4
	Twice the average	52.2	74.9	22.7	43
Hungary	Half the average	85.9	94.3	8.4	10
	Average	83.2	105.5	22.3	27
	Twice the average	79.1	99.2	20.1	25
Across-the-board cuts in benefits					
Austria	Half the average	98.4	90.5	– 7.9	– 8
	Average	99.2	90.3	– 8.9	– 9
	Twice the average	95.1	86.3	– 8.8	– 9
Italy	Half the average	99.1	74.8	– 24.3	– 25
	Average	99.1	74.8	– 24.3	– 25
	Twice the average	99.2	77.1	– 22.1	– 22
Portugal	Half the average	106.1	63.7	– 42.4	– 40
	Average	112.0	69.6	– 42.4	– 38
	Twice the average	110.8	72.0	– 38.8	– 35

Source**:** OECD 2009, p. 80.

Appendix 2.A.2 Country abbreviations

BE	Belgium
BG	Bulgaria
CZ	Czech Republic
DK	Denmark
DE	Germany
IE	Ireland
EE	Estonia
EL	Greece
ES	Spain
FR	France
IT	Italy
CY	Cyprus
LV	Latvia
LT	Lithuania
LU	Luxembourg
HU	Hungary
MT	Malta
NL	The Netherlands
AT	Austria
PL	Poland
PT	Portugal
RO	Romania
SI	Slovenia
SK	Slovak Republic
FI	Finland
SE	Sweden
UK	United Kingdom