

The 2015 Pension Adequacy Report: current and future income adequacy in old age in the EU

Volume I



EUROPEAN UNION

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**The 2015 Pension Adequacy Report: current and
future income adequacy in old age in the EU**

Volume I

*Joint Report prepared by the Social Protection Committee (SPC)
and the European Commission (DG EMPL)*

2015

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¹ The European Network of Experts on Gender Equality: <http://www.enege.eu/>

² The European Social Policy Network: <http://ec.europa.eu/social/main.jsp?catId=1135&langId=en>

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MAIN MESSAGES

Adequate incomes in old age

1. Since 2009, Member States have adopted a multitude of reforms aimed at managing public spending on pensions to safeguard their future sustainability. As a result, the 2015 Ageing Report of the Economic Policy Committee puts forward as its baseline scenario that despite the dramatic rise in the proportion of people aged 65 and over, average public pension expenditure for EU-28 could be no higher in 2060 than in 2013. Expenditure projections based on the legislation adopted by end of 2014 assume higher effective retirement ages and employment rates for older workers and show that while many countries will have lower costs by 2060 than today, several Member States could still experience a significant increase in their spending.
2. The Social Protection Committee's 2015 Pension Adequacy Report complements the 2015 Ageing Report by analysing the future risks to adequate old-age incomes. The risk profiles are highly country-specific and stem from labour market conditions and pension system designs. The Report suggests how adequacy risks may be addressed by Member States. Policies enabling women and men to postpone their retirement by working to higher ages and to save more for their retirement will be important for most Member States. Appropriate protection mechanisms will also be needed for those who are unable to have sufficiently long careers and to save adequately for their retirement, including those at the margin of the labour market.

Current pensioners' living standards have largely been maintained over the crisis, yet poverty problems persist in some countries and pension outcomes are generally marked by big gender differences

3. Pension systems, and in particular public pension schemes, have continued to ensure that most older people in the majority of EU countries are protected against the risk of poverty and deprivation and can enjoy living standards in line with the rest of the population. While pensions are the main income source of older Europeans, living standards in old age also depend on other factors, such as private assets, notably home ownership, access to other benefits and services, and employment opportunities. The SPC's Pension Adequacy Report therefore aims at giving a comprehensive overview of the resources at the disposal of older men and women.
4. In general, older people (aged 65+) are not more at risk of poverty than other age groups. Indeed, in most countries older people seem so far to have been better protected against the social impact of the recession and public finance crisis than other age groups. The share of older people with incomes below the at-risk-of-poverty threshold has actually declined from 2009 to 2012. However, in some Member States, this is primarily caused by a decline in the median income and the resulting lowering of the poverty threshold. Indeed, the risk of severe material deprivation for older people has increased slightly over this period.

5. Yet, whereas for the EU as a whole, pensions provide sufficient protection against poverty risks, several Member States still need to put more efforts into tackling poverty risks in old age, and in some countries problems of severe material deprivation are particularly pressing. Older women and men living alone, notably, remain exposed to high poverty risks.
6. In most EU countries, average pension income for women is much lower than for men. Currently the gender pension gap amounts to around 40 percent for the EU as a whole. This gap reflects gender differences in employment, notably in pay, working hours and career duration, and the extent to which pension design features mitigate these differences. The gap ranges between 4 percent and 46 percent across Member States. But only three countries have gaps below 10 percent, whereas 15 have gaps of more than 30 percent. Reducing the gender pension gap will require a combination of determined equal opportunity policies across several fields before people reach pensionable age, but this will only have positive effects over the long term; adjustments to pension systems in some Member States may be necessary to reduce the pension gap resulting from past employment differences between women and men. Women aged 65 and over also have considerably less housing and financial wealth and a higher risk of poverty than men.

Pension reforms with a strong focus on sustainability have been stepped up over recent years

7. In the context of large budget deficits and a reinforced economic governance framework at the EU level, Member States have adopted many pension reforms to control the increase in spending on public pensions. This continues pre-crisis reform efforts, but with a stronger emphasis on postponing retirement from the labour market, by restricting access to early retirement and by starting or continuing a process of raising the pensionable age, in some countries linked to increases in life expectancy. Other Member States create incentives to work longer by aligning pension levels to life expectancy. Bringing women's pensionable ages up to those of men's is also part of the reform measures aimed at raising the age at which people leave the labour market.
8. Contrary to earlier reform waves, the reforms since 2008 have generally not pursued a shift from public pay-as-you-go to privately managed funded pension schemes. In fact, several countries have partially or fully reversed earlier reforms that consisted in channelling part of the statutory pension contributions from the pay-as-you-go scheme into a funded tier. Other Member States with well-established occupational and personal pension schemes have sought to consolidate these, including by improving their ability to handle volatilities in financial markets and the lower interest rate levels, thus seeking to preserve their ability to contribute to adequate incomes in old age.
9. Most savings on public pensions spending will only occur over the long run, but some countries that were hit particularly hard by the crisis felt compelled to cut pensions in payment or reduce available incomes for older people through tax increases or temporary or permanent changes to the indexation of benefits. In countries with high unemployment, many pensioner households may also suffer a deterioration of their

financial situation as a result of sharing their resources with the younger generations in the family.

Overall, spending on public pensions is no longer expected to be higher in 2060 than presently...

10. For the first time since the Economic Policy Committee has carried out long-term projections of age-related public spending, it now expects average public spending on pensions at the end of the projection period (2060) to be no larger than at the beginning (2013), notwithstanding the sharp increase in the number of people over 65. However, there are significant differences across Member States: the change in public pension expenditures as a share of GDP would range from an increase by 4.1 percentage points to a decline by -3.9 compared to 2013. The demographic factor considered in isolation would increase public expenditure for EU-28 over the period 2013-2060 by 7.6 percentage points of GDP. The reduction in the number of people receiving a pension, notably due to reforms restricting access to early retirement and raising the pensionable age, would reduce the increase of pension expenditure by 2.6 percentage points. Lower average pension benefits compared to wages in the future will further reduce the increase by another 3.0 percentage points while increased employment accounts for a further reduction by 1.4 percentage points.
11. The Pension Adequacy Report highlights that the lowering of benefit levels could imply significant risks for the future adequacy of incomes in old age. Theoretical replacement rates from public pension schemes are projected to decrease in the majority of Member States over the next 40 years, with a decline by more than five percentage points in 16 countries and by fifteen or more percentage points in six Member States.
12. Postponing retirement in line with the increases in pensionable ages could, amongst other measures, mitigate the reduction in replacement rates in most Member States, as longer careers result in better individual pension entitlements. Yet, this will depend on the extent to which future cohorts, of women in particular, will be able to achieve fuller careers and on whether older workers will have sufficiently good health, skills and labour market opportunities to work to higher ages and earn more pension rights. In some Member States, the impact of lower pensions from public schemes could also be offset or mitigated by increased entitlements from supplementary retirement savings. In eight countries, the contribution of supplementary pension schemes to total replacement rates is expected to increase by ten or more percentage points.

...strong policies for addressing future adequacy risks are therefore essential

13. Pension systems across the EU do offer opportunities for earning a sufficient and secure income for a long retirement period. However, these opportunities are linked to one's employability and chances of finding and holding a job of good quality and, in a number of countries, they also presuppose access to supplementary retirement schemes. Such opportunities are often unevenly distributed across the population. It is therefore important to ensure that public pension schemes contain appropriate mechanisms to address the needs of women and men who are less able to use these opportunities. These mechanisms include minimum pensions, minimum income provisions for older people or

other means such as credits for periods during which people are unable to build full entitlements.

14. Priority must be given to enabling as many workers as possible to work up to the statutory pension age and thus to raise the effective retirement age faster than would result from pension reforms alone. This requires that the health and skills of workers are maintained as they age, as well as a higher degree of flexibility in work places and labour markets allowing older workers to move into jobs that are better suited to their abilities and strengths. It also entails ensuring access to affordable care for children and older dependents, making it possible to reconcile family obligations with longer working lives.
15. Late-career labour markets and employment regulations should develop in such a way that older workers, women as well as men are not restricted to the option of staying longer in the same job, but can also more easily find a new job with another employer and with working conditions and working times that match their abilities, needs and preferences. More older workers may wish to work beyond the statutory retirement age, including as self-employed. Employment policies should facilitate this, and pension systems should allow it without penalties or even promote it, thereby also creating additional opportunities for improving incomes in old age.
16. Special attention needs to be paid to older women and men, who for personal or work related reasons are unable to remain in the labour market up to the steadily rising statutory pension age or up to an age where they can enjoy an adequate retirement income. When early labour market exit cannot be prevented, it should be covered by social protection mechanisms which are well targeted to those who face serious labour market obstacles, thus avoiding that such social protection mechanisms undermine the objective of increasing the effective retirement age.
17. In many EU countries, the reformed public pension schemes focus more strongly on ensuring the adequacy of retirement incomes for people at the lower end of the income distribution, including through strong redistributive elements. As a result, their income replacement function may not remain fully sufficient for women and men with higher than average incomes. There may therefore be scope for enhancing opportunities for supplementary retirement savings, notably in the form of wider access to complementary retirement savings vehicles such as occupational or personal pensions. This may be achieved through collective agreements and auto-enrolment rules, as well as through tax and other financial incentives, while bearing in mind the need to ensure their cost-effectiveness, safety and transparency. In some countries, statutory pension schemes do provide adequate earnings-related pensions, so the need for supplementary pension is not same in every Member State. Finally, it could be considered how older people can be given a wider range of options for using their assets, including residential property if they so wish, as a source of additional retirement incomes.

EU cooperation to ensure adequate incomes in old age remains important

18. In view of the findings of the 2015 Pension Adequacy Report and preparations for the 2018 report, the SPC intends to investigate in more depth those population groups identified as at risk of suffering from insufficient incomes in old age (e.g. women,

younger workers, migrants, the low-skilled or low-waged) and how these adequacy risks can be addressed through appropriate prevention measures and through mitigating provisions in pension and social assistance systems. A special focus will be on older women.

19. Regarding prevention measures, the main focus has to be on policies that enhance the employment opportunities of older workers, thus allowing most of them to work up to the statutory pension age – and beyond, if they so wish. It will be important to get a better grip on how economic, work, health and social variables interact and affect late careers and the transition from work to retirement. The SPC intends to cooperate closely with EMCO on this issue.
20. In addition, the SPC intends to look at how those Member States in which pension adequacy will depend strongly on supplementary retirement savings can promote such savings in the most cost-effective ways.
21. The SPC will review in more depth the redistributive elements of public pension schemes, taking into account inequalities notably in health and labour market opportunities affecting different groups of women and men. These redistributive elements include the links between contributions and benefits, pension credits, minimum income provisions, provisions for people forced to leave the labour market early (notably invalidity and unemployment benefits) and derived rights (survivors' pensions). A special focus should be on pensioners living alone.
22. As countries outside the EU face similar problems with regard to ensuring the future adequacy of pensions in ageing societies, the SPC intends to cooperate with international organisations such as the OECD, the World Bank and ILO in exploring the most appropriate policy responses to these challenges.

The 2015 Pension Adequacy Report: current and future income adequacy in old age in the EU

Volume I: Summary

SUMMARY

This second edition of the Pension Adequacy Report, which is presented by the Social Protection Committee of the EU (SPC) after thorough discussion with Member State delegates, assesses the degree to which pensions manage to provide older people with adequate income and poverty protection. Having examined current living standards of older Europeans and the role pension systems in securing them, the report discusses the impact of recent pension reforms, identifies risks to future pension adequacy, and outlines what needs to be done to mitigate such risks and help secure adequate incomes for today's young workers when they reach retirement 40 years from now.

1.1. Purpose and scope

Providing people with income in old age that allows them a decent living standard and protect them from poverty is the very purpose of pension policy. Pension adequacy is thus an important policy goal in its own right. At EU level this objective is monitored in the tri-annual Pension Adequacy Report by the Social Protection Committee (SPC).

In the terms of reference for this 2015 version of the Pension Adequacy Report the SPC asked its subgroup WG-AGE for a report, which by focussing on pension adequacy and highlighting its importance would complement³ the 2015 Ageing Report by the Economic Policy Committee (EPC)⁴. The report should assess some past key reform measures aimed at securing adequate pensions in a financially sustainable manner, including by looking at risks to the future adequacy of pensions after such reforms, and pinpoint reform possibilities that can advance both the adequacy and sustainability aspects of pensions.

WG-AGE subsequently proposed to use the multi-dimensional approach elaborated in 1.2 and presented the SPC with a synopsis for the content and storyline of a report for which it received the backing of the Committee. The present report responds to these mandates.

The starting point for the comparative analysis is that Member States in their pension policy efforts face important common challenges and concerns, which can benefit from an overall approach. At the same time, though, the risks to current and future pension adequacy in Member States have many country-specific aspects. While the main part of this report, published as volume I, is devoted to a comparative analysis of pension adequacy in EU-28, a detailed discussion of developments in each of the 28 Member States is therefore also provided in the main annex of country profiles, published as volume II.

When assessing the ability of pension systems to fulfil their income maintenance function, both currently (2013) and prospectively (2053), the report uses the hypothetical case methodology of Theoretical Replacement Rates (TRRs). These rates indicate the extent to

³ The overall results of pension developments in EU countries and their impact on public expenditure and on income conditions in old age are monitored in two tri-annual reports, which complement one another in focus and methodologies. These are the Ageing Report produced by the Economic Policy Committee and the Pension Adequacy Report produced by the Social Protection Committee. Where the Ageing Report looks at the future fiscal sustainability of public pension schemes the Pension Adequacy Report examines the present and future adequacy of pensions as element in the income of retired people.

⁴ The 2015 Ageing Report was adopted and published by the EPC in May 2015: http://ec.europa.eu/economy_finance/publications/european_economy/2015/pdf/ee3_en.pdf

which pensions received ‘replace’ prior incomes from work. In order to catch the effects of recent reforms and to illuminate key policy questions the set of career scenarios and pension system features, normally covered by the TRR calculations, has been enlarged.

The Report offers new analysis in a number of areas. It looks at pension adequacy in the context of access to private assets, other public benefits and services and employment. It offers a deeper examination of minimum income provisions for older people and new analysis of the crediting of periods without work and contributions and of derived pension rights such as survivors pensions. Importantly it presents a comprehensive analysis of the gender gap in pension. It furthermore gives an overview of the main trends in pension reforms over the last 20 years, including developments in the public-private mix of provisions, and analyses the impact on pensions and pensioners of the financial, economic and sovereign debt crisis which has evolved since 2008. A key part of the analysis concern reforms that seek to extend working life through higher pensionable ages and restrictions in access to early retirement. This leads to an analysis of barriers and obstacles to longer working lives in current practices in work places and labour markets and how these may be reduced.

The calculations of current and prospective TRRs are based on the national legislation in place at the end of 2013. Other parts of the analysis, such as the profiles of pension provisions in each of the 28 Member States, which are published in volume II, take account of the pension reforms adopted until the end of 2014. Legislative developments that have occurred in the course of 2015 are not covered in either volume.

While some of the analyses presented are reasonably comprehensive other parts are more tentative. The report therefore also uncovers the need for further work in many areas. Several knowledge gaps need to be filled and methodologies further developed. Key areas for future work are outlined in the conclusion.

This report on pension adequacy is primarily aimed at policy makers in the Member States, but the information it contains is also of value to social partners, NGOs and academics working in the social field.

1.2. Multi-dimensional approach

This report adopts a multi-dimensional approach to the measurement of current and future pension adequacy. While concentrating on *all forms* - public as well as private - of this type of post-retirement old age income for men and women and reporting *by gender* all data on current and future aspects of pension adequacy, the report also seeks to assess their relative importance among *other sources of old age income* and relative to access to free or subsidised *public services*.

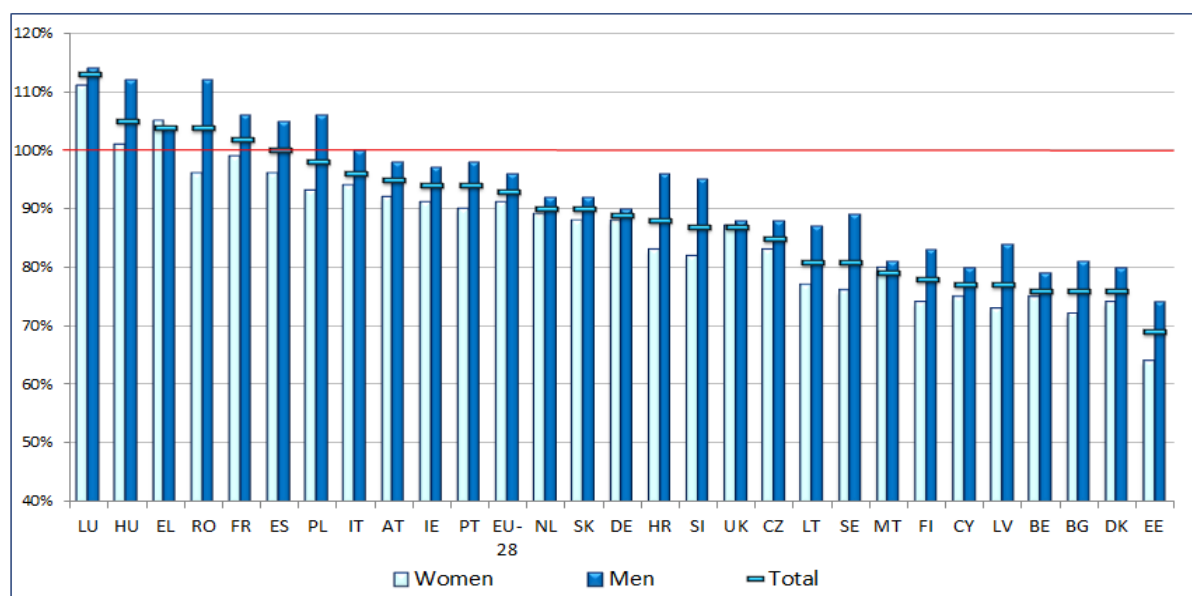
Risks to the adequacy of old age income is also examined in terms of the degree of *alignment between labour markets and pensions*, including how well contributory period requirements in pensions match the length of the working careers that people manage to complete. The extent to which adequacy is affected by indexation, automatic adjustment mechanisms and the risk profile of the pension package is also considered, with the focus on enabling Member States to strike an appropriate balance between adequacy and sustainability.

2. Current living standards of older men and women

Almost all older people rely on pensions as the main source of income during retirement. However their living standards are also influenced by their access to publicly provided or subsidised services, their savings - notably whether they own their home and have income from accumulated assets – and whether they continue to have income from work after reaching pensionable age.

Overall, older people in the European Union enjoy *living standards* close to those of the working age population. On average across EU-28, the median disposable income of people aged 65 or above (Figure 1) stands at 93 percent of the income of those aged 0-64. Cross-country differences are substantial, however, ranging from below 80 percent of the EU average in eight Member States to above 100 percent in six Member States.

Figure 1: Median income of people aged 65 as share of the median income of people aged 0-64, total and by gender, 2013

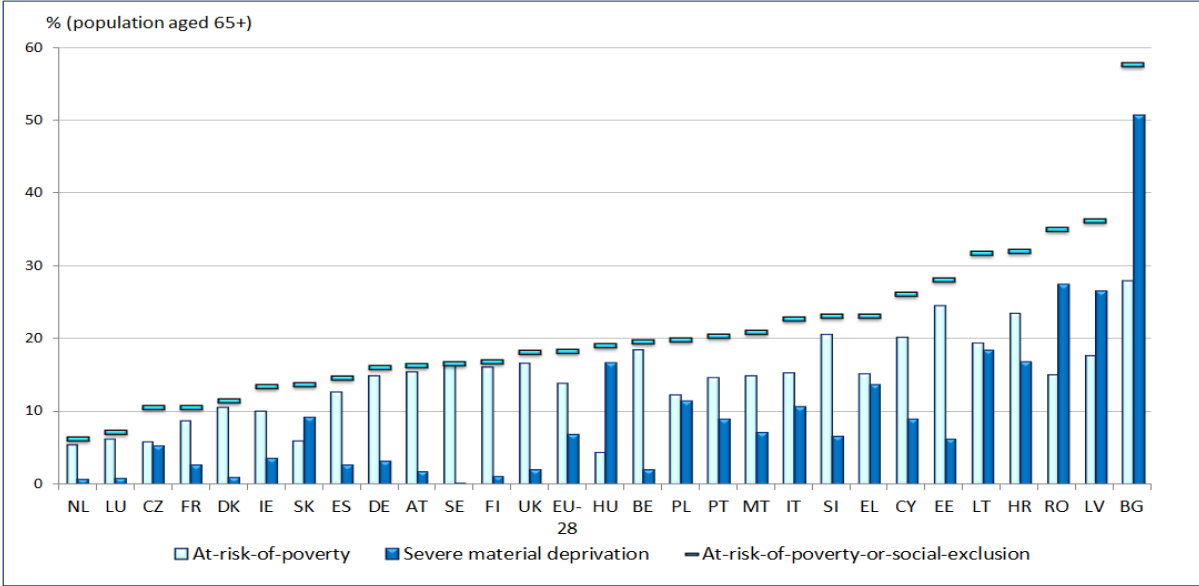


Source: Eurostat (table ilc_pnp2). Note: Based on EU-SILC 2013, which refers to the income year 2012.

As regards *income inequalities* among the population aged 65 and over, the disposable incomes of those in the top quintile are on average four times higher than those in the bottom quintile, but with significant differences between Member States, with the share of the population aged 65 or above being at *risk of poverty or social exclusion* (Figure 2) averaging 18 percent in EU-28, but ranging from 6 to 57 percent across Member States.

While poverty and social exclusion in old age is largely seen in terms of relative incomes within individual Member States, the problem of absolute poverty – as measured by indicators of severe material deprivation - is much more of a challenge for older people in some countries in Central and Eastern Europe. Overall, it must be noted, however, that in 22 Member States, older people actually face lower risks of poverty and social exclusion than do the rest of society.

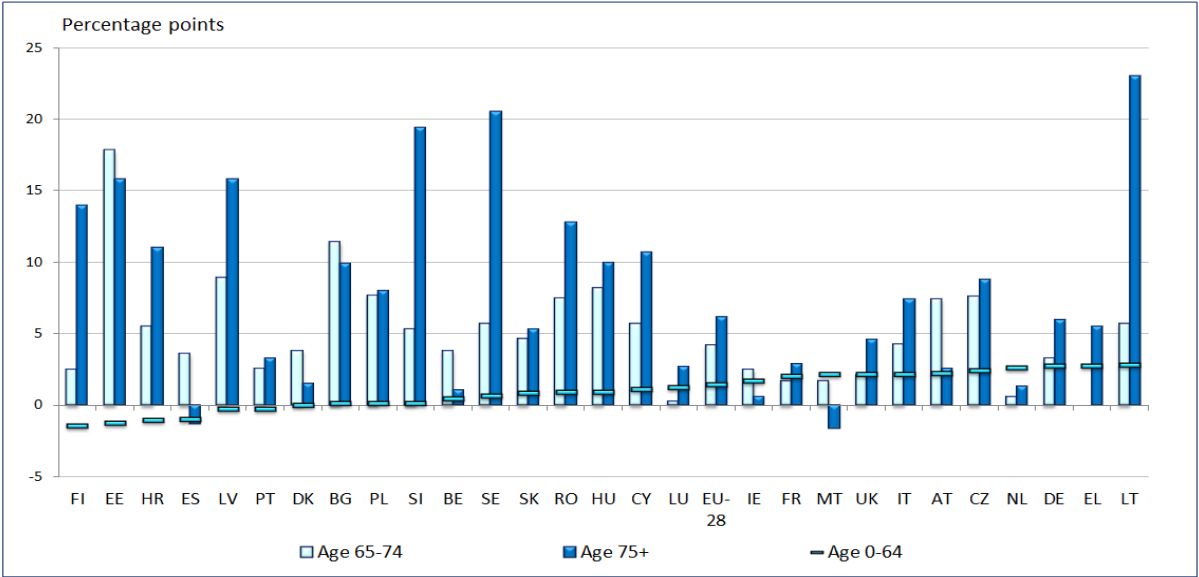
Figure 2: At risk of poverty and severe material deprivation, population 65+, 2013



Source: Eurostat. Note: Sorted by the at-risk-of-poverty-and-social exclusion rate for the population 65+. At-risk-of-poverty refers to the income year 2012, severe material deprivation refers to the survey year 2013

Older women face a substantially higher at-risk-of-poverty-and-social-exclusion (AROPE) than older men (Figure 3), especially if they live alone, which is particularly the case for those aged 75+.

Figure 3: Gender difference in the AROPE rate, by age group, 2013



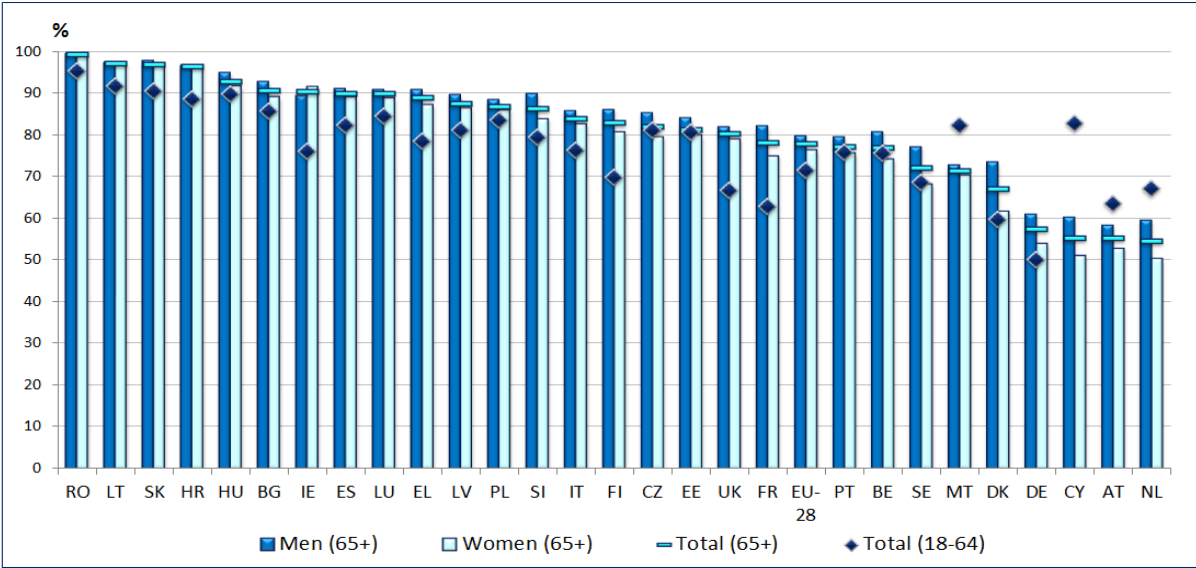
Source: Eurostat (table ilc_peps01). Note: Sorted by the gender difference in the AROPE rate for the population 0-64.

In many countries, older people are more likely than people below 65 to own their home and to possess significant financial wealth. However this situation varies considerably across the EU. Over three-quarters of the EU-28 population aged 65 and over live in **owner-occupied dwellings** (Figure 4), with national rates ranging from a little over a half (54 percent) to nearly 100 percent.

The share of men who are home owners is higher than that of women, while couples aged 65 or over are more likely to be home owners than one-person households in the same age group.

Overall, owning a home slightly reduces the risk of older people being poor (13 versus 16.5 percent) risk, but this rule does not apply in all Member States.

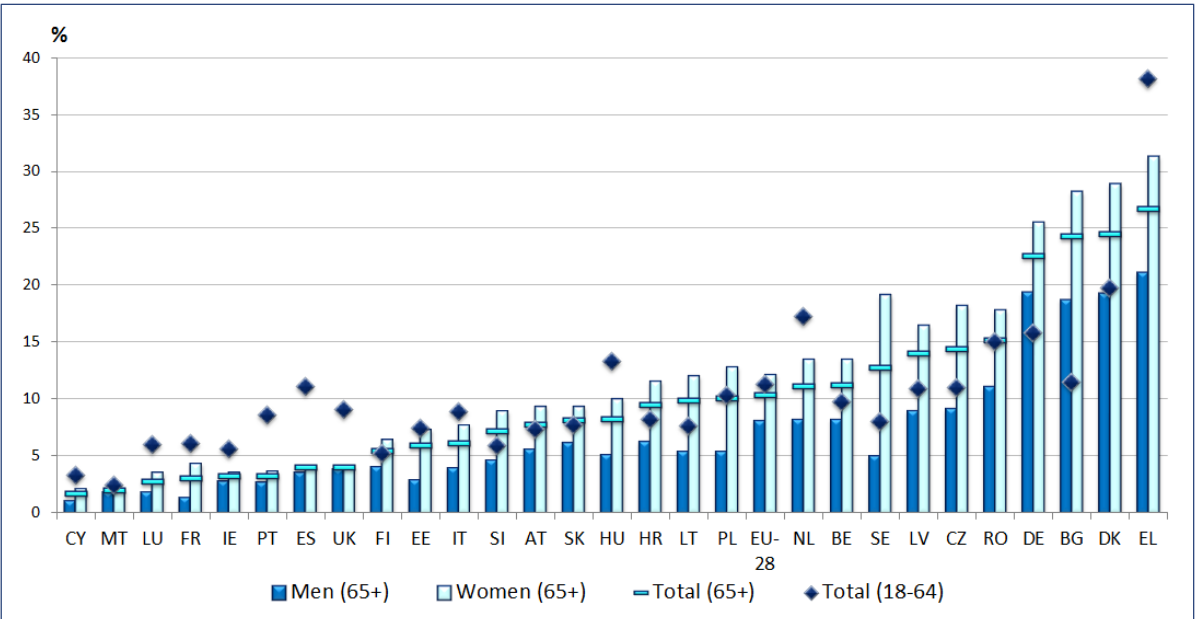
Figure 4: Tenure status – owners, among people aged 65 and over (by gender) and total (18-64), 2013



Source: Eurostat. Note: sorted by the values for total population aged 65+

On average older people spend a little over 10 percent of their disposable incomes on housing but, in some Member States, a substantial number of older single people are *overburdened with housing costs* as they spend more than 40 percent of their disposable income on housing (Figure 5). Across the EU this so-called ‘housing cost overburden rate’ for older people ranges from almost none (1.6 per cent) to over a quarter (27 percent).

Figure 5: Housing cost overburden rate, by age and gender, 2013



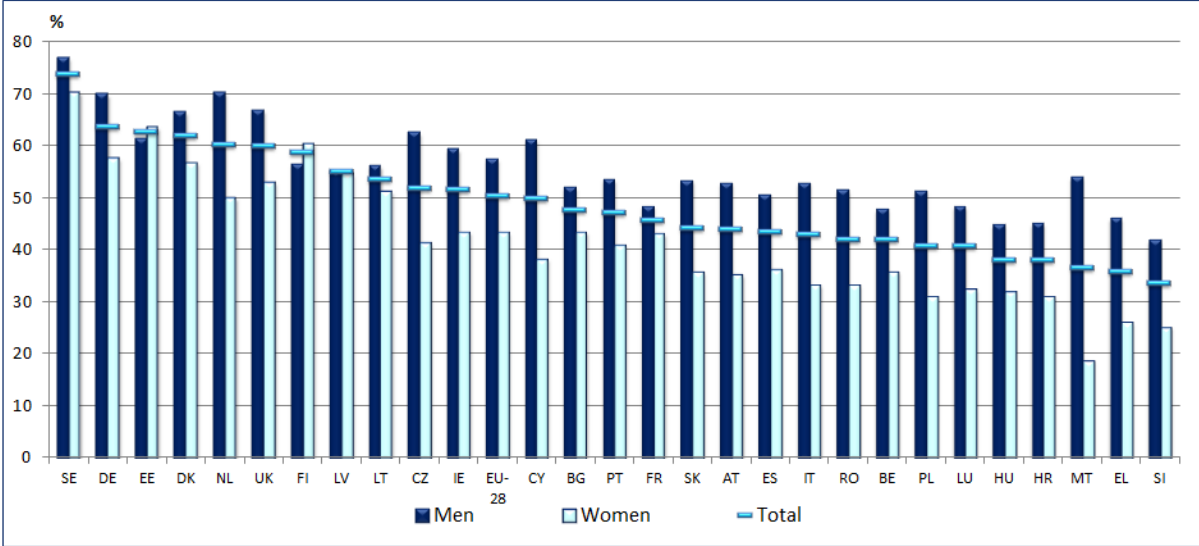
Source: Eurostat. Note: sorted by the values for total population aged 65+.

A number of Member States have *means-tested allowances* to help older people pay their rent or heating costs, and a very high proportion (93 percent) also have *access to free or subsidised medical care*.

At age 65 EU citizens can expect some increasing difficulties to manage their daily living activities unaided. However, the probability of needing *long-term care* rises steeply from the age of 80, and such needs are very unevenly met by Member States. In some countries public provision for formal long-term care makes it accessible and affordable but in others the accessibility of formal care is low. Hence frail and disabled older people here depend primarily on the informal care provided by relatives.

Pension entitlements and the overall income situation of older people are influenced by the extent to which those concerned work until and after the retirement age. Since the turn of the century the long standing *trend towards ever earlier retirement has reversed*, with employment rates of older workers in the Union having increased by more than a third (Figure 6). This is both improving the sustainability of pension schemes since staying in the labour force means greater contributions to and less benefit payments from schemes, while contributing to the adequacy of retirement incomes as later retirements usually lead to higher pension benefits.

Figure 6: Employment rate of older workers (55-64 years), EU-28, 2013

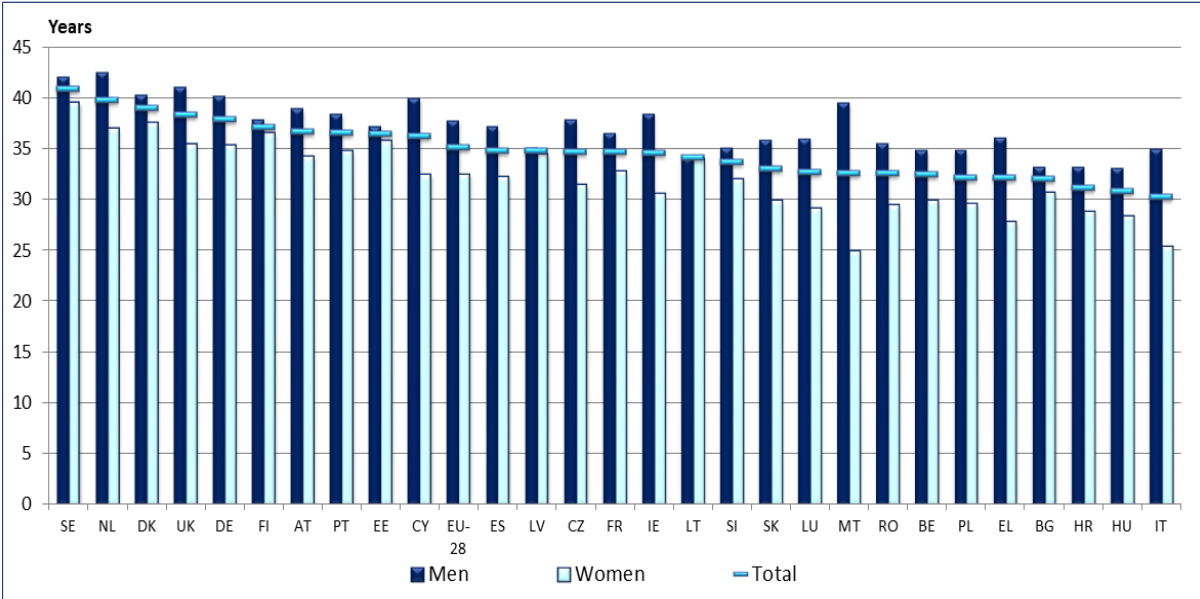


Data source: Eurostat

In the EU-27 as a whole, *only around half the exits* from the labour market occur *because people have reached the statutory pensionable age*. Unemployment, disability, need to provide care to relatives or grandchildren, or the wish to retire at the same time as an older spouse, are major reasons, with unemployment being much more significant for men.

The average numbers of years people spend working vary a great deal between both Member States and men and women. The *differences in the duration of working lives* between Member States amount to 9 years for men and to more than 14 years for women (Figure 7) with the effective retirement age being below the national pensionable age for both men and women in the majority of Member States.

Figure 7: Duration of working life, 2013, EU-28



Data source: Eurostat

Over the past decade, it has become more common for Europeans to work beyond the age at which they are entitled to a public old-age pension or an occupational pension, and well over four million people aged 65 and over were in employment in the EU in 2013. However, only about one-fifth of those who work indicate that they do so primarily because they need the income.. For many, the motivation comes from a combination other factors, including the desire to maintain contact with colleagues and clients, and opportunities to learn and contribute to society. In terms of background, highly educated men from urban areas and people in agriculture are well-represented among those working after age 65, although probably for entirely different reasons. However it can also be noted that the recent growth in employment rates of 65-69 year olds has particularly come from women with a medium level of education.

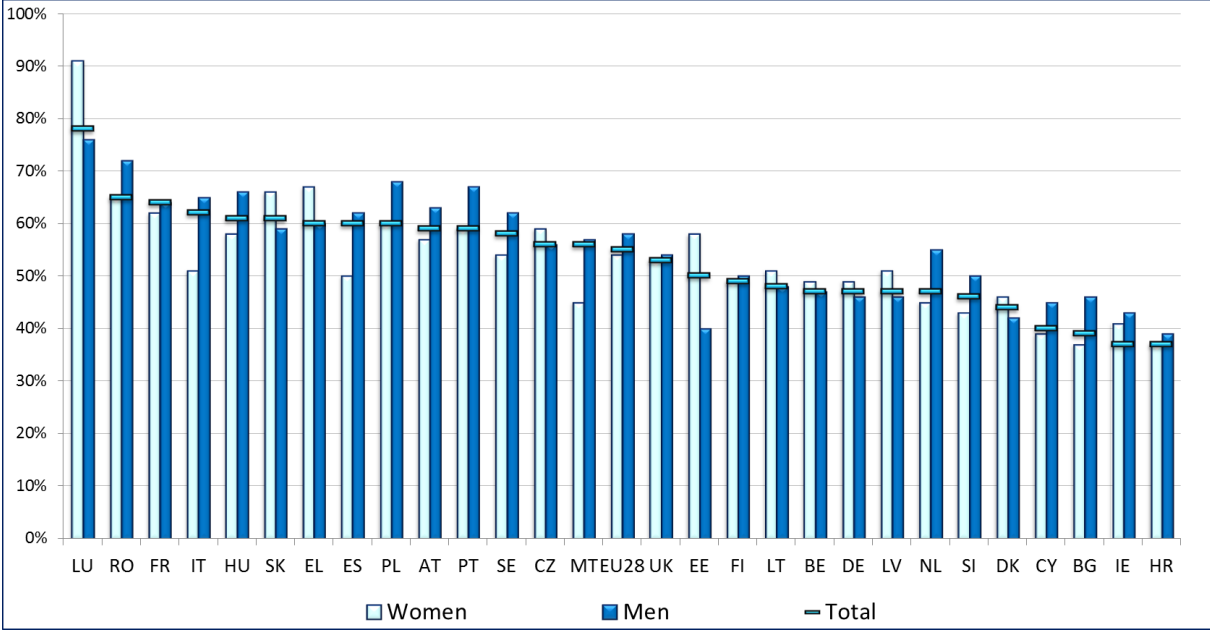
Some 15 Member States allow people above the pensionable age to combine pension receipts and work income without any limits. However some Member States apply various forms of income-testing to pension payments and, in a few cases, do not permit earned incomes to be combined with pensions.

3. The role of pension systems in securing adequate living standards in old age

The ability of pension systems to protect living standards at the point of transition from work to retirement can be assessed by comparing pension incomes to the earnings of people below pensionable age. On average in the EU-28, the average (*median*) gross pension of people aged 65-74 amounted to some 56 percent of average gross earnings of people aged 50-59, although this proportion varies from 37 percent to 78 percent, and is below 50 percent in 12 Member States.

The EU-28 average (Figure 8) for men and women is relatively close - 58 percent against 54 percent.

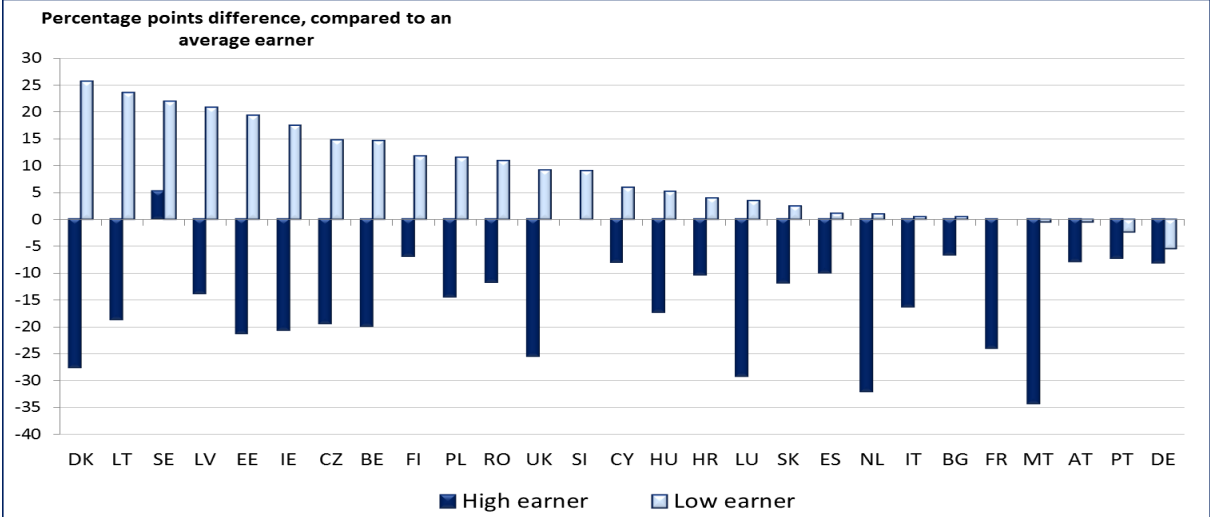
Figure 8: Aggregate replacement ratio, total and by gender, 2013



Source: Eurostat. Note: Ratio of income from pensions of persons aged between 65 and 74 years and income from work of persons aged between 50 and 59 years. Sorted by total ARR. Data from EU-SILC 2013, referring to the income year 2012.

In order to assess adequacy further, four alternative sets of *theoretical replacement rates* (TRRs) for people retiring in 2013 were calculated, providing a comprehensive assessment of current pension levels across the EU Member States⁵. This shows that, after a 40 year career at average earnings up to the standard pensionable age, the net pension income that is obtainable in different Member States range from 50 to 114 percent of average earnings.

Figure 9: Theoretical Replacement Rates for people on low and high earned income, compared to average wage earners (40 year career up to the SPA case), 2013



Data source: Member States. Note: Sorted by values for low earner. Data for EL – not available (n.a.).

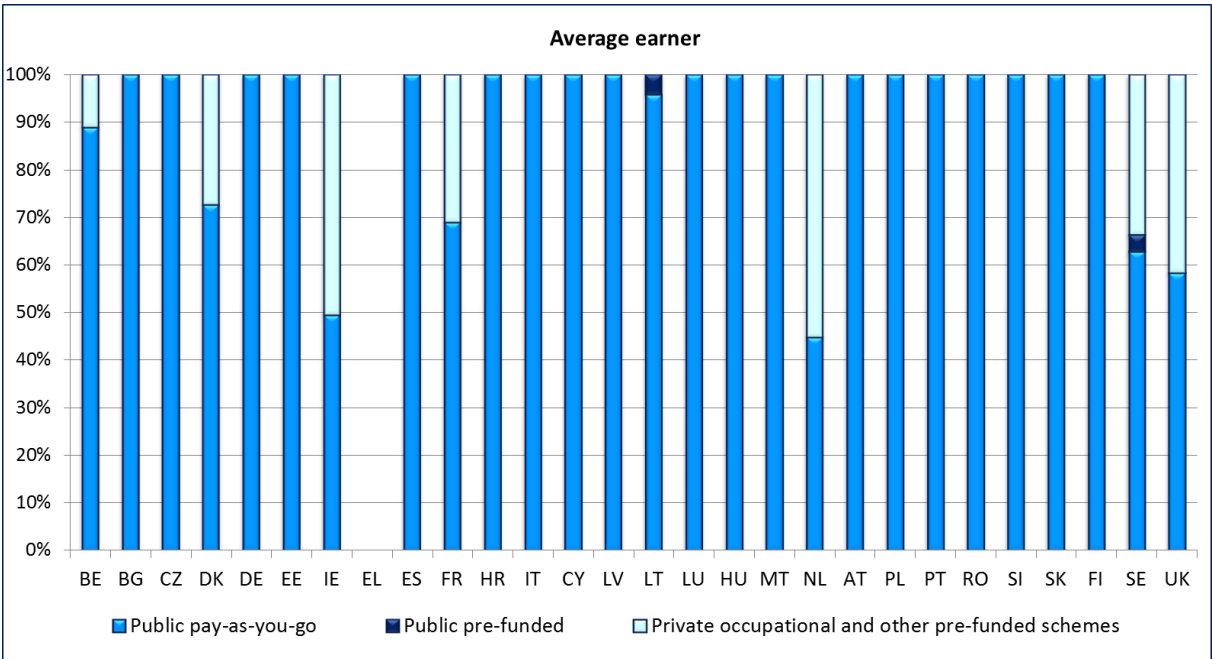
Theoretical replacement rates were also calculated for workers earning significantly less or more than average. For this purpose low income was defined as 2/3 of the average incomes throughout the entire career, and high income as rising from 100 to 200 percent of average

⁵ TRR calculations take into account only those pension schemes, which are mandatory, typical or have a wide reaching coverage. For the majority of Member States this means that 3rd pillar private pension entitlements are ignored.

incomes between the beginning and the end of the career. Under those scenarios, TRRs tend to be overall higher for the low earnings profile and relatively lower for workers with high earnings, reflecting the redistributive character of pension systems (Figure 9).

While the public pay-as-you-go pension system is the main provider of pensions everywhere in the EU, occupational pension schemes based on collective agreements or on employer sponsorship have increased their coverage in some Member States and are acquiring an increasing role in pension income as they mature. In five Member States, occupational pensions contribute more than 30 percent to the TRR mix for average earners (Figure 10), but with a higher coverage for high and average earners than for low earners.

Figure 10: Shares of different pension schemes in gross TRRs for average income earner, 2013



Data source: Member States. Ref. base case variant II (40 years up to the SPA). Based only on the schemes included in the TRR calculations. Data for EL not available. If gender differences exist, results for men are reported.

Member States have developed different ways of preventing very low incomes in old age. Some are an integral part of the pension scheme design; others could be regarded as add-ons to the pension scheme; while still others are unconnected to the pension scheme, as in the case of general social assistance. Four different types of *minimum income provisions* can be distinguished: universal flat-rate pensions, contributory minimum pensions, specific social assistance for older people and general social assistance.

The concept of a guaranteed minimum income for all residents above a certain age is at the heart of universal basic pensions in five Member States. In the earnings-related contributory pension systems, protection against poverty takes the form of a minimum pension (11 Member States), or a compensation supplement up to a certain minimum level of pension (4 Member States). Specific social assistance for older people and general social assistance are two other ways of providing minimum income for older people.

Figure 11 presents the *guaranteed minimum income amounts* (or their ranges, if they depend on factors such as insurance/employment periods) *as a percentage of the poverty threshold* (left-hand scale), and orders the Member States in terms of the share of older people with

income below the poverty threshold (right-hand scale). No clear pattern is visible, however. Member States with low guaranteed income amounts can also have low at-risk-of-poverty rates, and high minimum income amounts do not necessarily imply that few older people have to live with income below the poverty threshold. Whether many older people are living with incomes below the at-risk-of-poverty threshold also depends on other factors, such as their employment records and the redistributive features in pension systems.

Figure 11: Minimum income provision for older people and share of people aged 65+ with income below the at-risk-of-poverty threshold



Data source: information from Member States and from Eurostat (2013 EU-SILC data)

Short contributory periods and low earnings are major risk factors leading to inadequate pension income. Calculations of the 2013 replacement rate (TRR) for a low-wage earner with a 30-years career who is covered by the most general scheme show that in many countries the income that is available to a person with such a profile will remain below the at-risk-of-poverty threshold. There are also several countries where the benefits clearly exceed this threshold. However, it is not the specific supplements from minimum income provisions that seem to keep most of older people above the poverty threshold; a good protection against the risk of poverty seems to be rather the result of the overall design of the pension system and its redistributive nature.

While the increased labour force participation of women and reforms of the pension system has tended to lower the need for basic safety nets, other factors may have the opposite effects over the longer term. The economic crisis and high unemployment, particularly among younger people, will leave many with major gaps in their contribution history, which could translate into claims for minimum income provisions several decades from now.

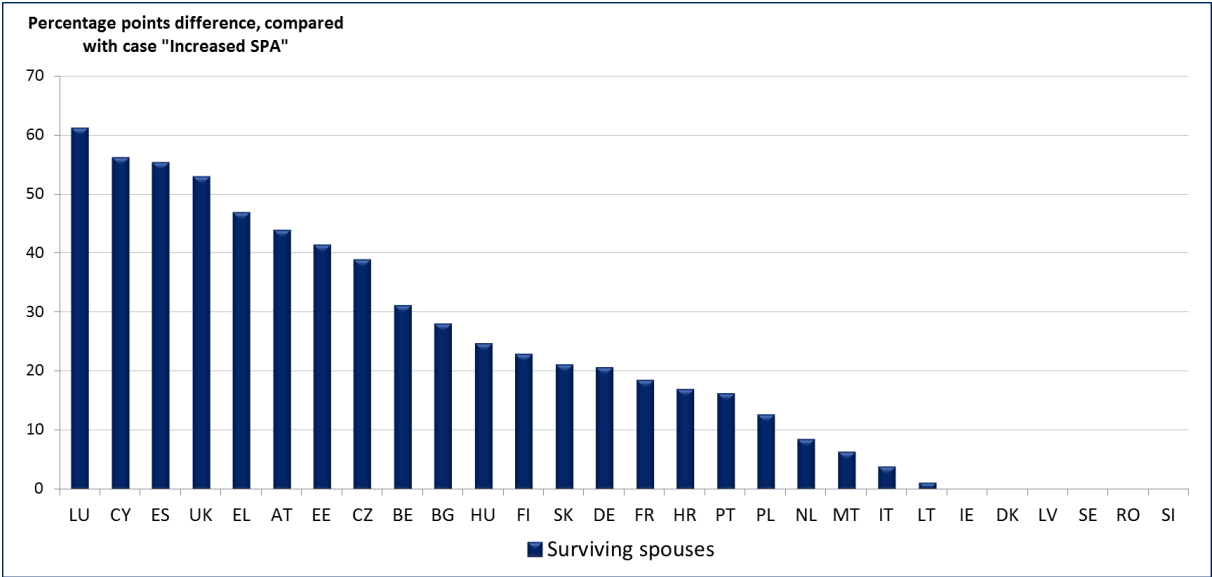
In public pension schemes where entitlement is based on residence, periods outside the labour market are covered by default. In contributions based schemes *pension credits* for certain periods spent outside the labour market may be granted. Depending on the entitlement mechanism in the respective pension system, credits may be granted in the form of assumed career years, pension points, or social security contributions credited to the individual. Similar

protections may exist in occupational schemes, but are not be present in third pillar pension savings schemes.

The types of non-contributory periods most frequently credited are those linked to maternity (or paternity), care duties, incapacity to work, unemployment, military service and education. Although pension credits are widespread, contributions to earnings-related schemes tend to be credited only at a lower level of income (equivalent to the minimum wage, a percentage of the mean salary or a part of the last known individual wage), which results in smaller pension accruals. Since the vast majority of those who take career breaks linked to care for children or dependent adults, are women, this impacts adversely on women's pension adequacy.

Almost all Member States have some income support measure aimed at compensating for the lost income of a deceased spouse. Though the generosity and eligibility conditions vary in most of the EU such *survivors' pensions* play an important role in providing pension income for the surviving spouse. Thus when comparing to the benefits based on a survivors' own income from a full career with low wage, survivors' pensions are higher in 22 Member States, and in four of them by more than 50 percent (Figure 12).

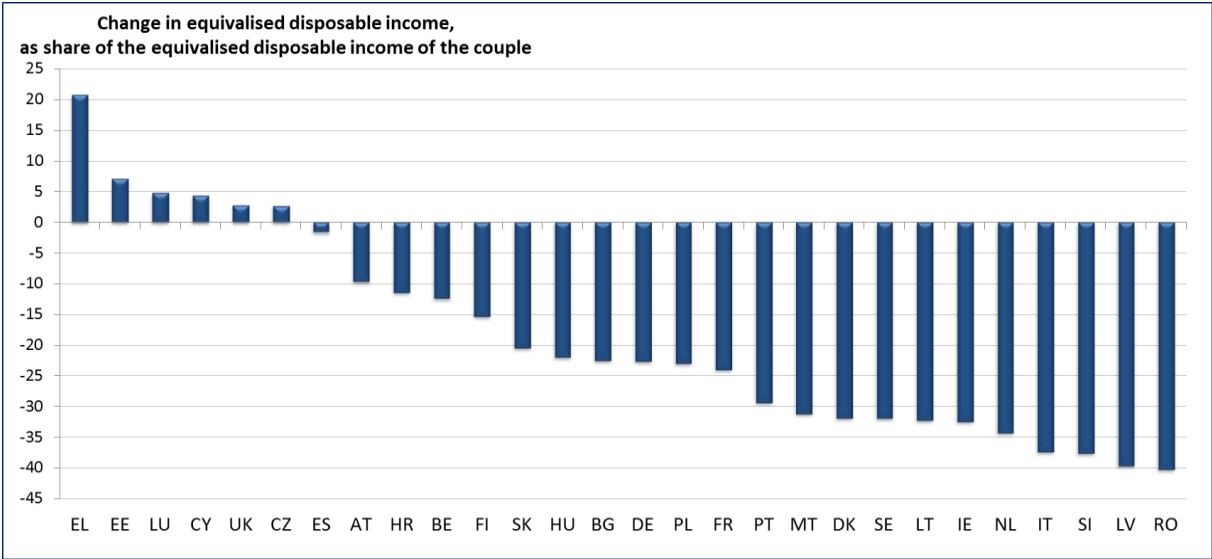
Figure 12: Percentage point differences in the net theoretical replacement rate for a surviving spouse compared with a single low income earner (2053)



Data source: Member States and the OECD. Note: A positive difference indicates a higher net TRR for the surviving spouse as compared to the 'increase in SPA' reference. The exercise presumes that the man received average earnings throughout his career, while the woman had low earnings. In the model it is assumed that the man dies immediately after reaching pensionable age.

In order to measure the *income shock* (and associated poverty risks) *caused by the death of a spouse* it is necessary to look at the difference between the equivalised household income of the couple at pension take up, and the income of the surviving spouse. Figure 13 illustrates this change, measured in terms of the disposable income of the couple, with the 'equivalised' disposable income of the widow projected to decrease by more than 30 percent in 10 Member States.

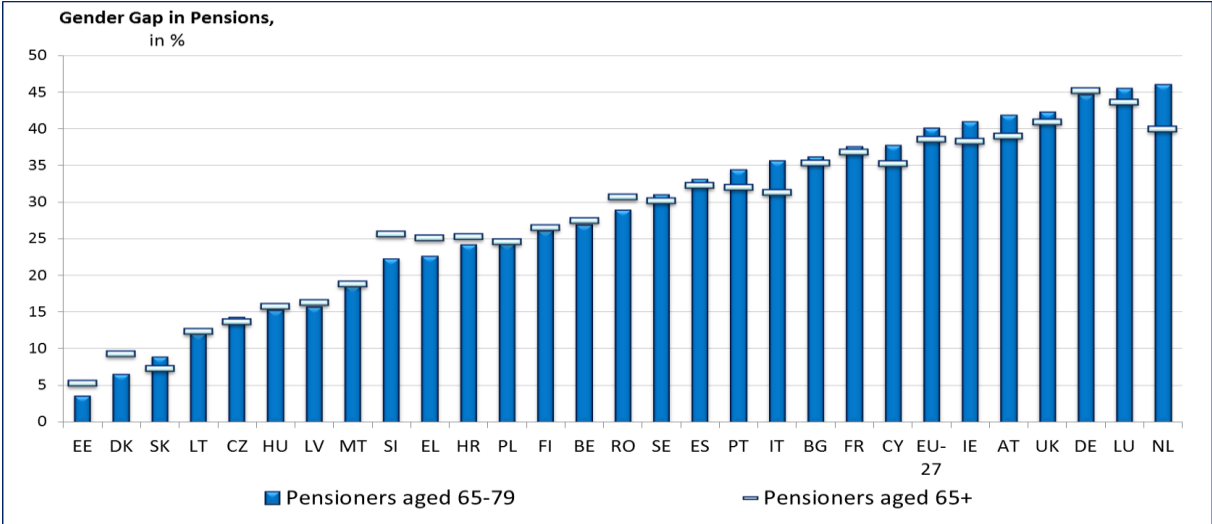
Figure 13: Change in the disposable income of the surviving spouse relative to the equalised disposable income of the couple had the man not died (2053)



Data source: Member States and the OECD; EC calculations. Note: Sorted by the disposable income of the surviving spouse.

Everywhere in the EU women receive lower average pensions than men and the overall difference amounts to 40 percent. This **Gender Pension Gap**, which for the 65-79 year olds ranges across Member States from relatively little (3.6 percent) to approaching 50 percent (46 percent) (Figure 14), as a result of the overlapping consequences of gender differences in terms of pay, working hours, the duration of working life, and the extent to which these differences are addressed in the pension system.

Figure 14: Gender Gap in Pensions (%), pensioners aged 65-79 years vs. 65+, 2012

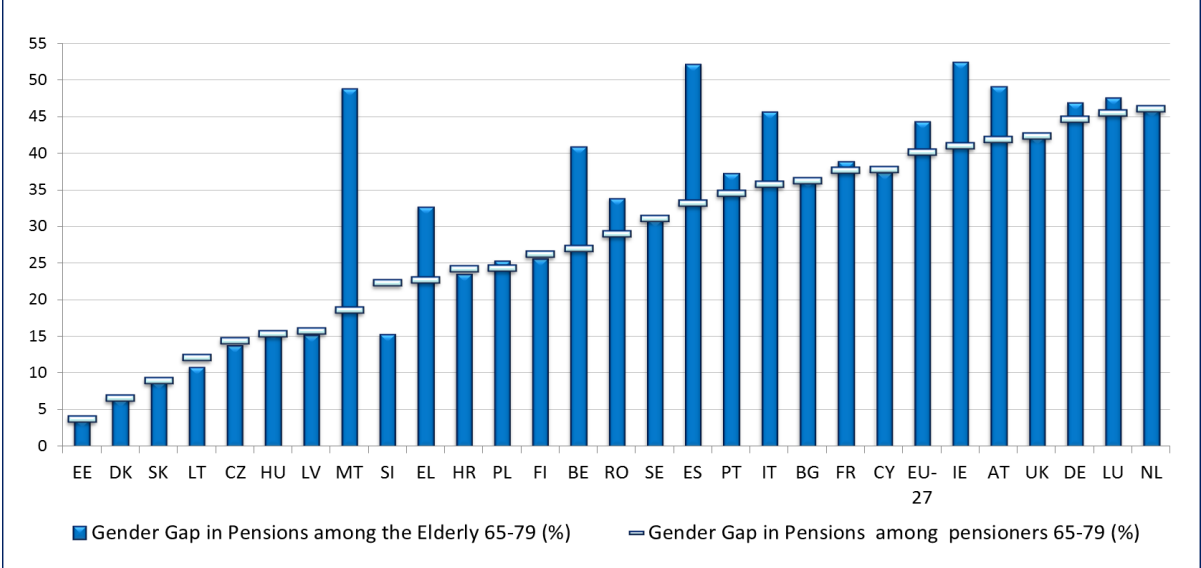


Note: Numbers indicate size of gap for pensioners aged 65-79. Source: EU-SILC 2012, own calculations. In BE and IE figures are based on 2011 data.

In the majority of Member States the access of men and women to pensions is equal, and **coverage gaps** are negligible. However, in those relying on the social insurance paradigm - in which contributions are based on earnings from formal work - coverage gaps can be very wide. In some of these Member States married women are typically not entitled to their own pension, or do not meet the criteria for a social pension. Instead men may receive a married person's pension supplement.

This gap in pension outcomes between men and women can be measured in more detail. Figure 14 focuses on the gender differences between who actually receives a pension while Figure 15 looks at the gender gap in pension among older people. The widest pension gaps (over 50 percent) are now found in countries which combine large pension gaps and large coverage gaps. Less divergence is found in countries where the gaps are caused by women receiving low pensions, rather than no pensions at all.

Figure 15: Gender Gap in Pensions among the elderly (%), aged 65-79



Source: EU-SILC 2012, ENEGE. In BE and IE figures are based on 2011 data.

Coverage gaps in some systems are also affected by rules regarding survivors’ pensions. If a widowed woman is not entitled to her own pension, she will usually be eligible for a survivor’s pension. Survivor’s pensions can thus have an important gender equalising effect. The EU average gender gap in pensions would increase by six percentage points from 40 to 46 percent if survivors’ pensions were left out.

While women on average receive lower monthly and annual pensions than men in all Member States, the extent of the gender pension gap results from the particulars of the design of the pension system and the degree of gender equality in employment in each country. Therefore the depiction of the gender regime in the pension systems of each Member States requires more detailed analysis as given in the country profiles published in the second volume of this report. Here recent developments in pension reforms and in gender differences in employment are also examined to say something about the likelihood that the current Gender Pension Gap may widen, narrow or remain the same.

It is important not to confuse the Gender Gap in Pensions with gender gaps in poverty or in pay. In fact some of the countries with the highest Gender Pension Gaps have low gender gaps in poverty. Likewise some countries with very low Gender Pension Gaps have some of the highest gender pay gaps in the EU.

4. Pension reforms and their likely impacts

The 1990s marked a turning point in the evolution of pensions. Until then, the generosity of pensions was rising in terms of both benefit amounts and the time that workers could expect to spend in retirement with a pension. In most EU countries this trend has since been halted, even reversed, by *two waves of pension reforms* intended to ensure the long-term financial sustainability of pension systems in the face of major demographic and economic changes.

The period from the mid-1990s to the mid-2000s was characterised by an emphasis on defined contribution designs and prefunding. By contrast the period from 2008 onwards⁶ has been marked by actions to raise the pensionable age and – in some countries – to reduce the role of prefunded schemes. Stricter access to early retirement and efforts to raise the employment rates and the effective exit ages of older workers have figured throughout.

European policy coordination in relation to adequate and sustainable pensions⁷ was launched and developed during the first wave and gave rise to a number of EU reports on how the demographic challenges could be addressed by Member States. However, since the onset of the financial crisis, the EU perspective on national pension reforms has increased in significance.

Most of the *pension reforms introduced in the first wave* were developed in a medium to long-term perspective, with their implementation foreseen to unfold over decades. However the effects of the recession and subsequent public finance crisis have spurred governments to introduce a second wave of reforms with harsher short-term effects, and greater medium to long-term changes in pension provision.

The pension *reforms enacted since the start of the crisis*⁸ continued several trends already set in motion during the earlier period and entail many similar elements. However, the second wave of reforms did not just bring more of the same. It differed markedly from what had happened before in four respects: it halted and to some extent reversed the expansion of prefunding; it involved cuts to pension payments; it raised pensionable ages and introduced the idea of linking them to life expectancy; it gave the EU a somewhat larger and more direct role in national pension reforms.

Cost-containment has been among the primary goals of the second wave of reforms, but the measures taken have varied from direct cuts over changes, to indexation, to the introduction of special taxes and extra contributions on pensioners. The most extra-ordinary aspect of reforms enacted during the crisis has been the introduction of cost-cutting measures affecting current pensioners. Whereas past reforms were characterised by long phase-in periods in order to safeguard the ‘acquired rights’ of pensioners and older workers, recent reforms have affected both existing pensioners and workers close to retirement.

In those countries where governments under pressure to consolidate budgets felt compelled to adopt reforms with *significant short-term effects*, it usually led to major showdowns with

⁶ This chapter only covers reforms legislated by the end of 2014.

⁷ At the Laeken Summit in December 2001 the European Union launched a process of policy coordination on adequate and sustainable pensions and a year later in Barcelona Member States agreed a new target for the Lisbon process to raise the age at which people stop working by 5 years on average by 2010.

⁸ Reforms adopted after the end of 2014 are not covered in this chapter.

pensioners. Often these turned to the high national courts to rule on the constitutional legitimacy of such reductions in their 'acquired rights'. Courts frequently found in favour of the plaintiffs and ordered governments to fully or partially reimburse the pensioners affected.

Though pensions in some countries have been reduced, and though pensioners in a few countries may have found themselves sharing their pensions, and even their homes, with their younger relatives when these had exhausted their social security rights, the *relative position of pensioners* has usually not deteriorated. In nearly all EU countries the younger sections of the population has been far more affected by the crisis and government austerity measures than pensioners.

Fiscal constraints also forced Member States to review the cost of *public support for private pensions*. In some West European countries with well-established occupational and personal pension pillars, the cost of public subventions through tax exemptions came under review. In Central and Eastern Europe, where ambitious savings rates for mandatory private pensions had put public budgets under pressure and added to debt and deficits, contributions were put on hold, lowered, and then in some instances even cancelled altogether as mandatory schemes were abolished and assets returned to the public sector. Still several of these Member States found a way to continue pre-funded schemes at lower savings levels or on a voluntary basis.

Table 1 reports on the pension reform elements aiming to obtain savings and extra tax revenues by *extending working lives*, which have been adopted in EU countries over the period 2008-2014.

Table 1: Pension reform elements aiming to extend working lives, recent years until end of 2014

MS	Year	Access to Early retirement (incl. disability) restricted	Age for early retirement raised	Pensionable age increased	Women Pensionable age brought up to men's	Length of contribution period increased	Automatic indexation to life expectancy	Limit to combine work and pension eased
BE	2012/2014	✓	✓					✓
BG								
CZ	2011			✓	✓	✓		
DK	2011	✓	✓	✓			✓	✓
DE	2014			✓				
EE	2010			✓	✓			
IE	2012-2014			✓		✓		✓
EL	2010/2012	✓	✓	✓	✓	✓	✓	
ES	2013	✓	✓	✓		✓		✓
FR	2010-2011	✓		✓		✓		
HR	2013		✓	✓	✓			✓
IT	2011	✓	✓	✓	✓	✓	✓	
CY	2012	✓		✓		✓	✓	
LV	2011			✓		✓		
LT	2011			✓	✓			
LU	2012	✓						
HU	2010/2012	✓		✓				
MT	2008-2013	✓		✓	✓	✓		
NL	2012	✓		✓			✓	

MS	Year	Access to Early retirement (incl. disability) restricted	Age for early retirement raised	Pensionable age increased	Women Pensionable age brought up to men's	Length of contribution period increased	Automatic indexation to life expectancy	Limit to combine work and pension eased
AT	2013	✓	✓		✓			
PL	2008-2010	✓		✓	✓	✓		
PT	2012-2014	✓		✓			✓	
RO	2011			✓				
SI	2012	✓		✓	✓	✓		
SK	2011-2012			✓	✓		✓	✓
FI	2010-2014	✓	✓					✓
SE								
UK	2011-2014			✓	✓			

Source: Information provided by the Member States (for details see Volume II of the Report)

Even before the crisis began, it was clear that the magnitude of demographic ageing would force the majority of Member States to **raise pensionable ages**. Even so, the extent to which reforms have focussed on raising the pensionable age in public schemes and aligning it with developments in life expectancy is remarkable. By end of 2014, 24 Member States had increased, or were in the course of increasing, the pensionable ages, while seven had introduced a mechanism linking them to life expectancy, another one was on the verge of joining them, and two had established mechanisms with some similar effects. At the same time, 16 countries had taken further steps to restrict access to early retirement.

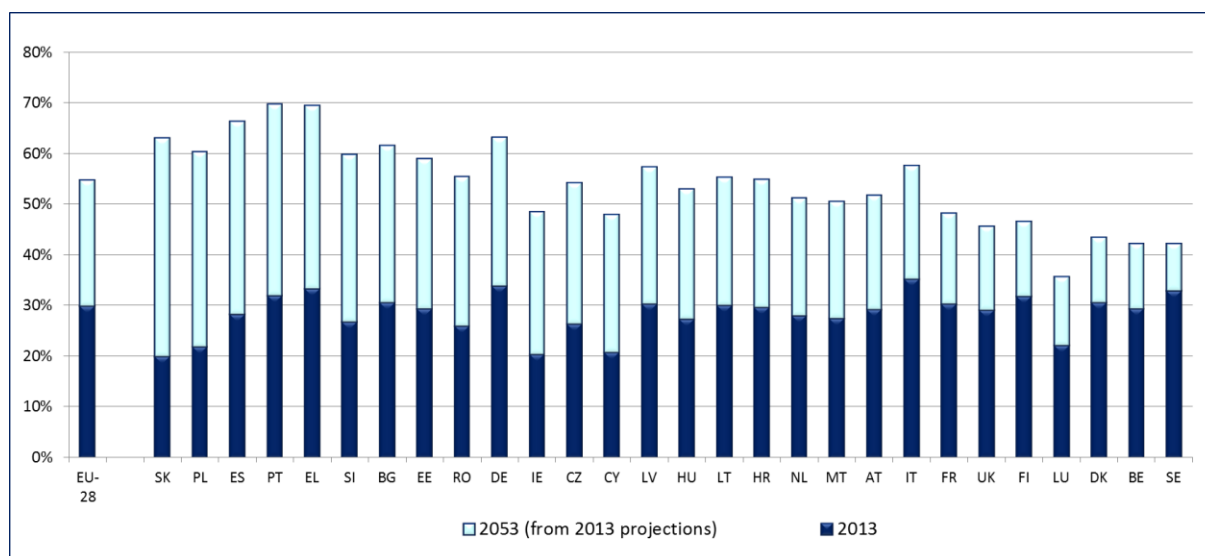
The emphasis in pension reforms on shortening the average time spent in retirement and extending the time spent working and contributing is logical. It can help Member States avoid some of the trade-offs between fiscal sustainability and benefit adequacy by freeing up resources that may be used to maintain the present adequacy of pension benefits or at least limit the extent to which this will reduce. However, these changes have also exposed pension adequacy to developments beyond the control of pension policy in so far as the adequacy of future pensions, notably the income maintenance part, is to be ensured through more women and men working more, and for longer. Thus, while bringing solutions to some of the dilemmas of adequacy, the reforms have also made **pensions much more dependent on developments in labour markets and at the workplace**. Changes furthermore entail that pension systems no longer provide solutions to employment problems in late-career labour markets through access to early retirement.

In terms of the **enlarged and more direct role of the EU** in national pension policy, the notion of pension policy as a 'common concern' was first suggested in the European Commission's 2012 White Paper on Pensions, but it has since been made more tangible through the emphasis in the European Semester on country-specific recommendations (CSRs) related to pensions and longer working lives. In this respect, while pension provision remains a national responsibility, the direct and indirect impact on national pension reforms of the EU has been considerable. Despite contention over the specifics of some recommendations, notably the linking of pensionable ages to life expectancy, Member States have largely accepted the somewhat enhanced role of Europe in adequate and sustainable pensions.

5. Adequate pensions in a long-term perspective

Over time and across the EU, more people of pensionable age will have to be provided for by smaller cohorts of working age. In the pre-2004 Member States **old-age dependency ratio** (Figure 16) will increase steeply within the next three decades before stabilising in the 2040s. In the Central and Eastern European countries that have joined the EU since 2004, the increases will continue for longer and to higher levels and by 2053 two countries from this region will become the ‘oldest’ in the EU.

Figure 16: Old-age dependency ratio (population 65+ vs population 20-64), in 2013 and 2053



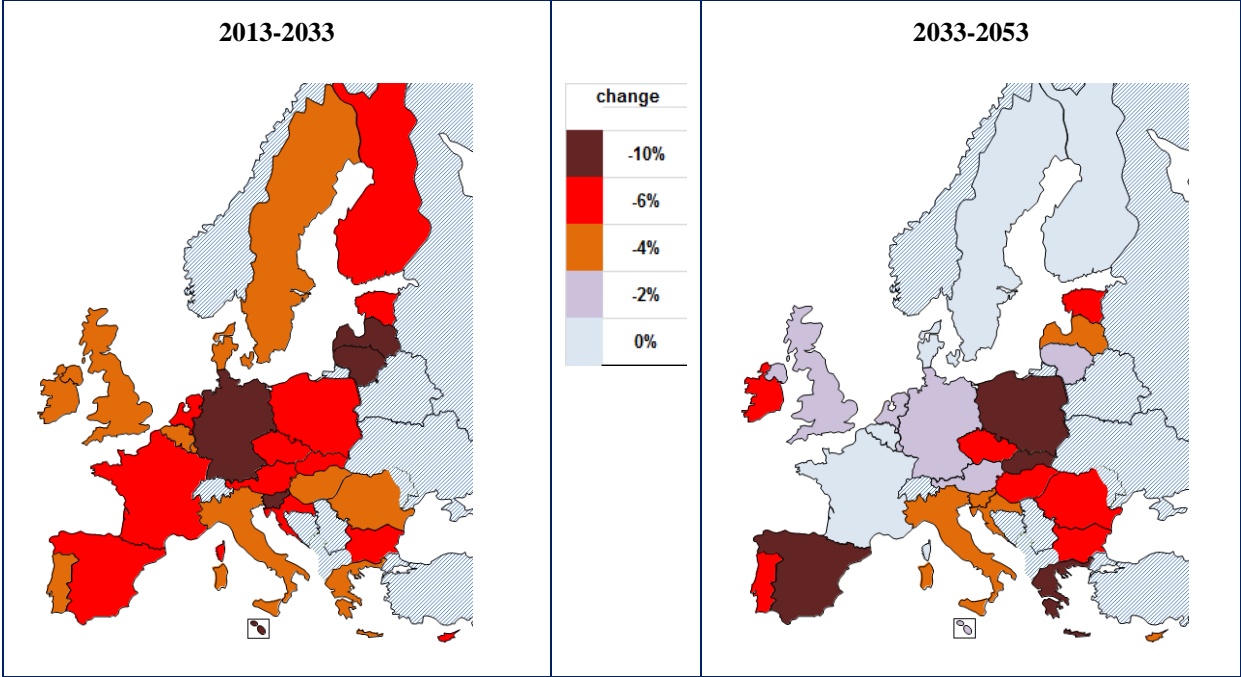
Source: Eurostat, code proj_13npms. Note: Member States sorted by increase in dependency 2013-2053

Since around 2008 the baby boomers have started to retire in substantial numbers and, as of 2012, the working-age population in the EU-28 has started to shrink. Between 2013 and 2053 the number of people of current working age (20 to 64) is projected to decrease by 12 per cent, from some 310 to around 270 million (Figure 17) and the median age is set to rise from around 42 years to over 46.

In the 40 years between 2013 and 2053 **life expectancy at birth** is projected to increase by varying amounts, from a little over four years to closer to 11 (4.2 to 10.7), depending on gender and Member State. Life expectancy at 65 - the age currently considered typical for retirement and pension access - is projected to increase by between three and six years (3.3 and 5.7 years).

In the future, increased labour participation at all working ages and growing productivity will be seen as essential elements for **maintaining the level of economic output** which supports the high standard of social protection that most of Europe enjoys. A major way for EU Member States to counteract the economic impacts of the decline in the population aged 20-64 is therefore to extend the definition of working age at the upper end (e.g. from 20-64 to 20-70) backed by reforms that raise the pensionable age and support this with any necessary changes to enable people to be employed at higher ages.

Figure 17: Change in working-age population (as % of the total population), 2013-2053



Source: Eurostat, code proj_13npms

The future evolution of pension entitlements is assessed by calculating *prospective theoretical replacement rates* for people who started working in 2013 at the age of 25 and who, after their working careers, would retire in the future under today's pension legislation (as enacted by 2013). The calculations take into account projected future economic and demographic circumstances as well as changes that result from enacted reforms of pension systems, including transitional rules to be implemented gradually. The calculated, prospective TRRs therefore typically reflect reformed pension systems in full maturity.

Future pension adequacy is assessed in three ways: through the TRR levels projected for 2053; by comparing the projections to the 2013 results; by altering the baseline assumptions of an uninterrupted career in order to assess how future pension levels are affected by forced early retirement and changes in the career length.

Table 2 presents the *net theoretical replacement rates in 2053* as calculated for the same four 'core' cases that have also been used for the 2013 calculations. All cases are based on an uninterrupted career, but differ in terms of the underlying career length assumptions and retirement ages. As most Member States have enacted unisex pension legislation for the future, the same career is expected to result in different pension outcomes for men and women in 2053 in only four Member States.

Differences between Member States can be substantial however. A 40-year career at average earnings until the country-specific standard pensionable age (SPA) results in TRRs ranging from 40 percent to over 90 per cent in 2053. This spread is even more pronounced for a career from age 25 to the national SPA. However, it is important to note that these projections are not directly comparable across countries. To the extent that labour market and retirement patterns differ across Member States, TRR cases and the subsequent calculations are not evenly representative across Member States.

Table 2: Prospective TRRs for the different core cases (net, average earnings) and underlying standard pensionable ages (SPA)

Member State	Net prospective Theoretical Replacement Rates at average earnings						Standard pensionable age (SPA) in 2053	
	Assumption: uninterrupted career from / until...							
	age 25 to 65		40 years to SPA		age 25 to SPA		men	women *
	men	women *	men	women *	men	women *		
BE	74.7		74.7		74.7		65.0 ***	
BG	83.3	90.8	83.3	78.7	83.3	75.7	65.0	63.0
CZ	50.9		58.1		61.4		68.3	
DK	n.a.		73.3		81.7		72.0	
DE	67.6		67.3		74.4		67.0	
EE	55.9		55.9		55.9		65.0	
IE	38.4		68.7		71.4		68.0	
EL	47.0		43.0		47.0		62.0	
ES	86.8		86.8		86.8		65.0	
HR	40.2		41.7		43.5		67.0	
FR	59.8		66.0		69.0		67.0	
IT	70.2		82.3		89.3		70.3	
CY	n.a.		70.0		75.0		68.5	
LV	51.2		51.2		51.2		65.0	
LT	71.3		71.3		71.3		65.0	
LU	95.3		91.1		83.7		60.0 **	
HU	81.9		81.9		81.9		65.0	
MT	73.8		73.8		73.8		65.0	
NL	47.6		90.6		92.5		67.0	
AT	86.1		86.1		86.1		65.0	
PL	37.7		40.7		43.4		67.0	
PT	66.5		79.5		84.2		68.4	
RO	41.1	43.9	41.1	40.1	41.1	39.1	65.0	63.0
SI	60.9	63.6	60.9	63.6	60.9	63.6	60.0	
SK	59.5		66.1		69.6		66.0	
FI	59.1		59.1		59.1		65.0	
SE	55.3		55.3		55.3		65.0	
UK	35.9		76.1		80.4		68.0	

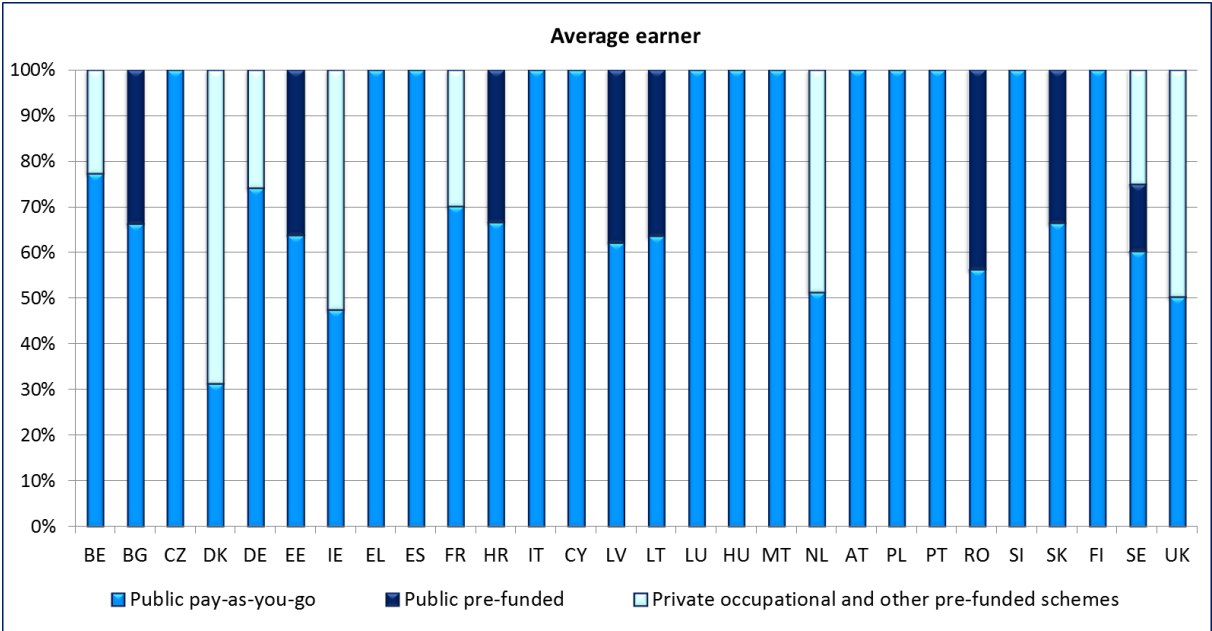
Data source: Member States & OECD. * if gender differences exist. n.a.: pension cannot be drawn at age 65. In IE, NL and UK, the public/state pension cannot be drawn at age 65. ** LU: SPA of 57.0 assumed for base case I. *** BE: as of end 2014, reforms adopted thereafter are not reflected.

The projected net theoretical replacement rates can also vary across **different earning profiles** depending on the design of pension schemes and the redistributive character of the tax-benefit system. In the majority of Member States low wage earners with an income of two-thirds of the average wage can expect a higher net replacement rate than average wage earners, although the difference is less than five percentage points in 17 Member States, and even negative in three. Given their lower reference income, low wage earners might face the risk of old-age poverty in the future, despite having completed a full career. TRR projections also reveal substantially lower net replacement rates for high-income earners relative to average earners. Overall, though, these differences are comparable in magnitude to those observed for current pensioners in 2013.

When comparing differences between *gross and net replacement rates* it is clear that, on present trends, the tax treatment of income from work and pensions - and therefore the impact of taxes on pension adequacy - is set to change little in the future.

Figure 18 shows the *relative importance of pay-as-you-go and prefunded* schemes in the future package of pension incomes for average earners show an increase in the role of prefunded schemes in 15 Member States. In 8 countries this is due to the expansion of mandatory private pensions, whereas in 7 occupational schemes are gaining a larger role. The enhanced role of pre-funding is primarily due to the maturation of these schemes, whether public or occupational. At the same time, replacement rates from public pension schemes are projected to decrease in nearly all Member States over the next 40 years, with a decline by more than five percentage points in 16 countries and by fifteen or more percentage points in six Member States.

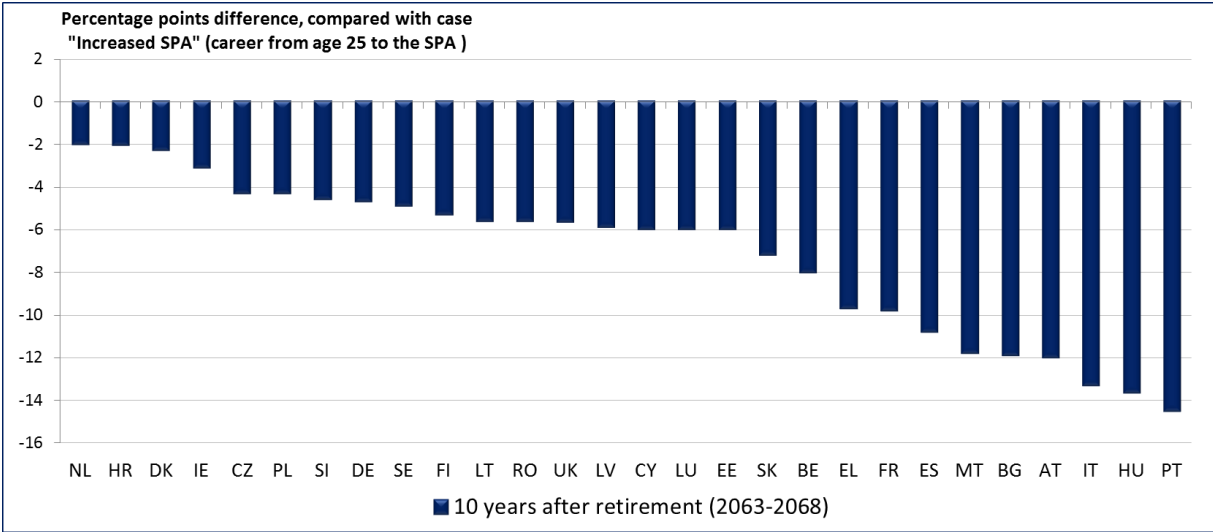
Figure 18: Shares of different pension schemes in gross TRRs for average income earners, 2053



Data source: Member States and the OECD. (ref. base case II). If gender differences exist, results for men are reported.

Many Member States have cut real pension benefits through the reform of the indexation mechanism for benefit payments. To assess the *impact of changed indexation rules on future pension adequacy*, prospective replacement rates are calculated not only at the moment of retirement, but also ten years into retirement (Figure 19). The real value of pensions is set to decrease over time in all Member States in the future, but this relative decline is expected to range from less than five percentage points in nine Member States to more than 10 percentage points in another seven Member States.

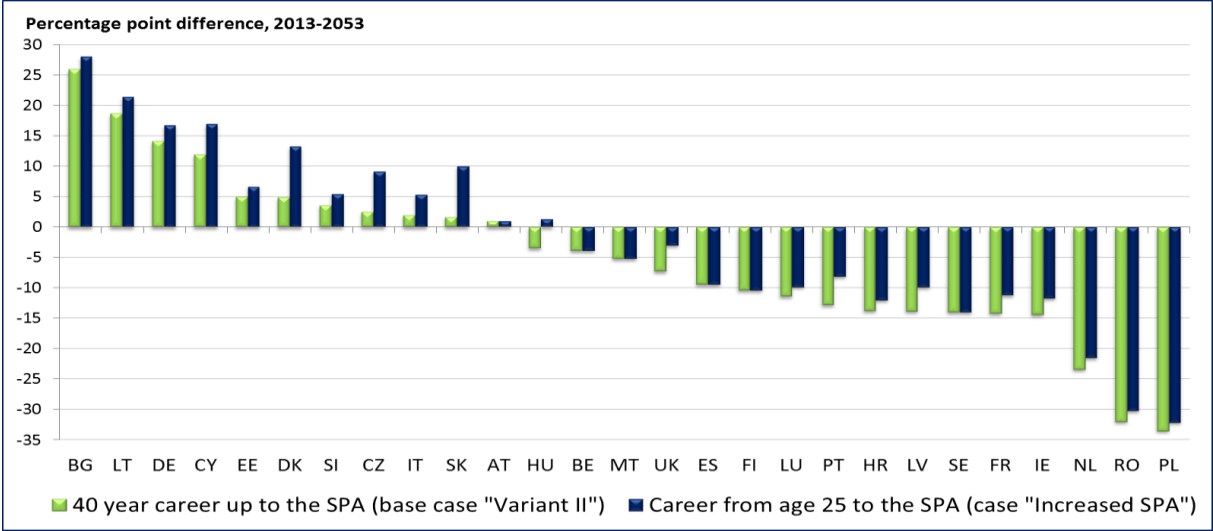
Figure 19: Percentage points change in future TRRs, 10 years after retirement compared with the year of retirement (case "Increased SPA"), average earner



Data source: Member States and the OECD. A negative difference indicates a lower net TRR 10 years after retirement.

The magnitude of future changes in pension outcomes can be assessed by comparing the *net theoretical replacement rates for 2013 and 2053* (Figure 20). While these changes are significant, there is no clear EU-wide trend. For a 40 year career up to the national SPA, the change in the net theoretical replacement rate between 2013 and 2053 ranges from -33 to +26 percentage points for a male worker on average earnings. In 16 Member States the net replacement rates in 2053 are expected to be lower than in 2013, but in another 11 countries they are projected to increase.

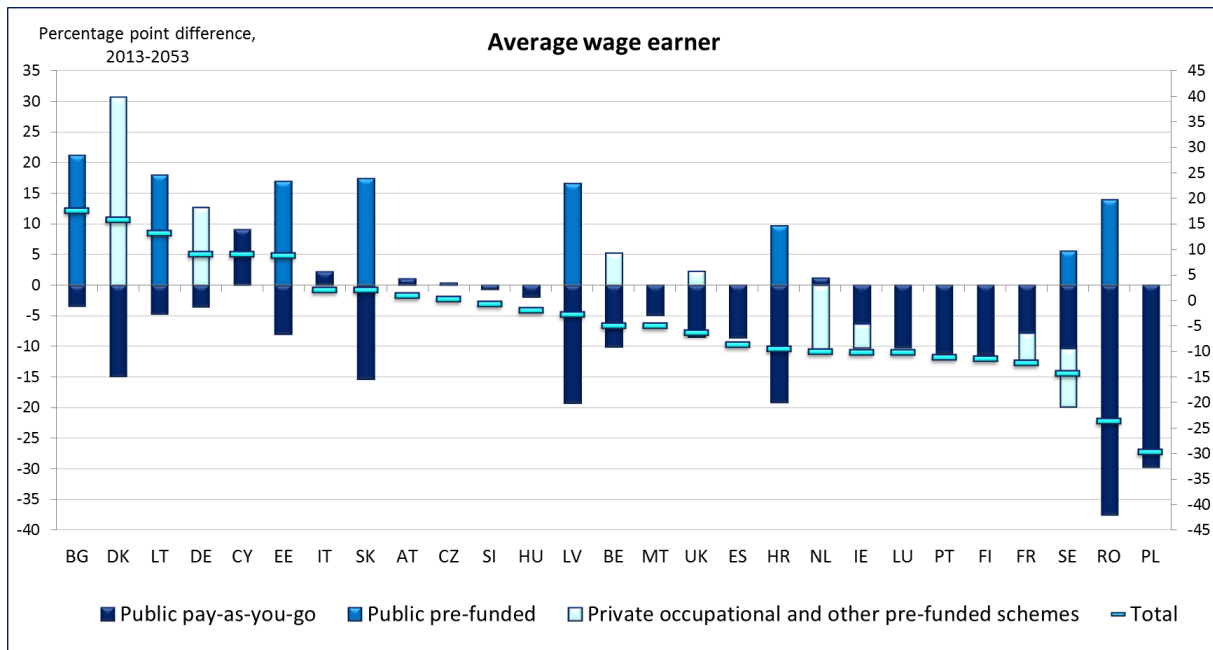
Figure 20: Percentage point difference in net TRRs between 2013 and 2053, average earnings



Data source: Member States and the OECD. Note: A positive difference indicates a higher net TRR in 2053 as compared to 2013. Sorted by the percentage point change under base case II. 2013 data for EL not available. If gender differences exist, results for men are reported in this figure.

The projected change in replacement rates between 2013 and 2053 masks the expected evolution of the different pillars of the pension system. The decomposition of the change in gross TRRs into its components reveals an overall **decline in pension entitlements from public pension schemes** (Figure 21). For an average wage earner, replacement rates of statutory DB or NDC schemes are projected to decrease by more than five percentage points in 16 Member States and by more than 15 percentage points in six Member States. This gap is expected to be, at least partly, compensated by rising entitlements from statutory funded schemes in nine Member States. As pension entitlements in several countries will be increasingly derived from funded schemes, pension adequacy will become more dependent on financial markets.

Figure 21: Percentage points difference between 2013 and 2053 in gross TRRs, by type of pension, average earnings

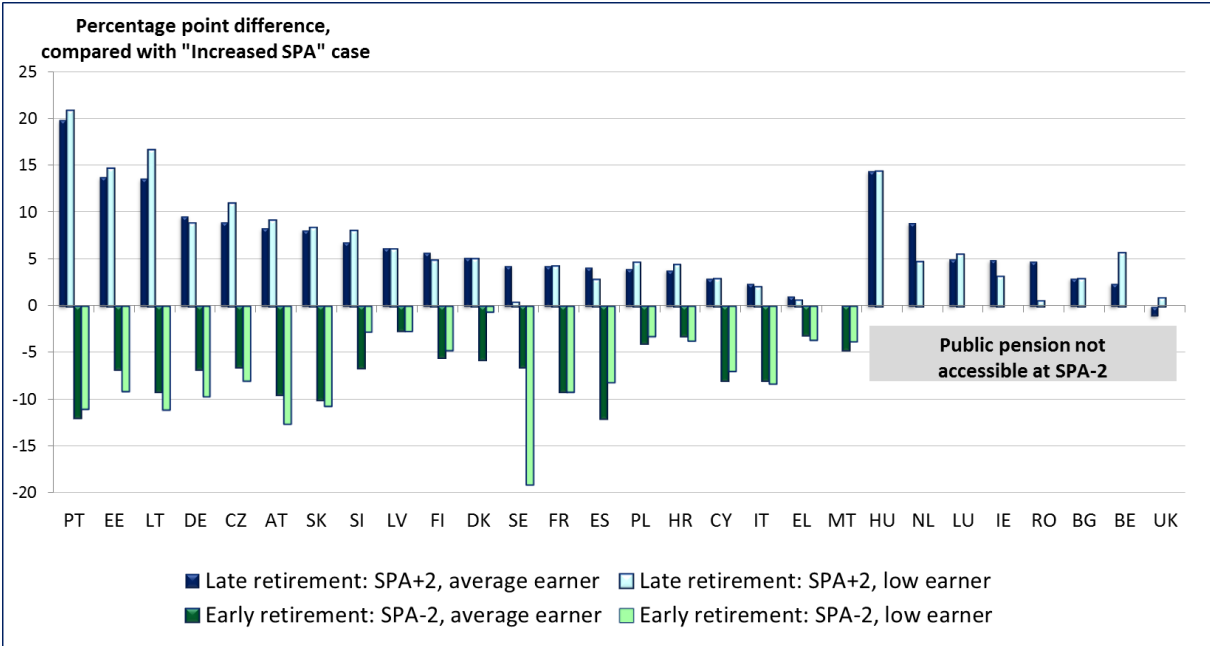


Data source: Member States and the OECD. Note: A positive difference indicates a higher gross TRR in 2053 as compared to 2013. 2013 data for EL n.a. Sorted by total change in gross TRR for an average earner (40 year career up to SPA). If gender differences exist, results for men are reported.

In the majority of Member States, longer working lives will contribute to higher pension entitlements. In nine Member States **delaying retirement by two years** beyond the standard pensionable age (Figure 22) is projected to increase net replacement rates by five or more percentage points for a person at average earnings, although the increase is likely to be less than two percentage points in seven Member States.

The situation is quite different with respect to **premature retirement**. Retiring two years before the SPA results in a substantial drop in future TRR levels in the majority of Member States. This is mostly explained by eligibility criteria for basic pensions, which cannot be drawn two years before the SPA in nine countries. However earlier retirement does not have a significant impact on pension levels everywhere, with a decrease in TRR levels of less than five percentage points for average earners in five Member States. Overall, the projections reveal that **bonuses for late retirement and penalties for early retirement** are not necessarily constructed in an actuarially neutral manner, with the incremental increases in replacement rates for working two years longer being larger than the reductions resulting from working two years less.

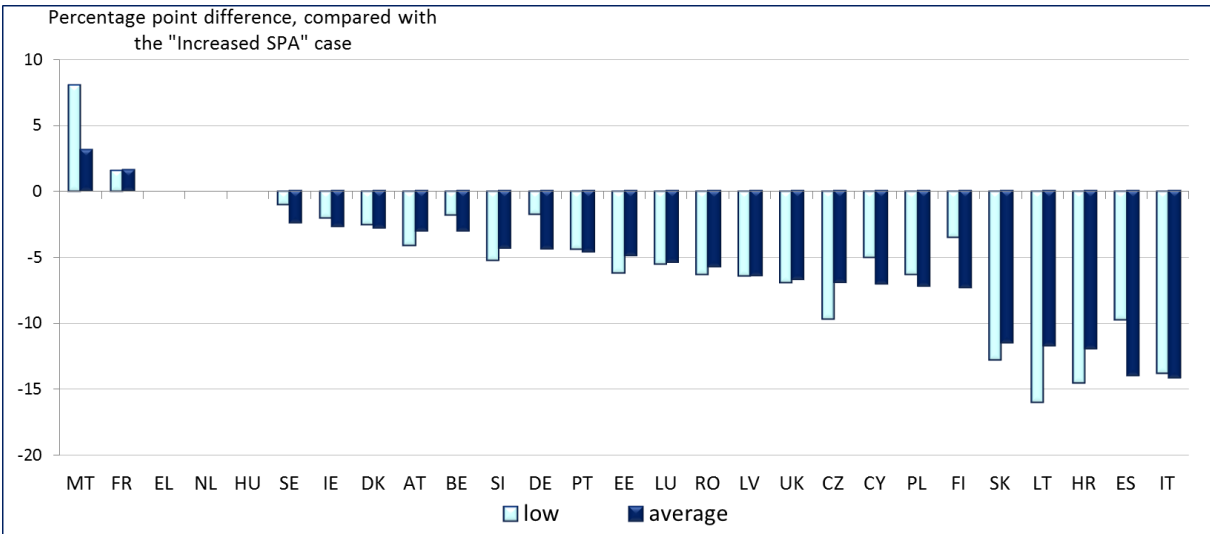
Figure 22: Percentage point difference in prospective net TRRs for working two years shorter / longer as compared to a full career, low and average wage earners



Data source: Member States and the OECD. Note: A positive difference indicates a higher TRR as compared to the 'increase in SPA' case (career from age 25 to SPA). Sorted by the Retirement at SPA+2 (average earner). TRRs for retirement at SPA-2 are not reported for HU, LU, BG, BE, IE, NL, RO and UK due to ineligibility for public pensions at SPA-2. If gender differences exist, results for women are reported.

Current exit ages from the labour market are usually lower than the pensionable age, and retiring early is more common than postponing the pension take-up, with varied pathways into early retirement, including unemployment, sickness and disability benefits. All of the above has an impact on pension adequacy. In 13 Member States, the net TRR for someone with average or low income who is *forced to retire due to unemployment five years before* the standard pensionable age (Figure 23) is going to be more than five percentage points lower than for a worker with a full career. As TRRs are measured against low wage income, the risk of old age poverty thus becomes substantial.

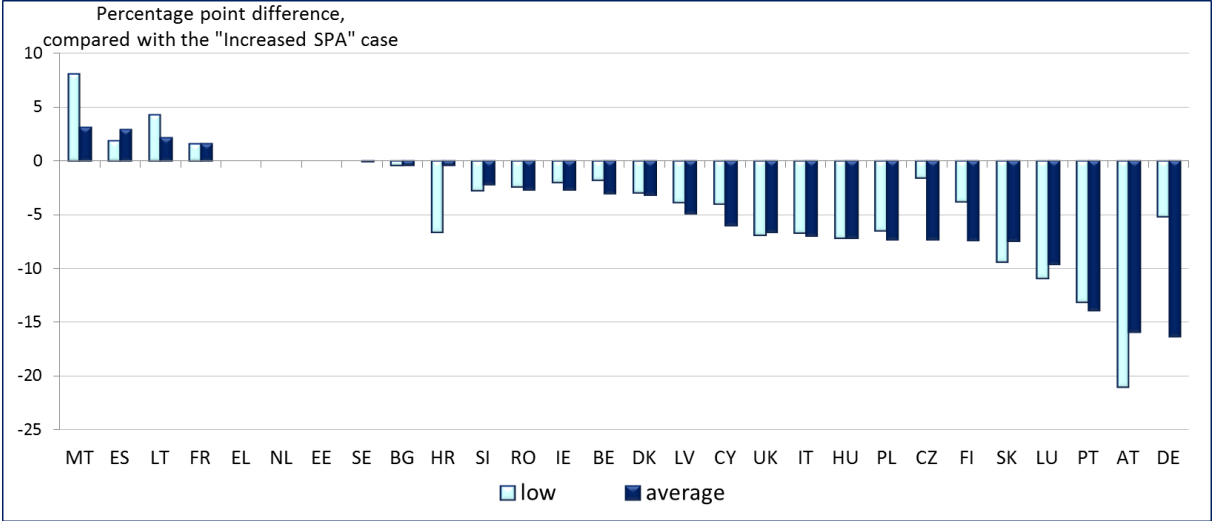
Figure 23: Percentage point difference in prospective net TRRs, comparing early retirement due to unemployment to a full career, average and low wage earners



Data source: Member States & OECD. Note: A positive difference indicates a higher TRR for a worker who becomes unemployed. Sorted by average wage profile. If gender differences exist, results for women are reported.

A somewhat different pattern is observed for people who are *forced to retire due to disability* five years before the SPA (Figure 24). In 18 Member States, a worker with average earnings who has to rely on disability benefits before retirement will receive a relatively lower pension upon reaching the SPA. People in those circumstances, who have been low income earners, are likely to be somewhat less affected and could even improve their pensions slightly in nine Member States, although the opposite is the case in four other Member States. In five Member States the prospective TRRs are largely the same irrespective of whether people retire due to unemployment or due to disability.

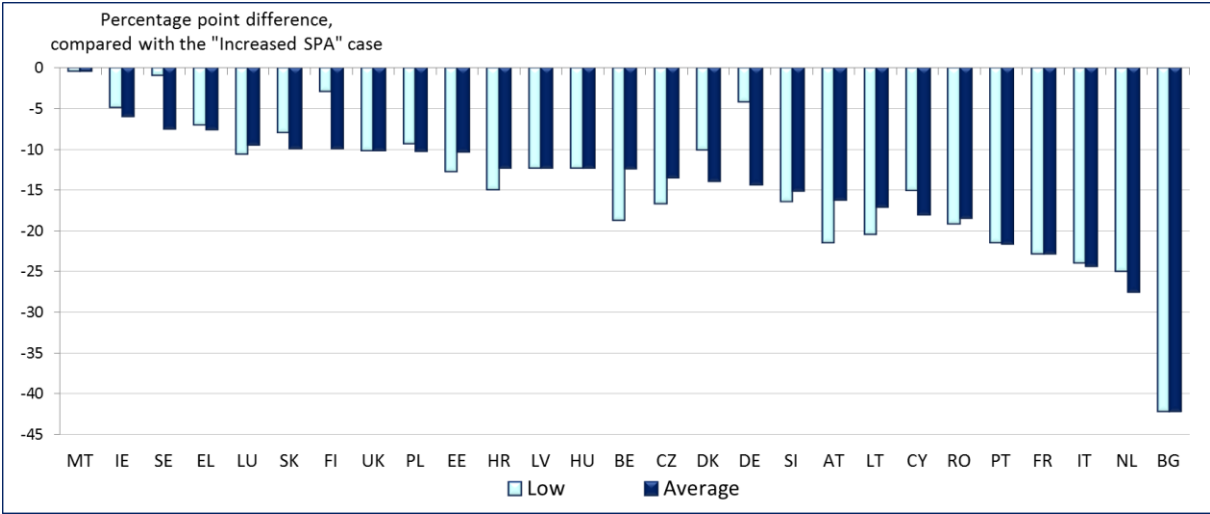
Figure 24: Percentage point difference in prospective net TRRs comparing early retirement due to disability to a full career, average and low wage earners



Data source: Member States and the OECD. Notes: A positive difference indicates a higher net TRR for a worker who is classed 100 percent disabled five years prior to SPA. Sorted by the average wage profile. If gender differences exist, results for women are reported in this figure. Results for EL, NL and HU are equal to zero.

Even larger falls in future replacement rates are projected for people, who fail to complete a full career of 40 years with contributions. *After a career of only 30 years* (Figure 25), net replacement rates for both average earners and low wage earners are expected to decrease by more than 10 percentage points compared with a full career person in 23 Member States, and by more than 20 percentage points in six Member States.

Figure 25: Percentage point difference in prospective net TRRs between a short career (30 years) and a full career from age 25 to SPA, average and low wage earner



Data source: Member States and the OECD. Note: A negative difference indicates a lower net TRR for persons with a long-term career break. Sorted by the average wage profile. For ES - not eligible (TRR case of short career of 30 years). If gender differences exist, results for women are reported in this figure.

Overall, the projections reveal a large spread in future pension levels between Member States and across career patterns. A substantial part of today's workforce might, as future pensioners, be faced with an increased risk of old-age poverty as pensions become increasingly contingent on less interrupted and longer careers. By comparing pension entitlements based on TRR projections to average earnings levels in the future, **career scenarios that risk resulting in inadequate pension incomes and old-age poverty** can be identified. To assess this, the net pension in the first year of retirement is compared to economy-wide average net earnings in the same year.

In the majority of Member States, a **low wage earner with a full career** can expect a net pension close to, or above, 50 per cent of the net average wage. The pension is projected to lie between 50 per cent and 65 per cent of net average wage in 14 Member States, and between 40 per cent and 50 per cent in five Member States. In four Member States, prospective pension levels are below 40 per cent of the average net wage, while a pension of more than 65 per cent of net average earnings for a low wage earner is projected for three countries.

Career breaks tend to worsen the income prospects of future pensioners who have had a working life on low earnings, although short breaks earlier in the career of three years, whether due to unemployment or childcare, will usually only lead to small reductions. In contrast, forced early retirement appears to constitute a major risk to the future pension adequacy of low wage earners. Whether the labour market exit is the result of unemployment or disability five years before the SPA, or takes place two years before the SPA, the reductions in pension levels could be substantial, with a reduction of more than five percentage points in the majority of Member States compared to a full career, with a decrease of more than 10 percentage points in three Member States in the case of unemployment, and in another three Member States in the case of disability.

Low pension entitlements are foreseen in the projected pension levels for someone who retires after **30 years of work at low earnings**, resulting in benefits of less than 40 per cent of average earnings in nine Member States. When compared to a full career at low earnings, the

reduction in pension levels exceeds 10 percentage points in 13 Member States, while a short career of 30 years would lead to losses of less than five percentage points in five Member States.

Workers with full *careers at average earnings* will obviously have higher pension levels overall but there is still the risk of future pension adequacy for different forms of forced early retirement or careers that fall 10 years short of the full 40 year standard, which could significantly increase the at-risk-of-poverty in old age for average earners.

Thus while projections reveal a large spread in future pension levels for these career patterns across Member States, they generally indicate that pension adequacy for workers at low and average earnings will be rather sensitive to whether they manage to complete full career. Both *forced early retirement* five years prior to the SPA and retirement with a short career of only 30 years significantly raise the risk that such workers will be exposed to poverty risks in old age as effect of inadequate pension income.

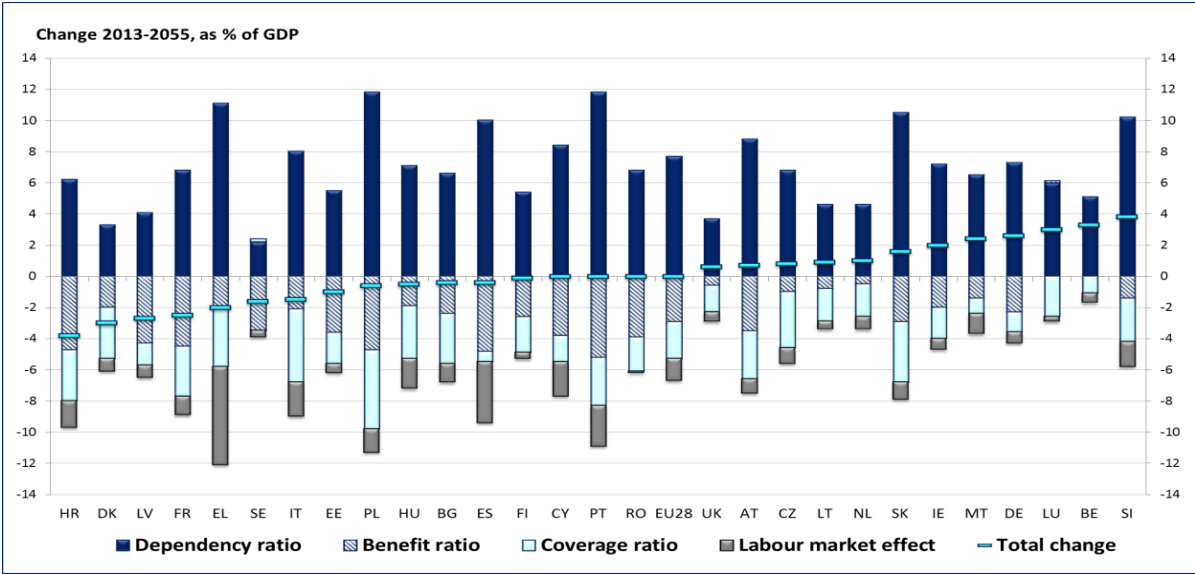
Since this report aims to complement the 2015 Ageing Report (AR) while using methodologies that enable more attention to be paid to adequacy questions, it is important to *compare results* and examine the extent to which the employment and expenditure projections of this report are coherent with those of the Ageing report.

The employment projections of the 2015 Ageing Report, as well as alternative attempts in this Pension Adequacy Report (PAR) to predict the *future evolution of labour markets* from past trends, suggest that, while a reasonable alignment between the duration of working life and contribution period requirements in pension systems could emerge, the gaps across Member States and population groups are currently large and such may persist or even enlarge. Indeed, the results from the 2015 Ageing Report confirm that when it comes to shifting effective exit ages and working lives upward, pension reforms are unlikely to be able to achieve this on their own.

An overview of the Ageing Report pension expenditure projections and its components in light of the TRR calculations makes it possible to assess the *consistency of the findings of the two reports* and to discuss the trade-off between adequacy and sustainability on a comparable methodological basis. According to the 2015 Ageing Report, gross public pension expenditure is projected to represent about the same share of the EU-28 GDP in 2055 as it did in 2013. The Ageing Report provides a decomposition of the *main underlying drivers* of the evolution of this expenditure: the demographic dependency ratio; the coverage ratio (no of pensioners as proportion of people aged 65+); the benefit ratio (average pension as proportion of average wage); labour market effects (i.e. aggregate impact of longer and fuller working lives).

Recent pension reforms have primarily sought to mitigate the expenditure-increasing impact of ageing by reducing the coverage and benefit ratios. Figure 26 shows the magnitude and relation of all four factors for individual Member States, thus indicating the nature and magnitude of national challenges to pension adequacy.

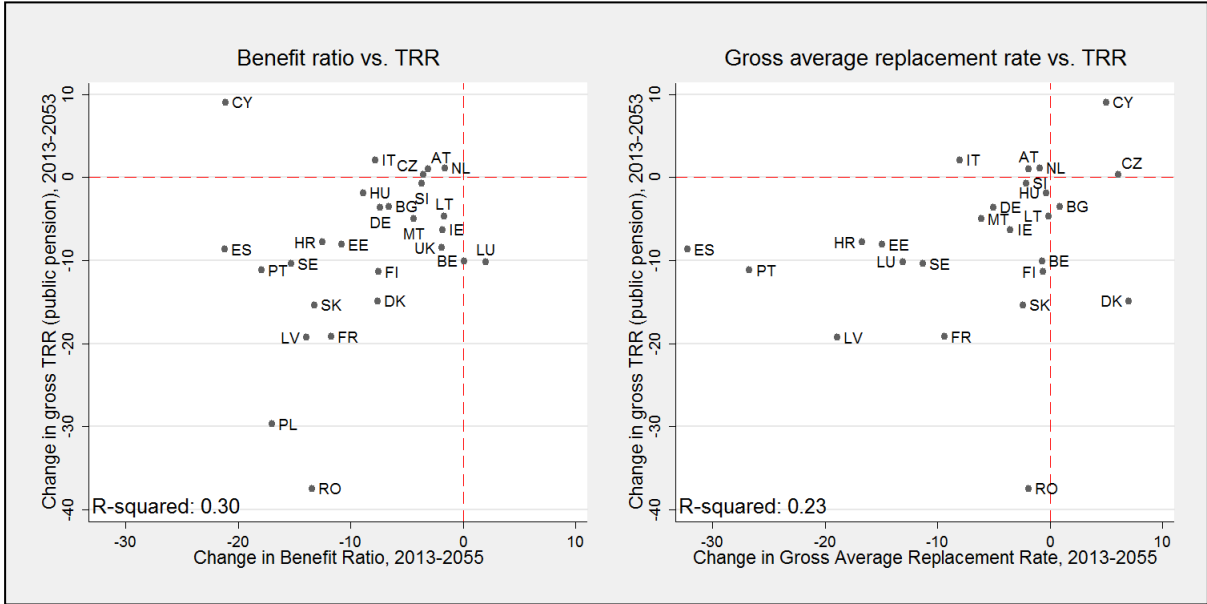
Figure 26: Change in public pension expenditure projections between 2013 and 2055, total and decomposed into main effects (from the 2015 Ageing Report)



Source: 2015 Ageing Report.

In EU-28, the *benefit ratio* is projected to decrease by some 9 (8.8) percentage points from 44.0 in 2013 to 35 in 2055, while the *gross average replacement ratio* is expected to decline by some six percentage points from 42 in 2013 to 36 in 2055. In this respect, the fact that most Member States have enacted reforms that are expected to reduce benefit levels from the public pension system is reflected in both adequacy indicators from the Ageing Report.

Figure 27: Changes in the Benefit ratio (2013-2055) and the Gross average replacement rate for earnings related public pensions (2013-2060), compared to the change in the gross TRR (public pension) under base case II (2013-2053)



Source: Member States and OECD (TRR), 2015 Ageing Report (BR and GaRR).

In Figure 27, the projected changes in both Ageing Report *adequacy indicators are compared* to the 2013-2053 change in the overall TRRs for public pension schemes. Despite the different concepts behind the three indicators with respect to their coverage of pension schemes and their time horizons, the overall trend of decreasing pension levels in the future

emerges for the majority of Member States. Likewise, future pensioners are expected to receive relatively lower pensions from public pension schemes than the current generation of retirees according to all these indicators. The expected decline in theoretical replacement rates for public pensions is thereby of a similar overall magnitude to the decline in the two Ageing Report adequacy indicators.

The success in containing public pension expenditure in the long run, as projected by the Ageing Report, is thus mainly to be achieved through *reduced benefit levels in the future*. This is confirmed when comparing the projected evolution of public pension expenditure with the change in the gross TRR from public schemes.

When assessing reform measures and their impact on pension adequacy, however, it is important to remember that all pension arrangements entail *exposure to internal and external risks*. Different types of pension schemes differ in their risk profiles and many risks of these cannot be removed but only mitigated or balanced against each other. Reforms that aim to remove or reduce risks in present arrangements usually also introduce new, or higher risks, elsewhere. Thus, when reforms seek to take the pressure off public pensions, diversify risks, and maintain or raise the overall adequacy of pension provisions by promoting prefunded private pensions, they may make pension adequacy far more dependent on the volatilities in financial markets. Similarly, when reforms tighten the link between pension entitlements and contributions based on earnings from work, increase the contribution period and raise the pensionable age, their success depends on tackling some of the challenges and risks at the workplace and in labour markets more generally.

What is important is to *detect the new risk profile emerging from reforms* and to take measures to mitigate such risks and/or develop instruments to address them. Here the *two main risks* to future pension adequacy from recent reforms are those that emanate from the *reduction in the relative value* of pension benefits due to tighter links with contributions and weaker valorisation and indexing, *and* those that result from *career patterns that fail to match* rising pensionable ages or meet the contribution period requirements.

Pension adequacy risks from *pay-as-you-go public* schemes relate to the reductions in benefit ratios and TRRs which increase the risks to income maintenance objectives as well as to the poverty avoidance functions of public schemes. Pension adequacy risks from *prefunded* statutory and *private* occupational and 3rd pillar schemes relate to how the overall economic climate for expanding pre-funded pensions has become more difficult since households have little room for extra savings, public budgets have limited scope to offer tax subsidies for complementary retirement savings, longer term interest rates are currently foreseen to remain at historically low levels, and national economies are seen to be more in need of greater spending than increased savings. In line with the supplementary function of prefunded schemes, their prospects are likely to increase adequacy risks related to income maintenance.

The trade-offs between adequacy and sustainability concerns also tend to emerge when considering measures to *mitigate the risks to pension adequacy* from reduced indexation, falling replacement rates and declining benefit levels.

In the present low-growth low-inflation environment, risks resulting from weaker indexation are small. However, if economic growth accelerates, indexation of prices may be insufficient

to offer sufficient or appropriate protection. Even a short period of higher growth with increasing wages could see the relative value of pension benefits fall significantly.

If Member States are to avoid the relative value of pension benefits falling below acceptable levels, they may need to monitor developments and seek to *develop some fiscal space* for reviewing valorisation and indexing mechanisms. To the extent that the risks associated with changed and reduced indexation mechanisms turn into poverty risks for older pensioners, notable those with low income in active years, Member States may also be called upon to compensate the worst affected by *income-tested pension supplements* and special allowances.

With regard to the general decline in net replacement rates in many Member States it will be important to give people the *opportunity to recoup* some of the loss, not least by ensuring that *working longer* and *delaying pension take-up* will be rewarded. In several Member States it would also be important to create better opportunities for people to make up for some of the decline in the net TRRs of public pension benefits through *complementary retirement savings*, with the easing of limits on *combining work income with pension* benefits being one way to assist.

With regard to the second set of major risks to future pension adequacy, some of the people most likely to be affected by the risks linked to *obstacles to longer and less interrupted working lives* can be clearly identified already. In several Member States *young people* have, since the onset of the crisis, been among those most affected by long-term unemployment. Moreover, when they get a foothold in labour markets it is often through short-term or otherwise precarious work contracts involving low wages with little or no pension coverage and relatively short working careers with limited pension accrual.

Non-EU migrants are also particularly exposed to the threat of developing only a shorter contribution record, partly due to late arrival and the length of time required to secure entry to those parts of the labour market with the regular pension coverage and partly due to wider problems of educational, social and economic integration..

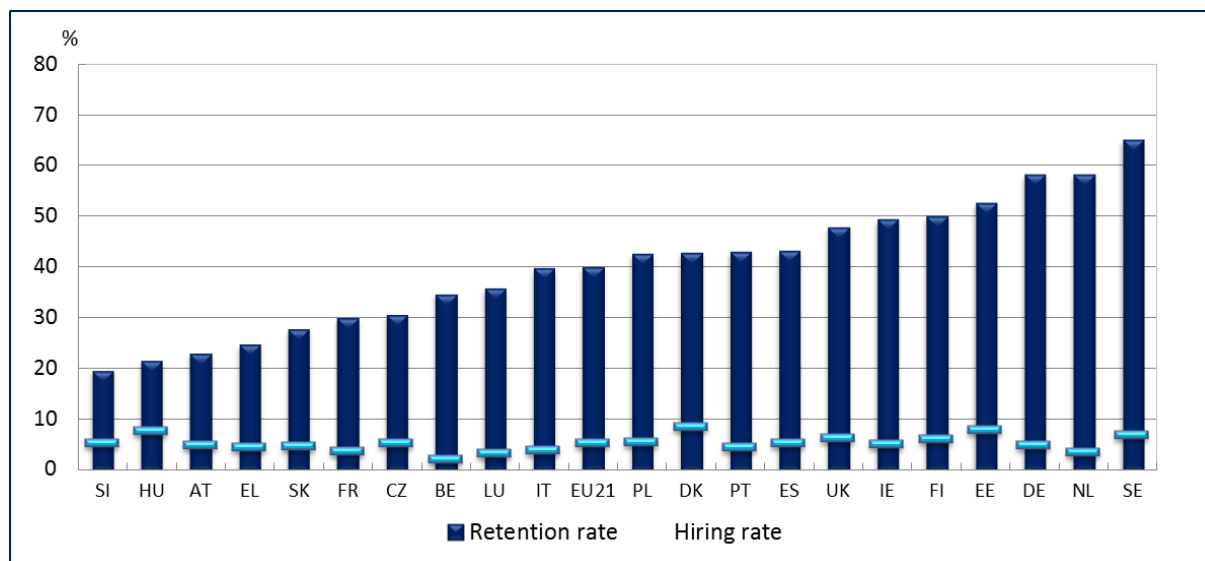
The risk of ending working life with a pension-entitling career of only 30 years is much greater for *women* than to men, with the higher risks for women largely due to the length and frequency of career interruptions due to caring and household duties and the often associated frequency of part-time work. Even if increasing female employment rates led to increased entitlements in contributory pension schemes, many are liable to fail to accrue rights to more than a minimum pension. Moreover, though the risk of forced early retirement five years before the SPA may occur with the same frequency for women and men, women would, on present trends, be more likely to be low-wage earners and therefore more affected by the resulting risks of low pension levels and poverty.

Supply side factors that may make it difficult for older workers to continue working until the pensionable age include reduced workability (including for work-related health problems) and reduced employability (including due to out of date skills and reduced productivity and adaptability).

Demand side factors include the lack of flexibility in working arrangements, possible negative perceptions of older workers and age discrimination affecting processes of hiring, firing and promotion, as well as the absence in workplaces of appropriate age management.

A further important obstacle on the demand side is the difference between working longer through *retention versus rehiring*. Figure 28 shows that, while the retention rates of those aged 60 or over differ between Member States, the hiring rate of workers aged 55-64 is low in all countries. On one hand the figure indicates that longer working lives are fully possible as long as they occur through retention, with managers more positive about employing older workers who they already know. In contrast, the thresholds for recruiting older workers are much higher than for prime-age workers. In fact, Figure 28 demonstrates that the labour market for people aged 55+ is seriously limited in all the 21 EU countries covered.

Figure 28: Retention and hiring as a percentage of employees in the reference group, 2013



Source: OECD (2015), *Working Better with Age: Poland*, OECD Publishing, Paris. Notes: The retention rate refers to employees currently aged 60-64 with tenure of 5 years or more as a percentage of all employees aged 55-59 5 years previously. The hiring rate refers to employees aged 55-64 with job tenure of less than 1 year as a percentage of all employees aged 54-63 the year before.

When it comes to mitigating adequacy risks linked to the uncertain ability of labour markets to respond, policy makers in pensions and employment have a mutual interest in *delivering on longer working lives*.⁹ In pensions there is a need to secure future adequacy while in employment there is a need to counteract the decline in labour supply from a shrinking working age population.

Mitigating future risks to pension adequacy from early retirement or short careers would appear to depend on the development of appropriate *measures in workplaces and labour markets* that enable and encourage women and men to have longer and less interrupted working careers, and to defer retirement until they fulfil the requirements for a full pension. To deliver on longer working lives policy makers will therefore need to work on both the demand and the supply side of late-career labour markets, and do so in *close cooperation with the social partners*.

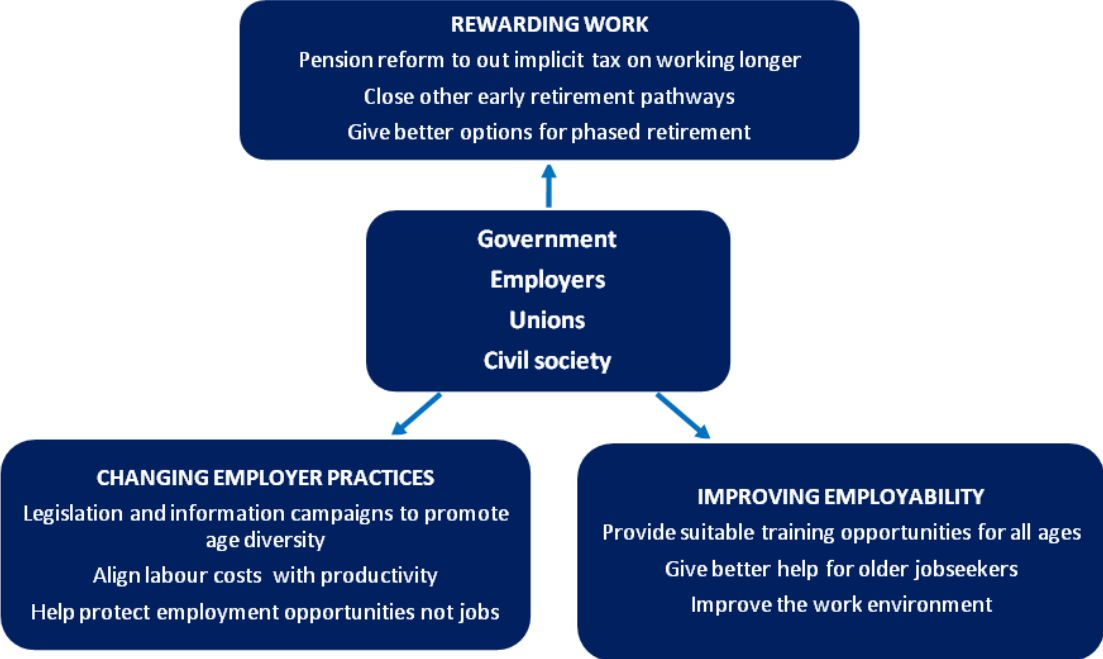
This implies a complex agenda of interrelated policies and measures.

⁹ Recognition of a common interest in raising effective retirement ages by enabling and motivating women and men to work to higher ages formed the basis for the joint workshop with the OECD of the SPC and EMCO on 13-14 November 2014, at which the chairs of the two committee pledged to intensify collaboration on the goal of 'Delivering on longer working lives and higher retirement ages'.

<http://ec.europa.eu/social/main.jsp?langId=en&catId=88&eventsId=1020&furtherEvents=yes>

Ideally, Member States would transform 'early retirement cultures' into '*working longer cultures*'. The type of policy mix needed to deliver longer working lives and higher pension take-up ages is illustrated in Figure 29. Rewards from working longer must be sufficient to compete with the benefits of retirement. If policy makers are to ensure that a larger proportion of older workers are in employment, they need older workers who in terms of employability and workability are able to work longer, and they need to ensure that workplaces and work practices are such that they can exploit the potential of this section of the workforce.

Figure 29: Policy mix needed to deliver longer working lives



Source: According to the OECD, *Older workers reviews* (2014, 2015).

All of this implies that the agenda for adequate income maintenance in old age will increasingly be *overlapping with the general agenda for employment* and adequate income in working age. Measures that lower longer term unemployment among youth and ensures early labour market integration on normal contractual conditions including social protection coverage will also contribute to lowering the risks to pension adequacy. The agenda for earlier and better integration of Non-EU migrants into labour markets and society is also an essential part of a programme for reducing risks to income maintenance in old age. Policies for reducing gender gaps in pay, working hours and career length are, likewise, active means of narrowing the gender gap in pension entitlements.

Still, extending working lives at the 'upper end' of people's careers presents a challenge not fully covered by the general employment agendas above. *Flexibility in working arrangements* (e.g. working hours, working time, degree of autonomy in work organisation, job rotation etc.), including actions to improve the reconciliation of work and family, can be important for workers of many ages and it is proving a particularly useful instrument for enabling and encouraging labour force participation to higher ages. *Adaptations of working arrangements* have an important role to play in helping older workers stay longer in the labour market, either by preventing occupational diseases and premature erosion of work ability or by offering reasonable accommodation in working arrangements to fit the evolving

needs and preferences of workers. Overall it is one of the key measures required to encourage and enable women and men to extend their working lives.

Furthermore, even where reasonably successful, these agendas for employment and adequate income in active years are unlikely to remove the *need for safeguards in pension systems* that can protect people from poverty risk. As pensionable ages rise, the need for some form of premature retirement benefit and for minimum and basic pensions is likely to increase. In consequence, pension policy may need to devote more attention and greater resources to its poverty protection functions in the future. In addition some form of crediting of involuntary absence from employment will also be called for in order to reduce the impact on entitlement accruals of illness, unemployment, caring duties etc.

With regard to this need for some form of 'work-to-pension-bridge' it is necessary to avoid re-installing work disincentives or early retirement traps that have been experienced in the past. Forms of social protection that strikes the right balance between protection and disincentives will have to be developed. The instruments in the social protection arsenal that are presently available to most Member States and which come closest to serving the purpose would seem to be a form of carefully scrutinised access to disability pensions, combined with access to protected jobs, possibly with in-work benefits. Organising access to minimum or basic pensions without undermining work incentives in earnings-related pensions will be challenging. However, incentive problems with respect to minimum income provisions for older people and supplementary allowance are likely to be far smaller in so far as they are needs-, income- or means-tested.

In conclusion the *two key messages to policy makers* emerging from the analysis of the risks to pension adequacy from obstacles to longer working lives and later pension take-up are:

1. *Employment policy makers and the social partners* should prepare better for rising pension ages and the phasing out of early retirement and take more determined measures to align working lives with reformed pensions through changes in age management in work places and labour markets. Together they are well-placed to establish more appropriate and better functioning labour markets for people aged 55+. De facto extension of the working age can both help counteract the decline in labour supply emanating from population ageing, and ensure opportunities for a larger share of people to acquire pensions that offer *adequate income maintenance* in old age.
2. *Social protection policy makers* should prepare for the fact that not all groups and individuals can work to higher ages and have longer, or less interrupted, careers. While the majority can expect to meet the new requirements – or at least be enabled and motivated to do so – there will be some who cannot. For these it will therefore be necessary to continue some form of 'work-to-pension-bridge' in social protection and to provide some *poverty avoiding pension benefits* as well.

6. Conclusion

Providing people with income in old age that allow them a decent living standard and protect them from poverty is the main purpose of pension policy. Pension adequacy is thus an important policy goal in its own right that for EU-28 is monitored in this tri-annual Pension Adequacy Report, which examines the current and future adequacy of pensions as element in old age income.

In recent years, Member States have adopted a series of reforms aimed at managing public spending on pensions in order to safeguard their future sustainability in view of rising old age dependency ratios. Thanks to these reforms, projections from the 2015 *Ageing Report* now suggest that Member States may be able to contain the impact of population ageing to such an extent that public pension expenditure as a share of GDP would be no higher in 2060 than in 2013 for EU-28 as a whole.

However, if reforms leave an increasing number of older women and men without adequate incomes the future sustainability of public finances will also be imperilled by the risk of policy reversals. Thus the findings of this report also complement the *Ageing Report's* analysis of risks for future fiscal sustainability.

Overall, the analysis of pension adequacy in this report shows that, in their reform efforts, Member States face important common challenges and concerns, which can benefit from an overall approach. At the same time, though, the risks to current and future pension adequacy in Member States have many country-specific aspects. While volume I of the report is devoted to a comparative analysis of pension adequacy in EU-28, a detailed discussion of developments in each of the 28 Member States is therefore also provided in volume II.

Generally, the report can conclude that in most EU countries pension systems have continued to ensure that the wide majority of today's older people are *protected against the risk of poverty* and deprivation and can *enjoy living standards in line* with the rest of the population. Even in the Member States most affected by the crisis older people have tended to be better protected than other age groups. At the same time some Member States still need to put more efforts into tackling poverty risks in old age and in a few countries problems of severe material deprivation are particularly pressing. Moreover, in many Member States older women aged 75+ remain particularly exposed to poverty risks, notably when living alone.

In fact, there are important differences in the extent to which women and men are well-protected in terms of income maintenance and poverty avoidance. Both currently and in projections for the future pension adequacy tends to have *gender specific dimensions*. Currently, women's average pension income is lower than men's in all Member States and for the EU as a whole the gender gap in pensions is at 40 percent. Thanks to rising employment rates, more women will in the future have built their own pension entitlements, when they retire. Nevertheless, as women to a much larger extent than men would tend to have low paid jobs and work part-time and interrupt their careers for reasons of care duties, many women would still end up with lower earnings-related entitlements and thus possibly have a particular need for other income safeguards in old age. Whereas the wide range in gender pension gaps across the EU indicates that the current gender differences in pensions can be reduced, lowering them to moderate levels will require a long-term policy effort that combines equal

opportunity policies across several fields before people reach the pensionable age with changes in the pension system.

While pensions are the main source of income for older Europeans, living standards in old age also depend on *other factors, such as* home ownership and financial wealth, access to other benefits and services, and employment opportunities. In these respects the report finds that older people are in a better position than the working age population in terms of home ownership and financial wealth. Yet, within the older population there are significant gender differences in home ownership and in exposure to severe housing deprivation in many Member States. Women aged 65 and over tend to have considerably less housing and financial wealth than men. Access to health care for older people is on par with that of the rest of the population, while in many Member States older people would benefit more from subsidised pharmaceuticals and aids. By contrast older workers and people above the pensionable age tend to have far fewer employment opportunities than prime age and younger workers in most Member States.

For people retiring in **2013** the TRR results reveal substantial differences between Member States. After a 40 year career on average earnings until the national standard pensionable age, the net pension income ranges from 50 to nearly 115 percent of average earnings before retirement. Relatively higher replacement rates for workers with low earnings, and relatively lower for those with high earnings reflect the redistributive character of many public pension schemes.

The *prospective TRRs* typically reflect the reformed pension systems in full maturity and, while those for 2053 differ substantially across Member States (as they do in 2013) they are decreasing in the majority of cases. As a result, for a 40-year career on average earnings until the country-specific pensionable age, net TRRs in 2053 are projected to range from 40 to 90 per cent.

Public pay-as-you-go pension schemes are the main providers of pensions across the EU today and they are set to remain so 40 years from now even though reforms are enlarging the role of prefunded private schemes. Today occupational pension schemes contribute more than 30 percent to the pension incomes of hypothetical average earners in five Member States. Prospective TRRs show an increase in the role of prefunded schemes in 15 Member States. In 8 countries this is due to the expansion of mandatory private pensions, whereas in 7 occupational or third pillar schemes are gaining a larger role. The enhanced role of pre-funding is primarily due to the maturation of these complementary retirement savings schemes, whether public, occupational or third pillar. Replacement rates from public pension schemes are projected to decrease in nearly all Member States, with a decline by more than five percentage points in 16 countries and by 15 or more percentage points in six Member States. Public pensions will continue to be important for the vast majority of older people but more so for lower waged groups as the share in pension income from supplementary schemes will be higher among high and average earners than among low earners.

Member States have developed different approaches to the prevention of people receiving only very low incomes in old age. Four different types of *minimum income provisions for older people* can be distinguished: universal flat-rate pensions; contributory minimum pensions; specific social assistance for older people; and general social assistance. Only few minimum income provisions will lift older people without any other resources above the at-

risk-of-poverty threshold. In a number of Member States, the minimum amount guaranteed does not even reach half of this threshold. Though benefit supplements such as housing allowances may also be available and raise the final income, poverty mitigation more than poverty avoidance seems to be the function of these provisions. Moreover, in many countries the income that is available to a person with low earnings and a 30 year working career will remain below the poverty threshold despite minimum income provisions. Even in those countries where the benefits clearly exceed the threshold, it is the design of the pension system more than supplements from minimum income provisions that keep older people with this career profile above the poverty threshold.

In most of the EU, *survivor pensions* are set to continue to play an important role in providing pension income for the surviving spouse, but the generosity and eligibility conditions vary widely. Compared to the benefits based on a survivor's own income from a full career with low wage, prospective TRRs show that these benefits would lead to higher pensions in 22 Member States, in four of them by more than 50 percent. However, when the income shock and associated poverty risks caused by the death of a spouse is assessed the equivalised disposable income of a widow, compared to what she would have received had the spouse not died, is projected to fall by more than 30 percent in 10 Member States, and by more than 20 percent in a further eight.

Comparisons of prospective TRRs for 2053 with those from 2013 show that *income replacement rates* from public pension schemes after a full career are set to decline in many Member States. The TRR projections highlight the particular *risks from incomplete careers* because of a shorter career of just 30 years or due to involuntary early retirement two to five years before the standard pensionable age. These results correspond with the decline in the benefit ratio (average pension benefit as share of average wage) and the increasing gaps between exit and pensionable ages in several Member States, as identified in the projections of the Ageing Report.

Hence, the *two main risks* for future pension adequacy arising from recent reforms are seen as those that emanate from the *reduction in the relative value* of pension benefits due to tighter links with contributions and weaker valorisation and indexing, and those that result from *career patterns that fail to match* rising pensionable ages and the lengthening contribution periods.

When considering measures to mitigate the risks to pension adequacy from *reduced indexation, dropping replacement rates and declining benefit levels*, one tends to be confronted with the trade-offs between adequacy and sustainability concerns. If Member States are to avoid the relative value of pension benefits falling well below acceptable levels, they will inevitably need to monitor developments and create appropriate fiscal space to enable benefit levels to be raised. Reforms that seek to ensure financial sustainability merely by lowering pension benefits can therefore make it difficult to guarantee income security in old age and provide protection against poverty.

By contrast many recent reforms that have focused on promoting longer working lives through *increases in pensionable ages* and through restrictions in access to early retirement options would seem to hold greater possibilities for win-win scenarios. To the extent that working lives do increase, such reforms offer the possibility of overcoming the adequacy and

financial sustainability trade-off by lowering costs and developing extra revenues, thereby creating the basis for pension benefits that are higher than they would otherwise be.

However, these changes also expose pension adequacy to developments beyond the control of pension policy makers since these reforms make pensions *more dependent on labour market* opportunities for longer and less interrupted working careers of women and men. This report has therefore also addressed the risks to future pension adequacy emanating from the obstacles to longer working lives at the workplace and in labour markets, and considered how these potential problems can be tackled and mitigated through a better combination of employment and pension policies.

As more, better and longer employment becomes the core route to pension adequacy in the future, the agenda for adequate income maintenance in old age will increasingly *overlap with the general agenda* for employment, incomes and social protection in working age. Policies that currently seek to improve the employment situation of underemployed groups such as youth, non-EU migrants, the low-skilled, and women with particular caring duties, are also policies that can help reduce the risks of inadequate pension entitlements due to short careers and limited pension coverage.

However, even if these policies are reasonably successful, they are unlikely to remove the need for safeguards in pension systems that can protect people from poverty risks in old age. Moreover, extending working lives towards the end of people's careers, presents a challenge for the general policy agendas for people of working age. The report therefore argues that addressing the risk to future pension adequacy also *calls for specific policy measures* with regard to workplaces and labour markets as well as pension systems.

Priority must be given to *increasing the effective retirement age* and enabling as many women and men as possible to work up to the standard pensionable age. Pension reforms need to be underpinned by workplace and labour market measures that enable and encourage women and men to have longer and less interrupted working careers and thus defer retirement and pension take-up and meet the future requirements for a full pension. As replacement rates decline in some Member States even for full careers, it would furthermore be important to ensure opportunities for people to recoup some of this loss by building extra entitlements through complementary retirement savings and/or by working beyond the standard pensionable age.

To enable longer working lives, the health and skills of men and women need to be maintained as they age, and older workers need to be encouraged and enabled to move into jobs that are well-suited to their abilities and strengths. *Flexibility in working arrangement* (e.g. working hours, working time, degree of autonomy in work organisation, job rotation etc.) including changes to improve the reconciliation of work and family have proved particularly useful in enabling and encouraging labour force participation to higher ages. It would be for policy makers to work with the social partners on *improving the functioning of late-career labour markets* so much better opportunities for people aged 55 and above can be ensured. As older workers women or men should not just have the possibility of staying longer in the same job, but they should also be able to take a new job with another employer.

When considering the need for special safeguards for pensions in the future it is important to recognise that opportunities for earning a sufficient and secure income for a normal retirement

period are linked to a person's employability and *chances of finding and holding a job of good quality*. Moreover, in a number of Member States, building adequate pension entitlements also presupposes access to supplementary retirement schemes. The purpose of employment and pension policies is to ensure that opportunities for good working careers become available to a broad majority of people. Still the ability and chance to put such opportunities to good use – including building rights to adequate pension income – tend to be unevenly distributed across the population. Hence, the analysis has also highlighted the importance of ensuring that public pension schemes contain *appropriate safeguards* to address the needs of women and men who are less able to use these opportunities.

Importantly the report has argued that *policy makers in pensions and employment have a mutual interest* in delivering on longer working lives. In pensions this is needed to secure future adequacy. In employment it is necessary to counteract the decline in labour supply from a shrinking working age population. To deliver on longer working lives, policy makers and social partners need to address both the demand and the supply side of late-career labour markets by simultaneously widening late-career employment opportunities and adapting retirement times and practices.

This 2015 Pension Adequacy Report has shown the potentials of joint analysis of pension adequacy challenges and how they can be tackled, but it has also highlighted some limits in analytic capacity, which can be addressed through further cooperation at the EU level.

In view of the findings it would be appropriate for the SPC to look more closely at population groups identified as *at particular risk* of suffering from insufficient incomes in old age and to consider how future adequacy and poverty risks can be addressed through positive measures with respect to employment as well as through mitigating provisions in pension or other social protection schemes.

It would be particularly useful if the *SPC and EMCO* jointly could review the economic, work, health and social variables that affect late careers and the transition from work to retirement policies and develop a catalogue of policies and measures that could help enhance the employment opportunities of older workers.

There is a need for a further analysis of the *redistributive social elements* of public pension schemes in order to detect how well they take account of the inequalities in health and in labour market opportunities that affect different groups of women and men. Whenever possible, analysis should be carried out separately for women and men as to allow monitoring the evolution of gender differences.

The report also points to the need for a closer examination of how Member States can best ensure opportunities for women and men to *recoup some of the decline* in replacement rates through longer working lives or through complementary retirement savings.

The policy relevance of pension adequacy scenarios for the future could be importantly enhanced if the analytical capacity for anticipating adequacy and financial sustainability *challenges over the medium term* (10 to 15 years) were increased. This could be done through the use of existing administrative data, modelling tools and surveys with the aim of enabling Member States to implement more timely and appropriate corrective reform measures in accordance with their specific national economic, fiscal and wider social circumstances.

The 2015 Pension Adequacy Report: current and future income adequacy in old age in the EU

Volume I: Main report

1. INTRODUCTION

1.1. Purpose and scope

Providing people with income in old age that allows them a decent living standard and protect them from poverty is the main purpose of pension policy. Pension adequacy is thus an important policy goal in its own right. At EU level this objective is monitored in the tri-annual Pension Adequacy Report by the Social Protection Committee (SPC).

The purpose of the report is to present a comparative analysis of the degree to which pensions provide older people with adequate income and poverty protection in the European Union. A key aim is to illustrate how prior and recent pension reforms impact on pension adequacy for people retiring today and in the future, when people presently entering the labour market will retire after having completed their careers.

In the terms of reference for this 2015 version of the Pension Adequacy Report the SPC asked its subgroup WG-AGE for a report, which by focussing on pension adequacy and highlighting its importance would complement¹⁰ the 2015 Ageing Report by the Economic Policy Committee (EPC)¹¹.

The report should ‘examine what makes up an adequate pension’ and deepen the conceptual and methodological work on adequacy with a particular emphasis on gender, the household dimension and older people’s access to economic resources beyond pensions. Importantly, the report should assess some past key reform measures aimed at securing adequate pensions in a financially sustainable manner, including by looking at risks to the future adequacy of pensions after such reforms, and pinpoint reform possibilities that can advance both the adequacy and sustainability aspects of pensions.

WG-AGE subsequently proposed to use the multi-dimensional approach elaborated in 1.2 and presented the SPC with a synopsis for the content and storyline of a report for which it received the backing of the Committee.

The present report responds to these mandates by examining the current living standards of older Europeans and the role pension systems in securing them, by analysing the consequences of recent pension reforms, identifying dangers to future pension adequacy, and by outlining what needs to be done to tackle such risks and help secure adequate incomes for today's young workers, when they reach retirement 40 years from now.

The starting point for the comparative analysis is that Member States in their pension policy efforts face important common challenges and concerns, which can benefit from an overall approach. At the same time, though, the risks to current and future pension adequacy in Member States have many country-specific aspects. While the main part of this report,

¹⁰ The overall results of pension developments in EU countries and their impact on public expenditure and on income conditions in old age are monitored in two tri-annual reports, which complement one another in focus and methodologies. These are the Ageing Report produced by the Economic Policy Committee and the Pension Adequacy Report produced by the Social Protection Committee. Where the Ageing Report looks at the future fiscal sustainability of public pension schemes the Pension Adequacy Report examines the present and future adequacy of pensions as element in the income of retired people.

¹¹ The 2015 Ageing Report was adopted and published by the EPC in May 2015: http://ec.europa.eu/economy_finance/publications/european_economy/2015/pdf/ee3_en.pdf

published as volume I, is devoted to a comparative analysis of pension adequacy in EU-28, a detailed discussion of developments in each of the 28 Member States is therefore also provided in the main annex of country profiles, published as volume II.

In its examination of the ability of pensions to protect retired people against poverty the report mainly relies on the standard common EU indicators of the at-risk-of-poverty (AROP) and the at-risk-of-poverty and social exclusion (AROPE). While these only can be applied to the examination of current adequacy the report also seeks to construct proxy indications of future poverty risks. Moreover, it demonstrates the potential of micro-simulation in the analysis of future poverty risks for pensioners.

When assessing the ability of pension systems to fulfil their income maintenance function, both currently and prospectively, the report uses the hypothetical case methodology of Theoretical Replacement Rates (TRRs). These rates indicate the extent to which pensions received 'replace' prior incomes from work. In order to catch the effects of recent reforms and to illuminate key policy questions the set of career scenarios and pension system features, normally covered by the TRR calculations, has been further enlarged and more types of calculations performed.

New TRR calculations help illustrate how important minimum income provisions currently and survivor benefits in the future may be in the avoidance and mitigation of poverty risks for people with short careers and low-earners. A new prospective career case that uses the same assumptions about career lengths and exit ages as the Ageing Report provides closer comparability between the results from the two reports. In adjustment to rising pensionable ages the base case is not just calculated for 40 year careers starting at age 25 and ending at 65 but also for careers ending at the standard pensionable age and beginning either 40 years before or at age 25.

Another prospective career case concerning involuntary early retirement illustrates the often serious drop in replacement rates for people that have to stop working five years before the pensionable age and rely on unemployment insurance or disability benefits as a bridge until they qualify for an old age pension. Future poverty risks for low-earners - especially if they are 'forced' to retire early, or end up with short careers for other reasons - have furthermore been highlighted by comparing projected pension entitlements to projected average wages in 2053.

The calculations of current and prospective TRRs are based on the national legislation in place at the end of 2013. Other parts of the analysis, such as the profiles of pension provisions in each of the 28 Member States, which are published in volume II, take account of the pension reforms adopted until the end of 2014. Legislative developments that have occurred in the course of 2015 are not covered in either volume.

The Report offers new analysis in a number of areas. It looks at pension adequacy in the context of access to private assets, other public benefits and services and employment. It offers a deeper examination of minimum income provisions for older people and new analysis of the crediting of periods without work and contributions and of derived pension rights such as survivors pensions. Importantly it presents a comprehensive analysis of the gender gap in pension. It furthermore gives an overview of the main trends in pension reforms over the last 20 years, including developments in the public-private mix of provisions, and analyses the

impact on pensions and pensioners of the financial, economic and sovereign debt crisis which has evolved since 2008.

A key part of the analysis concern reforms that seek to extend working life through higher pensionable ages and restrictions in access to early retirement. Since such reforms lately have been particularly widespread and hold possibilities for tending to adequacy as well as sustainability concerns the risks to the success of these reforms are further investigated. Prospective TRRs confirm that if people in the future fail to complete the requirements for a full career/contribution history it may have serious consequences for the pension entitlements they will be able to build. This leads to an analysis of barriers and obstacles to longer working lives in current practices in work places and labour markets. A catalogue of measures that could help overcome or at least reduce such risks is suggested. To the extent that risks cannot be entirely removed the future need for alternative safeguards in the pension system is also discussed.

While some of the analyses presented are reasonably comprehensive other parts are more tentative. The report therefore also uncovers the need for further work in many areas. Several knowledge gaps need to be filled and methodologies further developed. Key areas for future work are outlined in the conclusion.

Besides the input from national delegates in the WG-AGE and the European Commission services the report has profited from major assistance provided by the OECD, received important contributions from the ENEGE¹² and the ESPN¹³ networks of national experts and benefitted from dialogue with the AAE¹⁴ and with the ILO and the World Bank.

This report on pension adequacy is primarily aimed at policy makers in the Member States, but the information it contains is also of value to social partners, NGOs and academics working in the social field.

The report is presented by the Social Protection Committee and the European Commission Services (Directorate General for Employment, Social Affairs and Social Inclusion – DG EMPL) after a full discussion of the results from WG-AGE's comprehensive work.

¹² The European Network of Experts on Gender Equality : <http://www.enege.eu/>

¹³ The European Social Policy Network: <http://ec.europa.eu/social/main.jsp?catId=1135&langId=en>

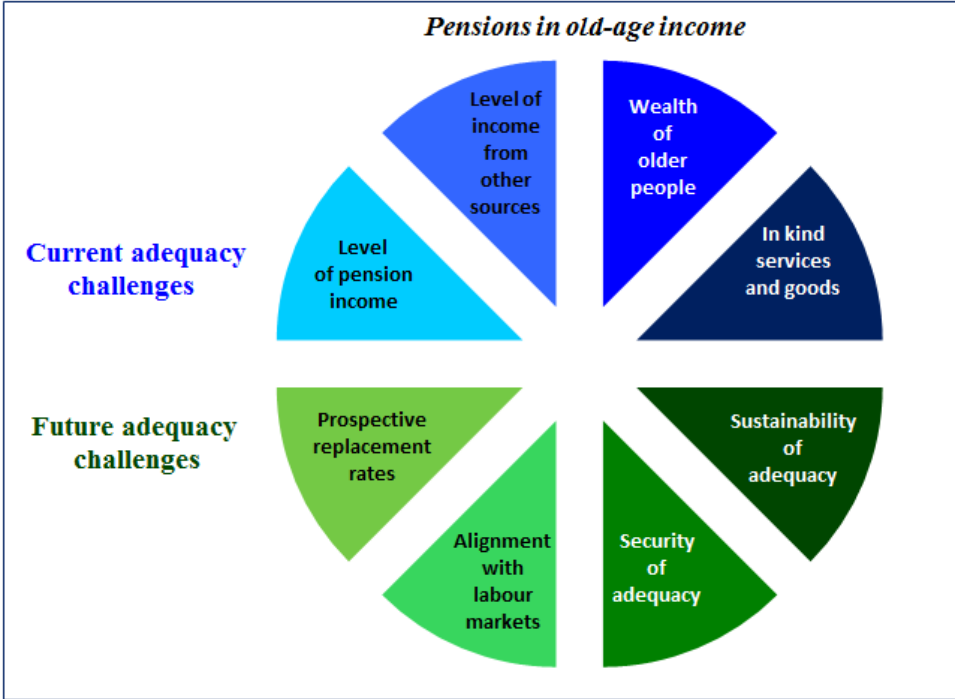
¹⁴ The Actuarial Association of Europe: <http://actuary.eu/>

1.2. A multi-dimensional approach to the adequacy of pensions

This edition of the Pension Adequacy Report seeks to apply a multi-dimensional approach to the adequacy of pensions. While concentrating on this type of post-retirement old age income for men and women and reporting by gender all data on current and future aspects of pension adequacy, the report also seeks to contextualise pension by looking to its relative importance among other sources of old age income and relative to access to free or subsidised public services. Adequacy is further contextualised as the report examines the degree of alignment between labour markets and pensions, including how well contributory period requirements in pensions fit with the length of the working careers, which people actually manage to complete. The security of adequacy is considered as it is affected by indexation, automatic adjustment mechanisms and the risk profiles of the various elements in the pension package. Finally, when the sustainability of adequacy is examined adjustments such as the extension of working lives, which would allow Member States to overcome the trade-off between adequacy and financial sustainability, take centre stage.

Figure 1.1 gives an illustration of the multi-dimensional approach to pensions as key element in adequate income in old age, which is being attempted in this report.

Figure 1.1: Illustration of the multi-dimensional approach to pensions



Current pension adequacy is measured by the conditions that applied to people retiring in 2013 (chapter 3.1) and to the already existing pensioner population (chapter 2 and 3). Future adequacy as resulting from the gradual implementation of already adopted pension reforms is measured 40 years later in 2053, when workers, who obtain pension coverage as 25 years olds in 2013, may have built pension entitlements over a full working career and can be assumed to retire (chapter 5.2). Changes to pension provisions over the last 20 years and the new distinctive features and risk profiles, which have emerged, are analysed and highlighted (chapter 4.2 and 4.4). The way pensions have been affected by the crisis both as result of the

magnitude of this and of the inherent risks or weaknesses in their design, is given particular attention (chapter 4.3).

A pension is a type of benefit for which *entitlement* primarily is based on some form of prior record of 'performance' establishing the right to claim. Pension entitlement can be based on years of residency *or* years of contributions paid or credited. Some elements of minimum pension benefits may also depend on current need and be income or means-tested. But an orientation towards current needs is primarily a characteristic of the forms of minimum income provision, which substitute for or complement a pension for older people with no or insufficient entitlements of their own. Entitlement can also be based on derived rights as in the cases of a pension allowance for a spouse and a survivor's pension. In the report all forms of pension entitlements are examined and discussed for their contribution to the adequacy of pensions as element in the overall access to resources in retirement.

Importantly all *sources* of pension income are taken into account. Thus the report covers income from all types of pension schemes, whether public or private, pay-as-you-go or pre-funded. Where public pension provision is delivered through more schemes (e.g. a flat-rate supplemented by an earnings-related scheme or a pay-as-you-go supplemented by a mandatory pre-funded scheme) income from them all will be included. Occupational or work-place based pensions are covered if they matter in overall provision. Likewise, third pillar personal pension savings schemes are included where their role makes this relevant.

The relative contribution to pension adequacy of the different types of pension schemes is gauged through their *coverage* among active contributors and present pensioners and by their share in overall pension income, at the aggregate and the individual level (chapter 3.1.2, Figure 3.7; chapter 5.2.1, Figure 5.10). *Public* pension schemes may be universal for all citizens, mandatory for all employed with a standard employment contract or limited to certain occupational groups (e.g. private sector employees, the self-employed, public sector employees, farmers etc.). Particularly in the third case the number of active contributors may develop an unfavourable relation to the number of pensioners. *Occupational* scheme coverage tends to differ with the pervasiveness and character of the industrial relations system. Where these have been marked by negotiations for entire sectors at the national level coverage will tend to be very high and schemes relatively similar. Where negotiations at company level have prevailed single employer schemes will have proliferated and coverage be more fragmented and varied in character. The degree to which occupational scheme coverage has been supported and promoted as an integral part of national pension provision also matters. For *third pillar personal* savings schemes the public support through tax exemption plays a role as does the degree of active promotion of third pillar arrangements in government policies of pension provision.

The adequacy of *levels of pension income* is measured 'at the bottom' by its ability to prevent and mitigate poverty (i.e. by the *risk and depth of poverty* and severe material deprivation) among women and men aged 65+ (chapter 2.2).

Since a number of people by the time they reach the standard pensionable age have failed to qualify for a pension or secured sufficient entitlements to live on, the report looks also to the adequacy of the schemes for *minimum income provision for older people* (MIPOP) with insufficient resources, which Member States have (chapter 3.2).

In ‘the middle’ adequacy is measured by its capacity to replace earned income in the last year before retirement. Through the *theoretical replacement rate* (TRR) indicator methodology the report assesses the adequacy of current pensions (chapter 3.1) for certain cases of career length and income and compares them with similar cases forty years from now. The calculation of theoretical replacement rates in 2053 provides a detailed estimate of the impact of the presently legislated reforms on future pensions (chapter 5.2.1).

Since such case examples do not tell us how the average pensioner will be affected or how pension income will be distributed across the population of old age pensioners the TRR results are subsequently discussed against the results obtained through *micro-simulations* of overall pension outcomes in a few Member States (chapter 5.3.2).

The standard pensionable age and gender life expectancy at that age differ between Member States. The average length of retirement, which countries offer, may therefore vary considerably. To allow for better comparison between Member States the report looks to measurements of the average length of retirement and the aggregate value of benefits over the retirement period. The notion of “*pension wealth*” refers to the value of the flow of pension benefits over the entire period of retirement measured at the point of pension take-up. This is a more comprehensive indicator than replacement rates or relative pension levels (chapter 5.3.3).

Pension adequacy and pension benefit outcomes vary considerably by gender. To capture this the report applies the *gender pension gap indicator*, which on the basis of EU-SILC income data registers the difference in average pension income for men and women as the percentage by which women’s annual pension is lower than men’s (chapter 3.5). For reasons of data robustness the gap is calculated both for the entire group of 65+ and for the age group 65-79.

As an aggregate indicator the gender pension gap is the point of departure for further analysis. Causes are found in the degree to which the national pension system mirrors prior gender differences in pay, working hours and the duration of working life. Thus the disaggregation has to look to prior gender regimes in employment as well as to features of pension scheme design. The gender pension gap represents a snapshot of the outcome of earlier developments. To assess the scores one needs to know more about the causes and whether trends in the development of pension systems and the degree of gender equality in employment are likely to cause the gap to remain, expand or reduce in the future. In the second volume of the report which contains *country profiles* of the adequacy aspects of pension systems in the 28 Member States, the gender pension gap indicators are therefore subjected to a further detailed examination.

Given the legacy of the male bread-winner model in pension provision older women may have obtained their pension entitlements through rights derived from their husband’s pension contributions. A *survivor’s pension* is particularly prevalent form of *derived pension right*, which due to the gender differences in life expectancy primarily pertains to women (chapter 3.4). Though such a pension may offer good protection to the surviving spouse its adequacy may need to be measured against the equalised income loss caused by the death of a spouse.

The more pension entitlements are dependent on the length and volume of former employment and levels of pay, i.e. the more they take the character of defined contribution

designs, and the more pension provision relies on non-universal 2nd and 3rd pillar arrangements, the more women will tend to be at a disadvantage in pension outcomes.

Yet, in as much as women across Member States tend to outlive men by about 3-5 years and at least presently tend to take up a pension a couple of years before men, the measure of *pension wealth* will show them to be at a lesser disadvantage in pension outcomes than the gender pension gap indicator (box 3.5 in chapter 3.5).

Though usually omni-important, pension is but one source of old age income among others, wherefore the report also looks at the *levels of income from non-pension (re-)sources*. Over their active years many people manage to accumulate a certain measure of housing and financial wealth, which they can draw on in retirement (chapter 2.3). Owner-occupier dwellings are a very widespread form of *housing wealth*, which allows pensioners to have lower housing costs as typically the mortgage will have been paid out or the remaining part be rather low. The value of this can be imputed on the basis of commercial renting rates. Housing wealth can also be turned into an extra income stream through a reverse mortgage. By their retirement many people have some savings they can draw on as *financial wealth*. The report examines the prevalence and distribution of both forms of wealth and discusses the relative importance of these income sources in the assessment of the adequacy of pensions.

As supplements to pensions most Member States offer a variety of *allowances* to help cover the costs of such commodities as housing, heating, pharmaceuticals, transport etc. which typically are awarded on a needs/resource-tested basis (chapter 2.4). Such allowances are particularly important for low income pensioners but may also function as a pension supplement going to all pensioners. *Discounts* on publicly provided (or supported) amenities such as water, transport, public channel radio and TV and cultural institutions are often available to all people above the pensionable age. These help augment the relative buying power of the pension.

To fully gauge the value and adequacy of pension provision the report is furthermore contextualising it by looking also briefly at the country-specific degree of access to free public services, or *in-kind benefits*, notably health care, social services and long-term care (chapter 2.4). Given that the average needs of people change over retirement knowing the accessibility and affordability of these types of in-kind benefits - and their quality - are of particular importance when assessing whether the pension income of retirees would allow them as they age to adequately meet their increasing needs for health care, social services and long-term care.

Since the contributory periods to qualify for a full pension are raised and as entitlements increasingly reflect career average earnings the report furthermore examines *how well* requirements in reformed *pension systems align with opportunities in labour markets* (chapter 2.5, 4.4 and 5.3). The average duration of working life indicator depicts the length of the working careers, which women and men actually manage to complete. The links between working careers and pension entitlements strengthen work incentives and reinforce actuarial equity. But they also imply that lifelong labour market risks are added to the risks related to pension adequacy. These risks are therefore considered in relation to both current and future pension adequacy and the potential ways in which they can be mitigated are examined (chapters 2.5., 5.3 and 5.4).

Most contributory public schemes have for long already operated with mechanisms that reduce the impact of working careers on pension entitlements. After best years have been dropped the most important mechanism is the *crediting of non-contributory periods* in connection with military service, higher education and various types of social incidents such as unemployment, sickness, maternity and care for children and dependent adults (chapter 3.3). Crediting makes it complicated to ascertain the degree of fit between contributory period requirements and average working careers, as we do not have comparative data on how much credited years tend to weigh in the total number of years that counts towards a pension. Anyway as part of most recent reforms countries have often taken steps to reduce or phase out the crediting they allow.

Alignment also concerns whether pension take-up can be postponed if people work longer and if postponement will be reasonably rewarded through increments to the pensions. This is tested in a variant of the TRR cases (chapter 5.2). Into the examination comes also the extent to which the 'malus' for early retirement and the 'bonus' for postponed retirement are well-balanced, e.g. proportional or actuarially neutral. In addition it is important under which conditions income from work can be combined with partial and full pension receipt, wherefore this is mapped (chapters 2.5 and 4.4).

The *security of pension adequacy* is obviously a vital aspect of the social protection provided. The mechanisms for *valorisation of contributions* and for *indexation of benefits* in payment are crucial for the constitution and for the maintenance of the security of pension adequacy, respectively. The character of the indexation of benefits, whether linked to wage- or price development – or some mix of these – the composition of the index (some goods and services may not be included) and if it allows for negative indexing, determine the value of benefits over time. Recently, there has been a trend across countries to move towards price-indexation (chapter 4.3). In a low inflation, low growth economy the consequences for pensioners may be rather moderate. But when the economy starts picking up things will change. Pensioners may then be protected against inflation in the prices of goods and services, but be likely to be falling behind in relative incomes, when wages begin to rise. The value of pension wealth will of course be determined not just by the level of benefits and the length of retirement, but also by the type of indexation.

Another aspect of pension security concerns whether pension levels are subject to reductions when *automatic adjustment mechanisms* are triggered by economic shocks and changing demographics (chapter 4.4.6). Some countries have such mechanisms in place and during the crisis they have been activated in a few cases, affecting pensions in payment from public schemes as well as from 2nd pillar occupational schemes (volume II with country profiles).

Pay-as-you-go and prefunded schemes obviously have *different risk profiles* and should have mitigation instruments appropriate to their functioning. The security of pension adequacy depends in the first place on the quality of the *risk mitigation* in schemes. Prefunded schemes obviously need to apply prudent investment management and hedge against the risks in financial and other investment markets. But they may also be acutely dependent on the public subsidies they receive. Beyond the financial shock of 2008 the present low interest climate presents a major challenge for the way 2nd and 3rd pillar pension funds have operated. Some of the pension funds have had to renegotiate their pension promises in order to avoid altogether renegeing on them. Pay-as-you-go schemes are sensitive to how risks in the overall economy

affect revenue streams and expenditures. Such schemes can possibly establish buffer funds and draw on general tax revenues. But in the end – as demonstrated in the worst years of the economic and fiscal crisis - their ability to continue paying benefits at the same level depends on the health of public finances and the general economy (chapters 4.2 and 4.3).

The security of adequacy also depends on the equity and timeframe of the *mechanisms for shock absorption*. The crisis has underscored the importance of putting in place consensually agreed shock absorption mechanisms, which in an equitable way will distribute the burdens of absorption on all stakeholders, beneficiaries as well as contributors. This lesson applies equally to pay-as-you-go and pre-funded schemes (chapter 4.3).

Labour market risks affect pension security at the individual and group level as discussed above. They also affect the revenue / expenditure balance of occupational and pay-as-you-go schemes. As pension entitlements have been linked closely to working career based contributory records pay-as-you-go- systems have incorporated labour market risks in their risk profile (chapters 4.4 and 5.4). Periods of in-activity, under employment and lower or non-contribution periods will therefore also influence the degree to which women and men will be able to qualify for contribution financed earnings-related benefits or be compelled to draw on minimum pensions or minimum income provision for older people.

The final aspect of the multi-dimensional approach to pension adequacy concerns what with a bit of conceptual stretching has been called the ***Sustainability of adequacy***. This primarily has to do with the ability of pension schemes to establish and maintain revenue streams or assets that match their liabilities. This aspect of pension adequacy should not be understood in as wide a sense as the 'sustainability of the pension system', i.e. the ability of the economy to sustain the pensions part, or as whether developments in public pension expenditure in the course of population ageing adds a degree of instability (upward rise) to public finances and threaten to crowd out other items. For that we have the traditional fiscal and macro-economic concept of the sustainability of pensions as applied in the 2015 Ageing Report. Instead the focus is on adjustments to working and retirement patterns, which would allow Member States to overcome the usual trade-off between benefit adequacy and financial sustainability. Longer and fuller working lives can mitigate - and even neutralise - the impact of population ageing on the ability of countries to maintain adequate pensions. Raising effective exit ages and postponing pension take-up by would be key. By linking the pensionable age to developments in life expectancy countries can institute a retirement norm more in tune with population ageing: 'As we live longer we work longer'. To bolster their ability to sustain adequate pensions countries will also need to take steps to ensure the cost-effectiveness of their pension provisions.

In the end a multi-dimensional approach may also need to reflect the relation between adequacy and fairness. While the present report indirectly touches on this in several places it does not present a systematic analysis of whether the adequate is also fair. For an example of such a reflection please see the following box on fairness approaches to the notion of pension adequacy.

Box 1. 1: 'Fairness' approaches to Pension Adequacy

Within the multi-dimensional examination of adequacy issues this report primarily uses a micro-economic benchmarking approach to the definition and measurement of pension adequacy. It assesses pension provisions by their ability to prevent and mitigate poverty and their capacity to replace earned income prior to retirement. This methodology reflects the classical dual purpose of pension provisions reiterated in the common objectives on social protection and social inclusion agreed by the SPC and the Council.

But in the work leading up till this report other approaches have been discussed by the SPC-WG-AGE. Thus, the Actuarial Association of Europe (the AAE) presented a set of alternative or complementary approaches to pension adequacy based on notions of 'fairness', i.e. the idea that adequacy also entails ensuring a modicum of fairness between the contributions and entitlements of different income groups, professions, cohorts and individuals.

Starting from the question of what is 'fair' the AAE suggested distinguishing between *intergenerational*, *social* and *actuarial* fairness and recommended defining and measuring each of these three in the following ways:

Intergenerational fairness:

This notion draws on some of the arguments and methodology from the 'generational equity' discussion. The main idea is to adjust key variables of work (e.g. the definition of the active age population) and retirement (e.g. the pensionable age) so that the old age dependency ratio is kept reasonably constant as the population ages.

The AAE proposes to define the main measurement as follows:

"x old-age dependency ratio (x OADR) at age x" as (the numbers aged x and over) / (numbers aged 16 up to x) and monitoring it at 10 year future intervals, where (x) is the legislated future 1st Pillar pension age.

And suggests that these ratios could be derived purely on numbers in the population (demographic x OADR); and by taking the old-age numerator as numbers in receipt of pension and the working age denominator as numbers in employment or self-employment between 16 and x (x economic OADR)

It would also be instructive to monitor, as a benchmark, the pension age (y) required in future in order to maintain the old-age dependency ratio at the current ratio based on current 1st pillar pension age e.g. 65, and to report the sequence of y for 10 year intervals up to 50 years in the future.

The previous measure is based on old-age dependency ratios, calculated from the stock of pension age and working age population at each year of measurement, and hence is strongly influenced by past fertility and migration as well as improving mortality.

Social fairness:

As we adjust to demographic changes social fairness according to the AAE could entail taking into account the way cohort specific life expectancy at effective pension age will change and ensuring that the pension age and the years spent working are adjusted so as to maintain a stable ratio between retirement years and working years. This is one type of operationalization of the European Commission recommendation that Member States in response to population ageing establish and maintain a better balance between years in retirement and years in work, which would improve both adequacy and sustainability aspects.

The ratio to monitor would look as follows:

Cohort Life Expectancy (CLE) at the effective 1st Pillar pension age

Actual years of working life (career) completed up the effective pension age

The target would be to ensure that completed working years and the effective pension age are adjusted to compensate for cohort specific longevity growth so that the future ratios remain equal to or become better than the initial ratio. Monitoring developments in the ratio will give a measure of the fairness of the pension age in striking a balance between working life and life on pension.

This ratio could be analysed in the aggregate, but also separately by cohort, gender and even by broad socio-economic group and employment category. Expected years of working life could exclude average cohort periods of unemployment, sickness, disability, maternity/paternity leave in order to get a better measure of economically active working life.

Actuarial fairness:

It would be possible to define for the 1st pillar an "automatic redistributive mechanism" through pension indexation, which could also be applied in case of fiscally motivated pension cuts as follows:

(1) Individuals would be divided into two categories, the 1st one would include those receiving pensions equal to or below a predefined threshold level (poverty line, lower income, dignity income etc.) and the 2nd would be other pensioners.

(2) For individuals in the 2nd category the "individual funding ratio (IFR)" would be calculated, with IFR defined as the ratio:

$$\frac{[\text{Current value of pensions received (=accumulated value of past pensions plus present value of future pensions before the cuts)]}{\text{The value of contributions paid up to retirement, accumulated to the current age}}$$

According to the value of their IFR they would be further divided into two subcategories.

A. those with IFR <100 and B. Those with IFR >100%

Subcategory B can be considered to be those, who have received a more favourable pension than is actuarially fair, while subcategory A has received a less than actuarially fair pension.

(3) To make a gradual adjustment towards actuarial fairness pension indexation for individuals in Subcategory B could be adjusted yearly by a proportion of the general indexation until the IFR falls to 100% and thereafter they would receive the general pension indexation. In the meantime individuals of the A. category should be inversely treated so as to meet IFR's close to 100%.

(4) Cuts would not be made to individuals of the first category.

(5) When required, actual pension cuts would start to be applied to individuals of the B. subcategory with the highest IFR and continue to those with lower rankings. The cut would reduce higher IFRs down towards 100% until the total amount of individual cuts sums to the aggregate reduction in cost required. For example, the percentage cut p for someone belonging to B. subcategory with $IFR=bi$ ($>100\%$) and receiving pension $X1$ would be: $p = (bi-1)/ bi * 100$ and the resulting pension would be $X2 = X1*(1-p)$. Then $IFR' = bi'$ after the cut will be 1.

(6) If the proportionate cut for subcategory B needs to be 1 and additional savings are still required, then the cuts should pass to individuals of the A subcategory, taking into account the IFR ranking as well as the average IFR of the subgroup A. No pension would drop below the threshold level.

(7) Whilst the mechanism described above could be applied in future reforms, it could also inspire a monitoring metric for measuring the actuarial fairness of reforms by defining categories expected to achieve IFR less than or more than 100% before reforms and measuring the expected outcomes for each category after the implementation of the reforms (and perhaps during the implementation phase).

Box 1. 2: The Concepts of Adequacy and Sustainability of Pensions

The *adequacy* of retirement incomes and the long-term financial *sustainability* of pensions are the two main aspects when evaluating pension systems.

Adequacy of retirement incomes is essentially a *microeconomic* concept: operationalising it involves assessing individual pension entitlements against a benchmark. Sustainability is a *macroeconomic* concept: it refers to the finances of the pension system as a whole.

It is therefore unsurprising that different methodologies, definitions and analytical tools are used to evaluate the adequacy and sustainability pension systems. Nor should one be surprised that efforts aimed at a reconciliation of the two notions reveal major discrepancies between analyses carried out at the micro and macro levels.

For that reason the image of Adequacy and Sustainability as 'two sides of the same coin' need to be understood in the right way to be appropriate: The two are intertwined and one cannot be had or continued without a modicum of the other: wherefore adequacy and sustainability concerns in pension policy needs to be sufficiently balanced.

2. CURRENT LIVING STANDARDS OF OLDER PEOPLE

This chapter provides an assessment of the current living standards of older people in the EU both relative to the rest of the population and in comparison to their peers in other countries. An initial focus on material well-being in old age considers both income smoothing across the life-cycle, and actions to prevent poverty. A broader perspective is then developed by looking at the housing and financial wealth of older people, their access to services and non-pension benefits, and their labour market participation up to, and beyond, pensionable age.

2.1. Relative incomes of older people

Pension systems play a fundamental role in seeking to enable retirees to maintain living standards comparable to those achieved during their working lives. This ‘smoothing’ of incomes across the life cycle is one of the core common EU objectives agreed within the framework of the Open Method of Coordination (social OMC). Specifically, Member States are committed to ensuring ‘adequate retirement incomes for all and access to pensions which allow people to maintain, to a reasonable degree, their living standard after retirement, in the spirit of solidarity and fairness between and within generations.’¹⁵

At EU level, the relative living standards of older Europeans are mainly assessed through the OMC indicator¹⁶ of the *relative median income ratio*, which compares the median disposable income of those aged 65 and over to the median disposable income of those below 65 of age. The distribution of incomes *within* the older population is then illustrated on the basis of the *income quintile ratio* (S80/S20). Both indicators are explained in Box 2.1.

Box 2. 1: Measuring the relative income position of the elderly

The **relative median income ratio** is the ratio of the median equivalised disposable income of persons aged 65 or more compared to the median equivalised disposable income of persons in the age group 0 to 64. Including all sources of income, and not just pensions, the indicator measures the overall income situation of older people relative to the income of the younger age group – those aged 64 or below. A breakdown by gender is also available.

It should be noted that this median income ratio is a relative indicator that is sensitive to changes in the earnings of the working age population. Furthermore it is based on household-level incomes, which does not take account of the intra-household allocation of resources. The household income is thereby corrected for the size and composition of the household¹⁷ and the same “equivalised” income is assigned to each household member.

The indicator is based on the EU Survey on Income and Living Conditions (EU-SILC), which is reported with a significant time lag. The latest data available is reported in relation to 2013, based on data on incomes and employment from 2012, whereas data on living conditions and material

¹⁵ See COM(2008)418, "A renewed commitment to social Europe: Reinforcing the Open Method of Coordination for Social Protection and Social Inclusion"

¹⁶ As to measure progress towards the achievement of OMC objectives, measurable targets have been formulated and a portfolio of common EU social indicators has been developed in cooperation between the Social Protection Committee (SPC) and Commission services. On methodological criteria, see the SPC Indicators Sub-Group's "Guiding principles for the selection of indicators and statistics".

¹⁷ The household income is equivalised using the 'modified OECD' scale, with (i) the first household member aged 14 years or more counting as 1 person; (ii) each other household member aged 14 or more counting as 0.5 person; and (iii) each household member below age 14 counting as 0.3 person.

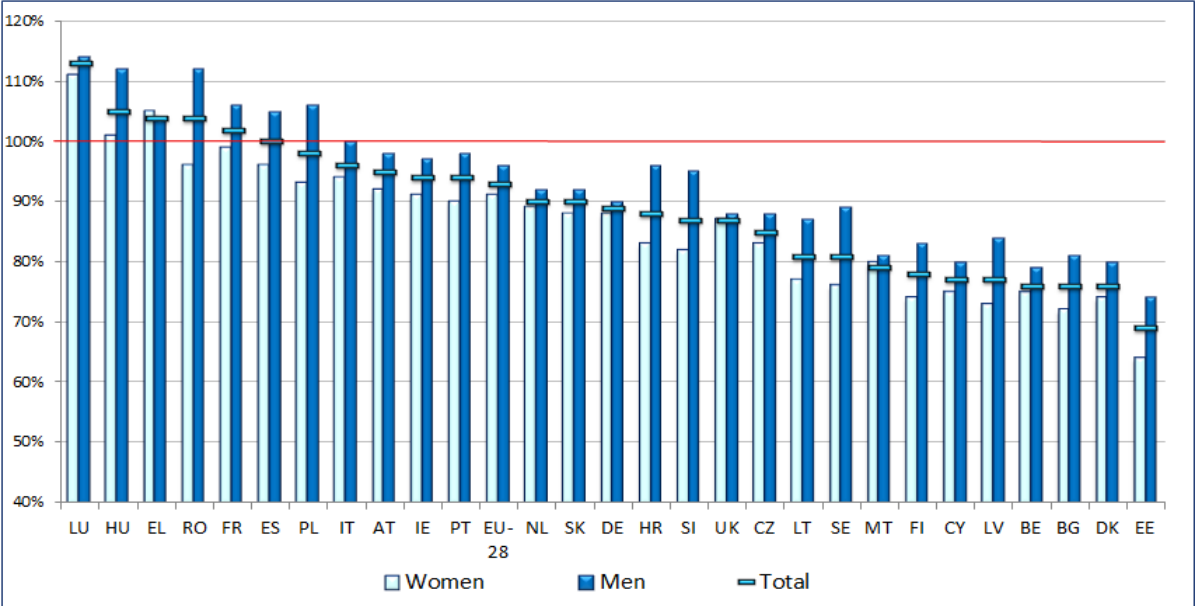
deprivation relate to 2013. It should also be noted that persons living in collective households and in institutions are not covered by income indicators derived from EU-SILC. Finally, as generally true for survey-based measures, the indicators are estimates that try to reflect the actual situation as good as possible. Small differences between Member States or over time, however, may not necessarily be statistically significant and should hence be assessed with caution.¹⁸

The **income quintile ratio (S80/S20)** describes the ratio of the total income received by the 20 percent of the elderly population with the highest income (the top quintile) to the total income received by the 20 percent of the elderly population with the lowest income (the lowest quintile). Hence, if the S80/S20 ratio is, say, four, then it implies that the income of the richest 20 percent of the elderly is higher than the income of the poorest 20 percent by a factor or multiple of four. The S80/S20 indicator is a widely used indicator to measure inequality, and is included in the Joint Assessment Framework (JAF), as well as in the Social EMU scoreboard on key social and employment indicators.

The indicator is based on data from EU SILC, with the time lag indicated above. Also, as with the *relative median income ratio*, income must be understood as equivalised disposable income. This ratio is an effective way to measure the distance between the extremes of a distribution, but its disadvantage is that it ignores the mean range of incomes. Furthermore, changes in the S80/S20 can be driven either by changes in the income share of the top 20 percent (S80), or by changes in the income share of the bottom 20 percent (S20), and these factors need to be looked at separately in order to disentangle the effects of changes at the top of the income distribution from changes at the bottom.

The relative median income ratio for the total population, as well for men and women separately, in the year 2013 is presented in Figure 2.1. On average across EU-28, the median disposable income of those aged 65 or above stood at 93 percent of those aged below 65.

Figure 2. 1: Relative median income ratio, total and by gender, 2013



Source: Eurostat (table ilc_pnp2). Note: Based on EU-SILC 2013, which refers to the income year 2012.

Differences between Member States are substantial, though, with the relative median income ratio ranging from 100 percent or more in six Member States (Luxembourg, Hungary, Greece, Romania, France and Spain) to below 80 percent in eight Member States (Estonia,

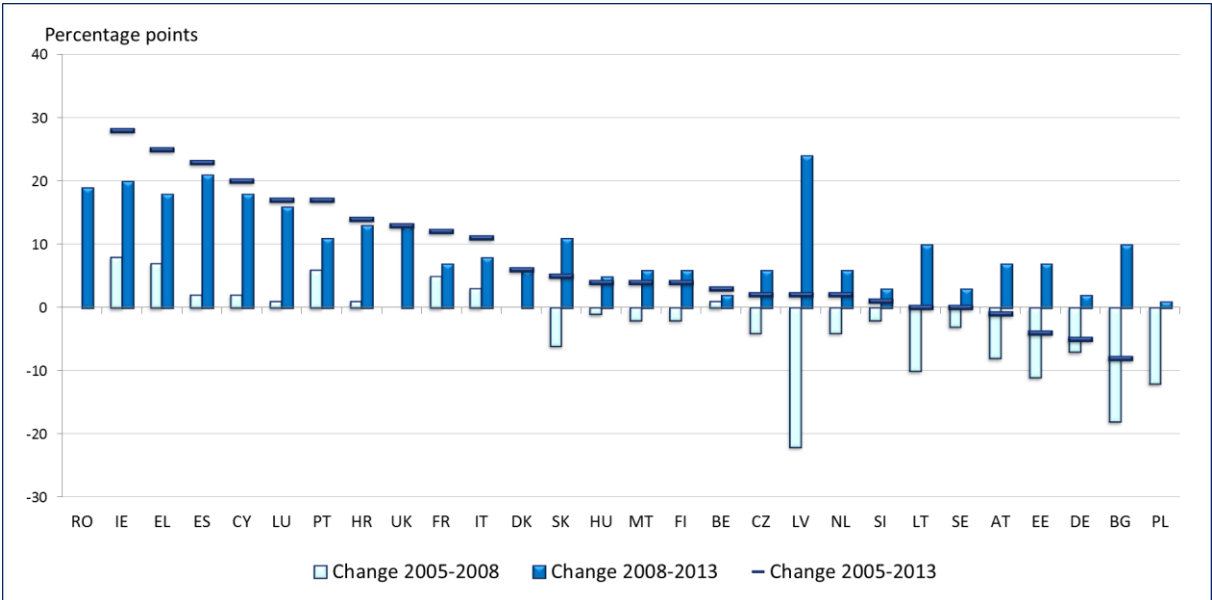
¹⁸ For more information on the estimation error of EU-SILC poverty and social exclusion indicators, see Eurostat, "Standard error estimation for the EU-SILC indicators of poverty and social exclusion", 2013 Edition.

Denmark, Bulgaria, Belgium, Latvia, Cyprus, Finland and Malta).

When assessing or interpreting this evidence, however, it is important to note that this indicator is based on current income. No account is taken of wealth in terms of home ownership and private savings, both of which are important determinants of material well-being. As older people tend to have accumulated more wealth than younger generations (this is discussed in more detail in section 2.3), the relative median income ratio is liable to underestimate the relative standard of living of older people.

In terms of gender differences, Figure 2.1 shows that the relative income of elderly women is generally lower than that of men, with a 5 percentage points-gap¹⁹ between the relative median income ratio of older men (96 percent) and older women (91 percent) in 2013 for the EU-28 as a whole. Only in Greece are the levels more or less comparable, while the gender gap equals or exceeds 10 percentage points in six Member States (Hungary, Poland, Croatia, Slovenia, Sweden and Latvia).

Figure 2. 2: Changes in the relative median income ratio, 2005-2008, 2008-2013, 2005-2013



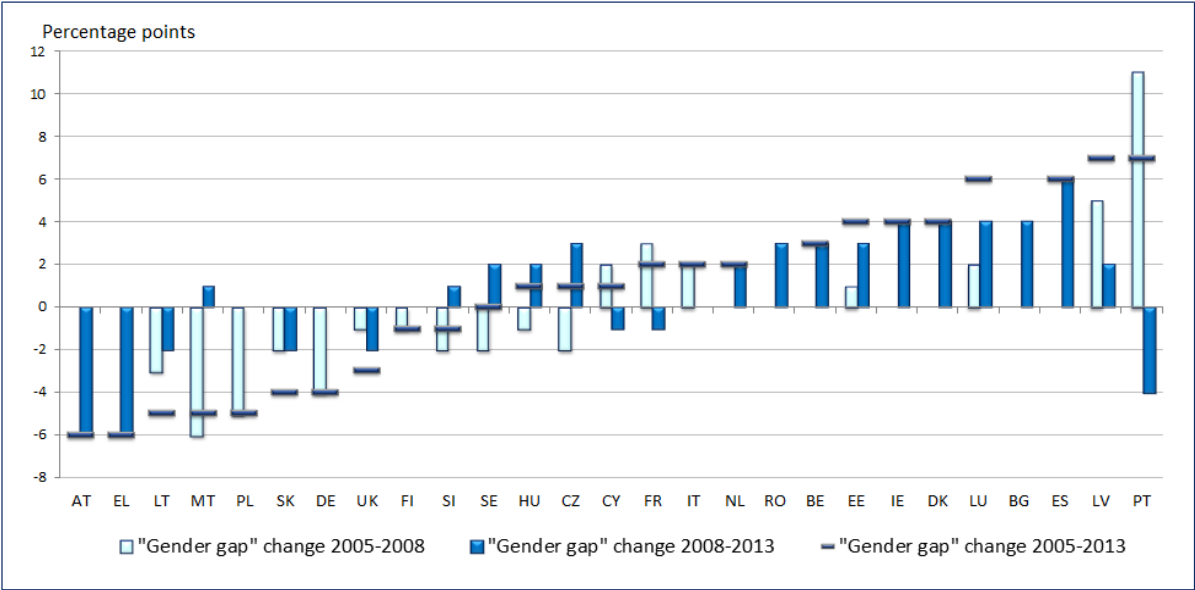
Source: Eurostat (table ilc_pnp2). Note: Sorted by total change in relative median income ratio 2005-2013. No data for RO in 2005 and for EU-28 in 2005 and 2008.

The relative income position of older people has generally improved in recent years. Figure 2.2 shows that the relative median income ratio increased between 2005 and 2013 in 20 out of 28 Member States, with an increase by more than 15 percentage points in Luxembourg, Portugal, Cyprus, Ireland, Spain and Greece. This change has been particularly noticeable since the onset of the crisis with the relative income situation of older people having improved in most Member States between 2008 and 2013, whereas 15 Member States had witnessed a worsening of the ratio in the pre-crisis period from 2005 to 2008.

¹⁹ The gender gap in the relative median income ratio (RMIR) is not to be confused with the 'Gender Gap in Pensions' indicator, which measures the difference in average pensions (gross of tax) between men and women (see section 3.5). The generally smaller gender difference in the RMIR can be explained by different underlying concepts. In particular, the RMIR is calculated at household level and based on equalised disposable incomes (net of tax), while the 'Gender Gap in Pensions' assesses individual pension entitlements.

Of course, neither a decrease nor increase in the relative indicator necessarily reflects an absolute change in the real income situation of those concerned. In practice, the relative deterioration in the pre-crisis period may have been largely driven by higher income growth among the working-age population, while the relative improvement since 2008 may simply reflect a stronger decline in their incomes. Overall, it is clear that the incomes of older people have been relatively well protected during the crisis years (2008-2013).

Figure 2. 3: Relative median income ratio - changes in the gap between men and women, 2005-2008, 2008-2013, 2005-2013

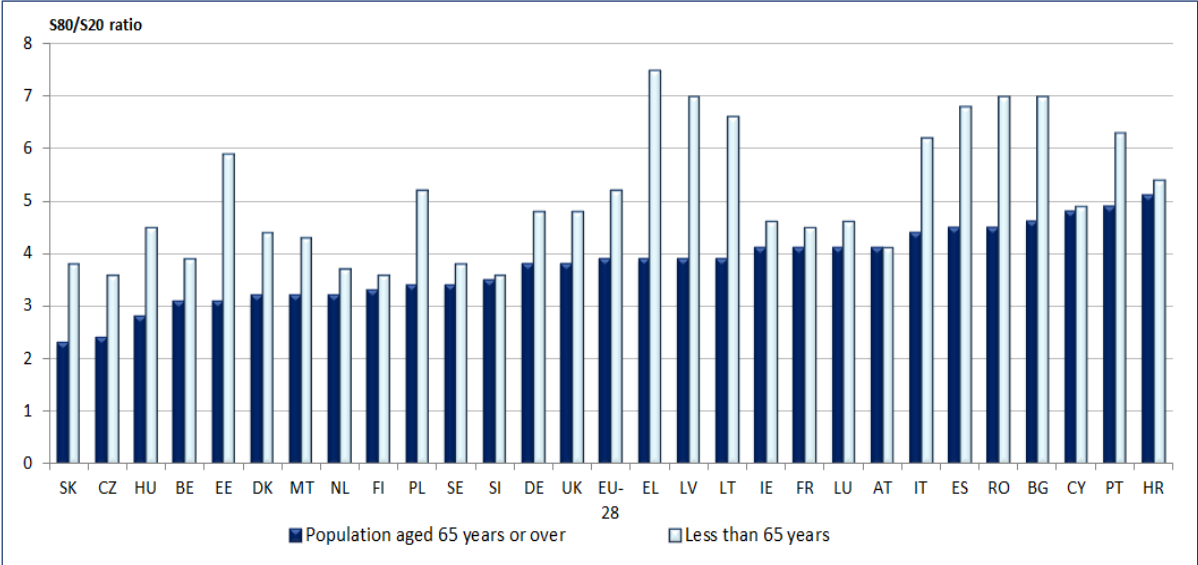


Source: Eurostat (table ilc_pnp2). Note: Sorted by total change in the gap between men and women between 2005-2013. No gender-disaggregated data for HR in 2005 & 2008, for RO in 2005 and for EU-28 in 2005 and 2008. Positive values indicate an increase in the "gender gap". Based on EU-SILC 2013, which refers to the income year 2012.

However, the gender gap in the disposable incomes of pensions across the EU-28 hardly changed over the period 2005-2013 (Figure 2.3) and actually widened by one percentage point between 2010 and 2013. In this respect, there is little evidence of convergence between men and women. The reasons behind the gender divide are many, including, in particular, the generally lower pension entitlements accrued by women during their working life, the comparably low pension rights granted to survivors, and a higher share of older women living in single households. A closer and country-specific look at the gender dimension of past and current pension rules is provided in section 3.5.

The inequality in disposable incomes of those aged over 65 can also be assessed vertically, using the S80/S20 indicator, which indicates the distance between the incomes at the top and the bottom of the distribution for both those aged 65 or above, and those aged below (Figure 2.4). For the population aged 65 and over in EU-28, the disposable incomes of those in the top quintile are four times higher on average than those in the bottom quintile. Differences between Member States are substantial, however, with ratios of more than 4.0 in 11 Member States but below 3.0 in three - namely Slovakia, the Czech Republic and Hungary.

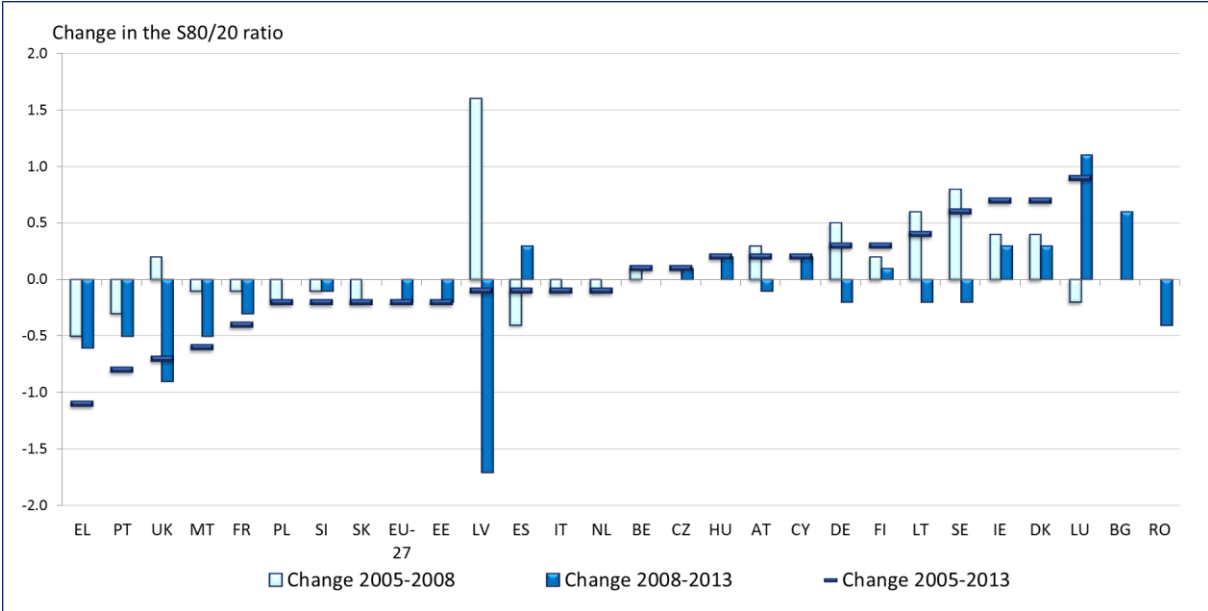
Figure 2. 4: Income inequality: income quintile ratio (S80/S20) by age group, 2013



Source: Eurostat (table ilc_pns4). Note: Sorted by the S80/S20 for the population 65+ in 2013. Based on EU-SILC 2013, which refers to the income year 2012.

Member States with a higher relative median income ratio thereby tend to show higher levels of income inequality among the population aged 65 and over, suggesting that income divergences rise with an increasing relative wealth among older people. However, income inequality is generally substantially less among the older population group compared with the rest of the population, with a S80/S20 indicator averaging 5.2, which can be seen as a reflection of the generally redistributive character of pension systems.

Figure 2. 5: Changes in the S80/S20 for the population 65+, 2005-200, 2008-2013, 2005-2013



Source: Eurostat (table ilc_pns4). Note: Sorted by the total change in the S80/S20 for the population 65+ between 2005 and 2013. No data for HR and the EU-28 in 2005 & 2008. No data for RO and BG in 2005.

In terms of the evolution in the income quintile ratio (S80/S20) for the population aged 65 and over between 2005 and 2013, Figure 2.5 shows that the picture across Member States is rather mixed, with inequalities in the incomes of older people increasing in some countries but not

others, in both the pre-crisis period and since. Overall, income inequality among the population aged 65 and over has slightly decreased since the onset of the crisis, but with significant increases in Luxembourg and Bulgaria over the 2008-2013 period. Given the multitude of factors that determine income inequality, a more detailed and country-specific analysis is needed to explain these diverse developments.

2.2. Poverty risks and material deprivation among older Europeans

Pensions are the main source of income of older people in Europe, with retired people representing a significant and growing part of the EU population (about 124 million or a quarter of the total). Thus the ability of pension systems to provide adequate incomes for the older people also impact on the possibility of achieving the EU 2020 target of lifting at least 20 million Europeans out of poverty and social exclusion by the end of this decade.

Poverty is as a multidimensional phenomenon that requires appropriately complex analysis, with indicators of the at-risk-of-poverty rate and the share of people living in severe material deprivation being the two indicators used to assess the basic adequacy of pension systems (see Box 2.2 regarding both indicators).

Box 2. 2: Measuring poverty and social exclusion

The **at-risk-of-poverty rate for people aged 65 and over (AROP)** measures the percentage of this population group with disposable incomes below the at-risk-of-poverty threshold, which is set at 60 percent of the median equivalised disposable income in a given country.

The AROP indicator measures relative poverty and depicts income inequalities in the bottom half of the income distribution. A reduction in the share of people at risk of poverty usually signals a stronger income growth at the bottom of the income distribution relative to the median income, and hence a more equal distribution of incomes below the median. However, the median income (and therefore the at-risk-of-poverty threshold) can also be subject to shocks that cause them to drop, as has happened during the recent crisis. A decrease in the AROP rate for people aged 65 and over may therefore also simply reflect decreasing incomes of the working population.

It should also be noted that the AROP is an income-based measure and liable to provide an over-estimate of the relative rate of poverty among the older age group since it does not take account of the wealth of pensioners or the value of non-monetary benefits (free or subsidised health care, transport, etc.) given the relatively higher share of house owners and higher private savings among this group.

As all income-based EU-SILC indicators, the at-risk-of-poverty rate is measured at household level, which implicitly assumes a full sharing of resources amongst all household members which may not be always the case. For all these reasons, the AROP indicator, while valued for its advantages, should be interpreted with some caution and be supplemented by other indicators.

Severe material deprivation is seen as an absolute measure of poverty which can complement the AROP measure in that it measures the ability, or lack of it, to afford items that are considered desirable or necessary by most people living in Europe. On this basis, those who cannot afford four out of the following nine items are considered to be severely materially deprived:

1. pay the rent, mortgage or utility bills;
2. keep the home adequately warm;
3. face unexpected expenses;
4. eat meat or protein regularly;

5. go on holiday;
6. afford to buy a television;
7. afford to buy a washing machine;
8. afford to buy a car;
9. afford to buy a telephone.

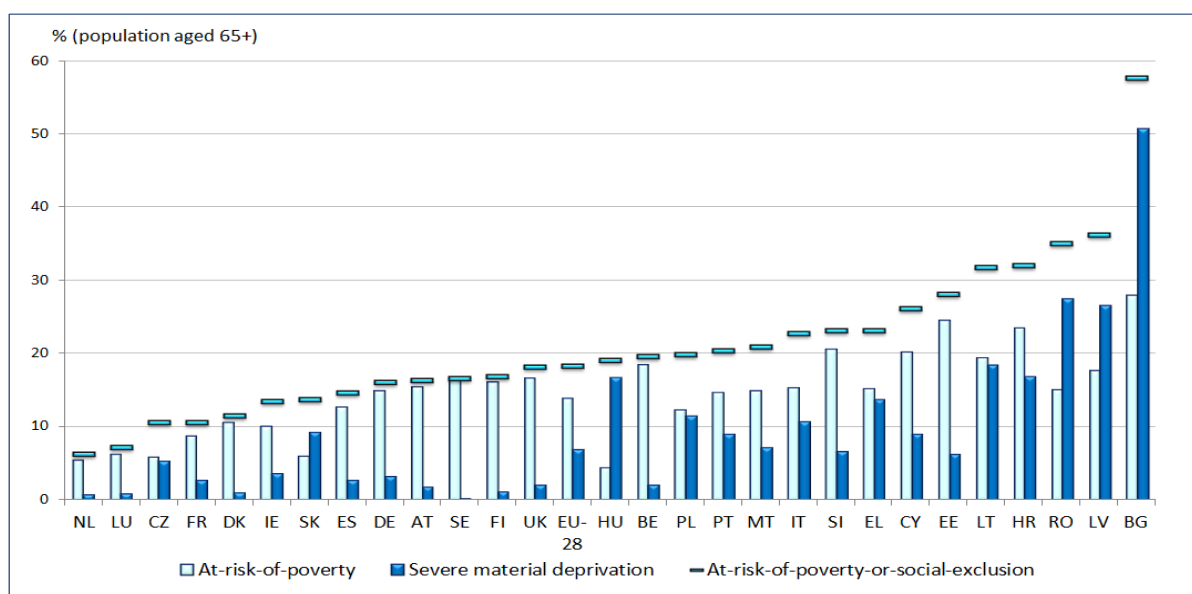
The rate of people at-risk-of-poverty or social exclusion (AROPE) then combines the two measures in the Europe 2020 poverty reduction target, whereas the third component of the AROPE indicator, the share of people living in very-low work intensity households, is only taken into account for the population below age 65.

Finally, the **intensity of poverty** can be assessed in two ways. Firstly, the **poverty gap** provides an indication of the depth of poverty for a 'typical' poor person. It is measured as the difference between the median equivalised total net income of *persons below the at-risk-of-poverty threshold*; and the threshold itself, expressed as a percentage of the threshold (60 percent of the national median equivalised disposable income). While the poverty risk is concerned with the share of the population that has an income below a specified poverty threshold, the poverty gap measures the extent to which the incomes of those below the poverty line fall short of that poverty line.

Secondly, the intensity of poverty can be assessed by using **alternative poverty thresholds (40 percent, 50 percent, 70 percent)**. The analysis of the share of people below these different income thresholds allows for a more accurate picture of the dispersion of incomes around and below the standard poverty line.

Data with respect to the two main poverty indicators (at-risk-of-poverty rate and severe material deprivation) for the population above age 65 and above are presented in Figure 2.6, along with the composite AROPE indicator. In terms of the overall share of older people at risk of poverty or social exclusion (indicated by horizontal bars), the differences across Member States are very large, notably between 'new' and 'old' Member States.

Figure 2. 6: At risk of poverty and severe material deprivation, population 65+, 2013



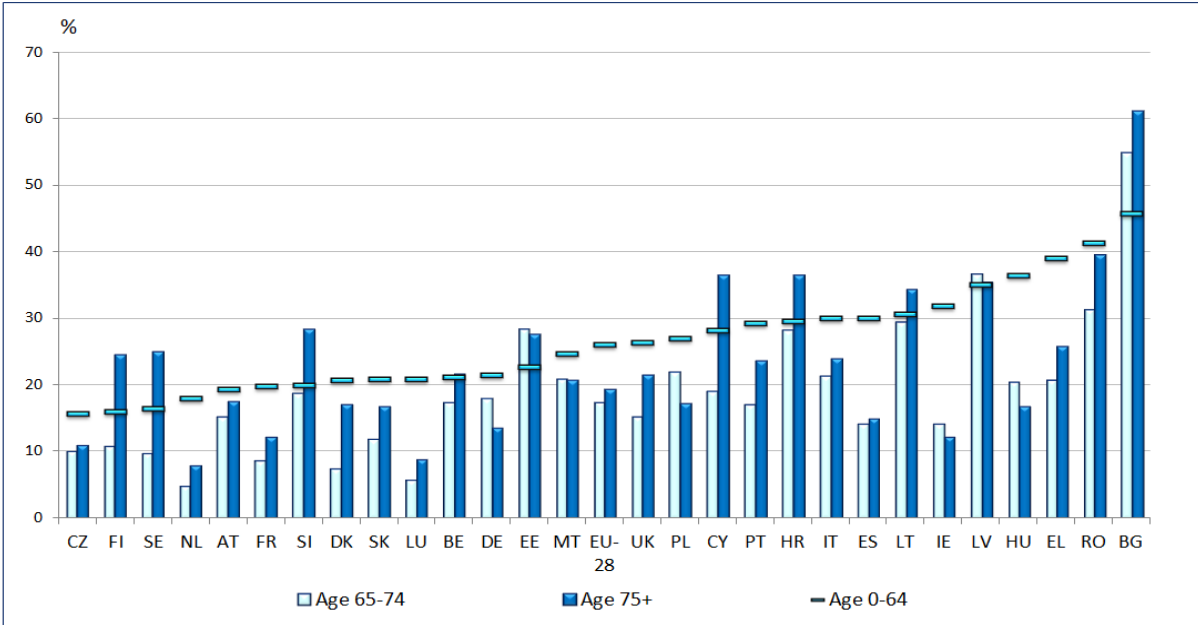
Source: Eurostat. Note: Sorted by the at-risk-of-poverty-and-social exclusion rate for the population 65+. At-risk-of-poverty refers to the income year 2012, severe material deprivation refers to the survey year 2013

In 2013, while around 18 percent of the total population aged 65 or above in EU-28 were at risk of poverty or social exclusion, this ranged from 6 percent in the Netherlands to 30 percent

or more in Lithuania, Croatia, Romania and Latvia, and over 57 percent in Bulgaria. Out of a total of 15 ‘old’ Member States, less than five percent of the population above age 65 and over suffered from severe material deprivation in 2013. In these countries, poverty and social exclusion in old age is largely seen in terms of relative poverty with a disposable income well below median income. In other, mostly Eastern European, Member States the comparably low levels of income inequality result in a relatively small share of older people at risk of relative poverty. At the same time, severe material deprivation is more observed in Slovakia, Hungary, Poland, Latvia, Lithuania, Romania, and Bulgaria, reflecting the lower material standards of living in these countries.

The composite AROPE indicator can also be used to make a more in-depth assessment of poverty trends: across age groups, between men and women, and over time. In terms of age groups, Figure 2.7 illustrates the at-risk-of-poverty-or-social-exclusion rates in 2013 for three groups: those aged below 65, those aged between 65 and 74, and those aged 75 and over.

Figure 2. 7: At-Risk-of-Poverty-or-Social-Exclusion Rate, by age group, 2013



Source: Eurostat. Note: Sorted by the at-risk-of-poverty-and-social exclusion rate for the population 0-64.

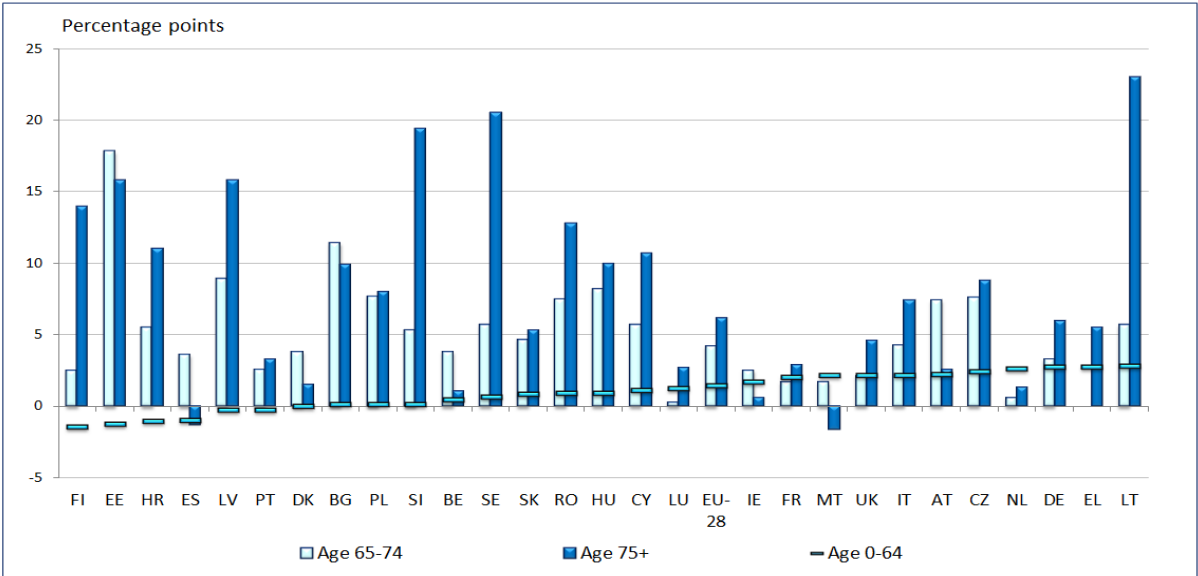
On average in the EU-28, the population aged below 65 had a significantly higher AROPE rate (26.0 percent) than both ‘younger’ older people - those aged 65-74 (17.3 percent) and ‘older’ older people - those aged 75 or more (19.4 percent). A lower risk of poverty and social exclusion for those aged 65 and over is thereby observed in 22 out of 28 Member States, with those aged 65 to 74 tending to have a lower risk of poverty and social exclusion compared to both those aged above 75 (with the exceptions of Germany, Estonia, Malta, Poland, Latvia, Hungary) and the rest of the population (with the exceptions of Estonia, Latvia and Bulgaria).

In other words, European pension systems seem to provide a relatively better protection against poverty for older people compared to the poverty risk of the rest of the population, especially in the early years after retirement. Pensioners aged 75 or above, however, do seem to face a somewhat more difficult situation. In 10 Member States, the AROPE for the age group 75 and over is more than five percentage points higher than for the age group 65-74, with the difference in the AROPE rate for the two age groups of ten or more percentage points in the Nordic countries (Denmark, Sweden and Finland) as well as in Cyprus. The risk

of poverty or social exclusion, however, decreases slightly for those aged 75 and over in Germany, Estonia, Malta, Poland, Latvia and Hungary.

It is not possible from this analysis to determine to what extent such substantial increases in the AROPE for older pensioners can be explained by a cohort effect (comparably low pension entitlements accrued by those born before 1937) or an age effect, linked to lower pensions at higher ages due to indexation rules, widowhood and the level of derived pension rights, or an increased share of single households. Moreover, as persons living in collective households and institutions are not covered by the underlying survey, the AROPE indicator is not fully representative for the age group 75 and over.

Figure 2. 8: Gender difference in the AROPE rate, by age group, 2013

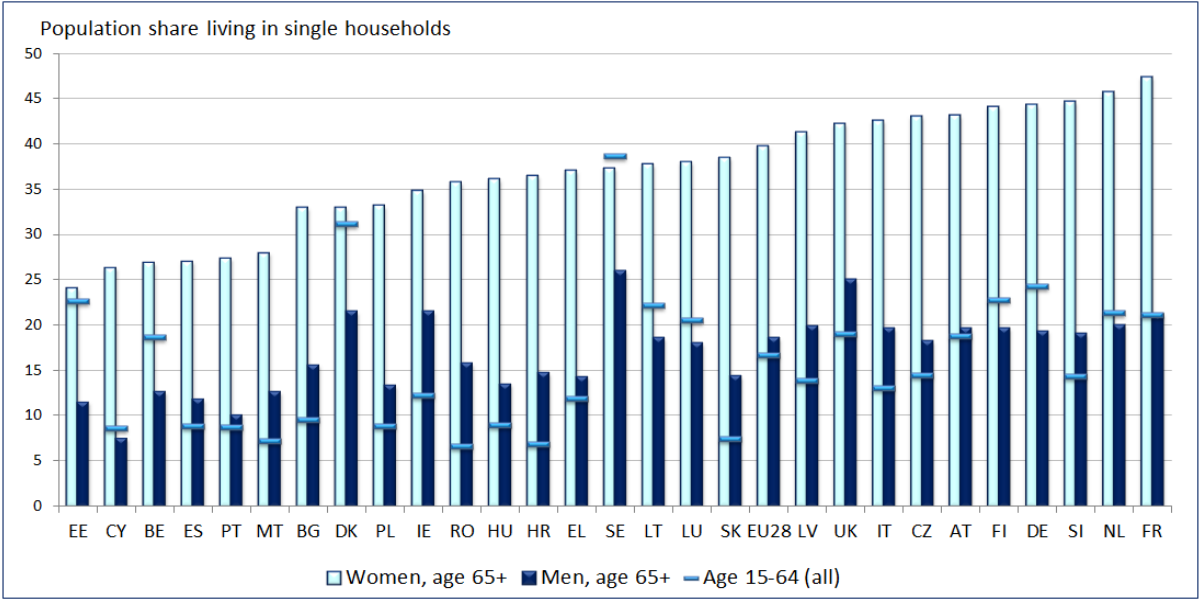


Source: Eurostat (table ilc_peps01). Note: Sorted by the gender difference in the AROPE rate for the population 0-64.

While the differences across countries may need to be analysed individually, it is nevertheless clear that a gender trend can be observed across much of the EU with Figure 2.8 presenting the differences in the risk of poverty and social exclusion between men and women (in percentage points) for the three age groups 0-64, 65-74 and 75 and above. The gender gap in AROPE rates is found to be rather small for the population below age 65, with the EU-28 average being slightly below 1.5 percentage points in 2013, and the largest differences being between 2.5 and 3 percentage points in the Netherlands, Germany, Greece and Lithuania.

In contrast, for the EU as a whole, women aged 65 and over face a substantially higher risk of poverty and social exclusion than their male equivalents, with the gender gap in AROPE increasing to over four percentage points for the age group 65-74, and to over six percentage points for those aged 75 or more in 2013. A difference of more than five percentage points for those aged 65-74 is observed in 13 Member States (Estonia, Croatia, Latvia, Bulgaria, Poland, Slovenia, Sweden, Romania, Hungary, Cyprus, Austria, the Czech Republic and Lithuania), while the gender gap increases to more than ten percentage points for the age group 75 and over in eight Member States (Finland, Estonia, Latvia, Slovenia, Sweden, Romania, Cyprus, and Lithuania). The overall increase in the risk of poverty and social exclusion among higher age groups is hence largely borne by female pensioners (see also section 3.5).

Figure 2. 9: The share of adults living in single households, by age group and gender, 2013



Source: Eurostat (table tessi030). Note: Sorted by the share of women 65+ living in single households.

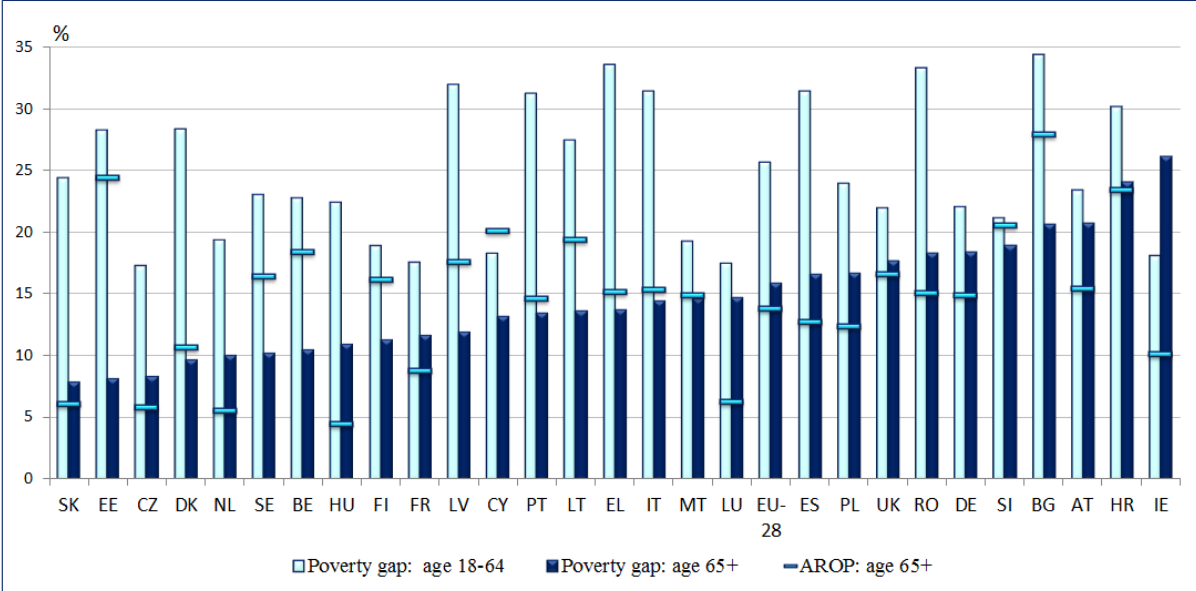
Living in a single household thereby appears to be one important explanation for the higher incidence of poverty among elderly women. The at-risk-of-poverty indicator for the population 65 and over is not available by gender and household composition (due to small sample size), which precludes decisive conclusions on the link between living in a single household and the significantly higher risk of poverty among elderly women. Overall, however, the AROP for someone aged 65 or above was substantially higher when living in a single household (EU-28: 21.2 percent) as compared to someone in a household with two adults (EU-28: 10.4 percent). With a high 40 percent of women aged 65+ living in a single household in the EU-28 in 2013 – compared to 19 percent of men aged 65+ and 17 percent of the population below age 65 – living alone and exposure to old-age poverty seem closely linked. Figure 2.9 confirms a substantially higher share of persons in single households among elderly women in most Member States when compared both to their male peers and the working-age population.

For a better understanding of the depth of poverty, it is important to also take account of the distribution of incomes below the poverty line. Figure 2.10 presents the poverty gap indicator for the populations aged 18 to 64 and 65 and over, respectively. For comparison, the at-risk-of-poverty rate for those aged 65 and over is also reported. On average in the EU-28, the poverty gap for people aged 65 or more stood at nearly 16 in 2013, indicating that the median income of the elderly poor was equal to some 84 percent of the respective national poverty line. Across Member States, the spread in the poverty gap for the population of 65 and above ranged from less than 10 percent in Slovakia, Estonia, Czech Republic and Denmark to more than 20 percent in Croatia, Ireland, Austria and Bulgaria.

Relative to the elderly population, the working-age population tended to face more severe forms of income poverty, with a poverty gap of close to 26 percent for those aged 18 to 64 in EU-28. In all but one Member State, Ireland, the poverty gap for the elderly is lower than for the working-age population, confirming that today's older population is better protected than the rest of the population, although situations vary somewhat across Member States. Importantly, the level of poverty in old age (AROP, as illustrated in Figure 2.10 by the

horizontal bars) is not always a good indicator of the intensity of old age poverty as measured by the poverty gap. For instance, a number of Member States with above-average at-risk-of-poverty rates (Estonia, Sweden, Belgium, Latvia, Cyprus, Portugal, Lithuania, Greece, Italy and Malta) report a below-average poverty gap for those aged 65 and over.

Figure 2.10: The poverty gap by age group and the AROP for the population 65+, 2013



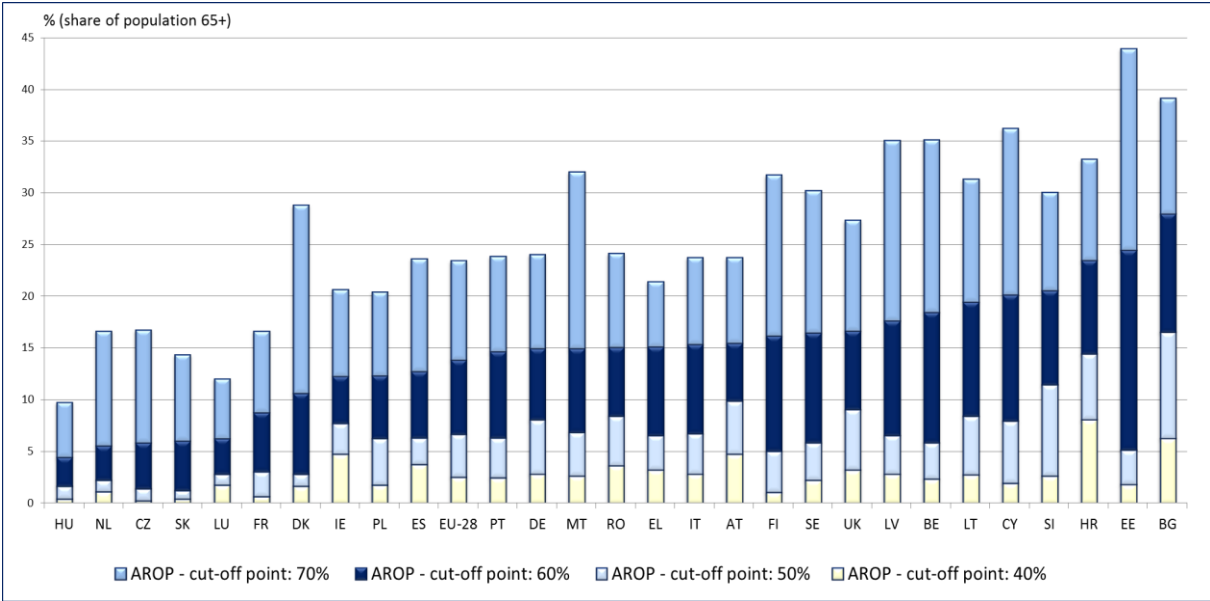
Source: Eurostat (table ilc_li02). Note: At-risk-of-poverty gap at 60 percent of the national median equivalised disposable income. Sorted by poverty gap for the population aged 65+. Based on EU-SILC 2013, which refers to the income year 2012.

The scale of the challenge of lifting older people out of monetary poverty can also be illustrated through the use of different poverty thresholds. Figure 2.11 analyses the at-risk-of-poverty (AROP) rate for those aged over 65 with disposable incomes below four different poverty thresholds: 40 percent, 50 percent, 60 percent and 70 percent of the national median disposable income.

In the EU-28 in 2013, some 2.5 percent of the population above age 65 was living on a disposable income of less than 40 percent of the national median disposable income, with the incomes of a further 4 percent living on between 40 and 50 percent of the median income. Out of the total nearly 14 percent of the older population at risk of poverty (based on the 60 percent threshold), half had incomes between 50 and 60 percent of the median income, i.e. slightly below the poverty line. At the same time, close to 10 percent of the population aged above 65 reported a disposable income of between 60 and 70 percent of the median income in 2013.

In general, Figure 2.11 confirms the importance of taking account of the dispersion of incomes around the poverty line. The share of the population aged 65 and over with disposable incomes below 40 percent of the national median income ranges from below one percent in Hungary, Czech Republic, Slovakia, France and Finland to more than four percent in Ireland, Austria, Croatia and Bulgaria.

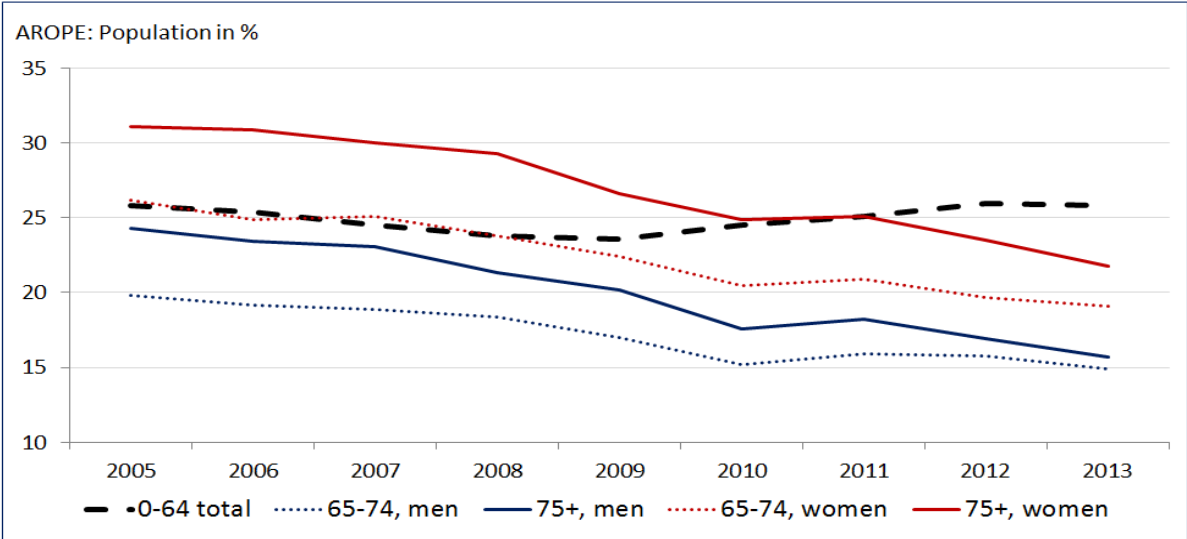
Figure 2.11: The share of people aged 65+ with disposable incomes below 40 percent, 50 percent, 60 percent and 70 percent of national median disposable income, 2013



Source: Eurostat. Note: Sorted by AROP - 60 percent cut of point. Based on EU-SILC 2013, which refers to the income year 2012.

Likewise, at the other end of the scale, the proportion of older people with incomes between 60 and 70 percent of the median income also varies significantly across Member States. In seven Member States (Sweden, Finland, Cyprus, Latvia, Belgium, Denmark and Estonia), more than 15 percent of the population aged 65 and above reported a disposable income only slightly above the 60 percent poverty threshold, reflecting the differences in the depth of poverty and in income inequalities (S80/20) as described above.

Figure 2.12: Changes in the AROPE rate by age group and sex in the EU-27, 2005-2013



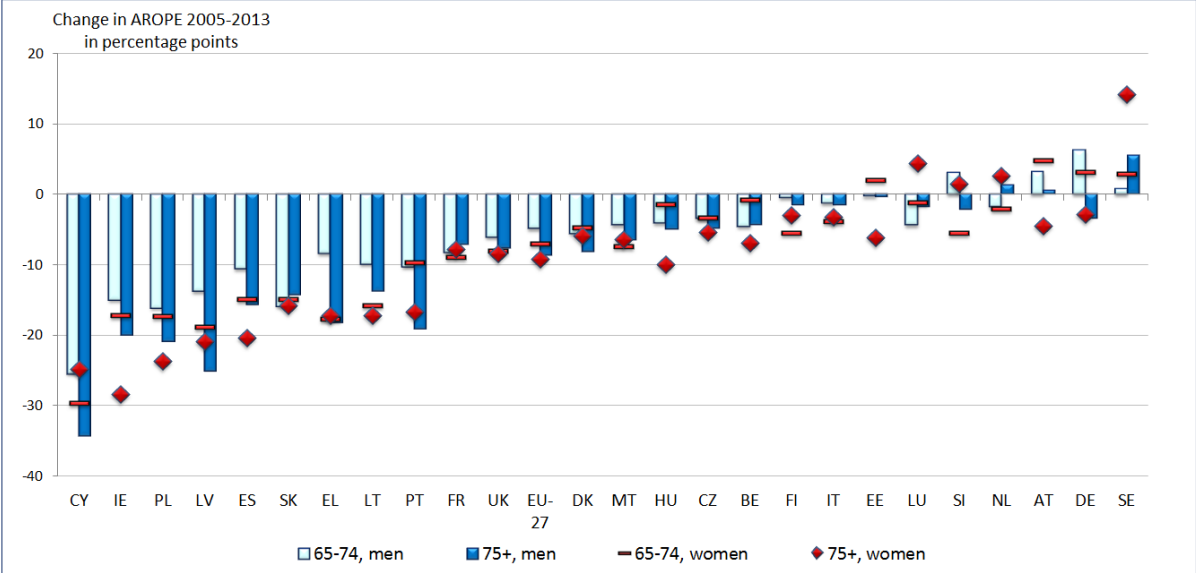
Source: Eurostat

In terms of the development of the at-risk-of-poverty-or-social-exclusion rate over time, Figure 2.12 illustrates the evolution of the AROPE indicator between 2005 and 2013 for the EU-27 by age and gender. While the risk of poverty and social exclusion for those aged under 65 increased somewhat since the onset of the crisis from around 24 percent in 2008 to 26 percent in 2013, the rate for those aged over 65 has constantly declined from 25.5 percent in

2005 to a little over 18 percent in 2013 - a development that benefited both men and women in all the older age groups. Thus the initially higher AROPE for men aged 75 and above, compared with those aged 65-74, had largely disappeared by 2013, while the AROPE rate for women in both age groups evolved roughly parallel to that of men. If any, convergence in poverty risks between age groups and gender in old age has hence taken place at a slow pace.

The overall figures for the EU-27 mask substantial difference in the evolution of the AROPE rates for the elderly population across Member States. Figure 2.13 depicts the changes in the at-risk-of-poverty rates between 2005 and 2013 for the population aged 65-74 and 75+ at national level. Overall, the AROPE rate for those aged 65 and over decreased in 22 out of the 25 Member States for which data are available, with a fall of more than 10 percentage points in Poland, Latvia, Ireland, Spain, Slovakia, Greece, Lithuania, Portugal, with a 28 percentage point decrease in Cyprus.

Figure 2.13: Changes in the AROPE rate by age group and sex, 2005-2013



Source: Eurostat. Note: Sorted by change in AROPE rate for the population 65+ between 2005 and 2013. No data for 2005 available for RO, BG and HR.

In many cases, this evolution has been uneven between men and women and between age groups. In many Member States, women aged over 65 and over have experienced either a greater decrease or lower increase in the AROPE rate than their male counterparts, which is largely explained by a stronger decline in the at-risk-of-poverty rate for women aged between 65 and 74.

In a number of Member States, however, the AROPE rate for older people did increase between 2005 and 2013 (Sweden, Germany and Austria). Different patterns across gender and age in these countries seem to indicate different processes underlying these rising rates. Overall, the risk of poverty and social exclusion developed in a more positive way for the age group 75 and more as compared to the population aged 65-74 in 17 Member States, contributing to a certain degree of convergence across age groups, with the relative situation improving most in Cyprus, Poland and Latvia. The detailed figures for all Member States and all indicators are summarised in Appendix 6 (Tables A1-A11).

Overall, the evidence shows that older people in the European Union are, on average, enjoying living standards close to those of the population of working age, face lower risks of

poverty and social exclusion than the rest of the population and, in particular, compared to younger age groups who are also recipients of transfer incomes. At the same time, huge differences exist between Member States with respect, not only to the overall situation, but also differences between men and women, and in terms of the evolution of living standards among those aged 75 and over.

2.3. The wealth of older people

While income is a key factor in determining the economic well-being of older people, account also needs to be taken of wealth and patterns of consumption. While the majority of older people rely on pensions as a main source for income during retirement, their living standards are also determined by income from work after the pensionable age (see section 2.5.), from income from assets such as housing or financial assets, and from their access to any publicly provided or subsidised services (see section 2.4.).

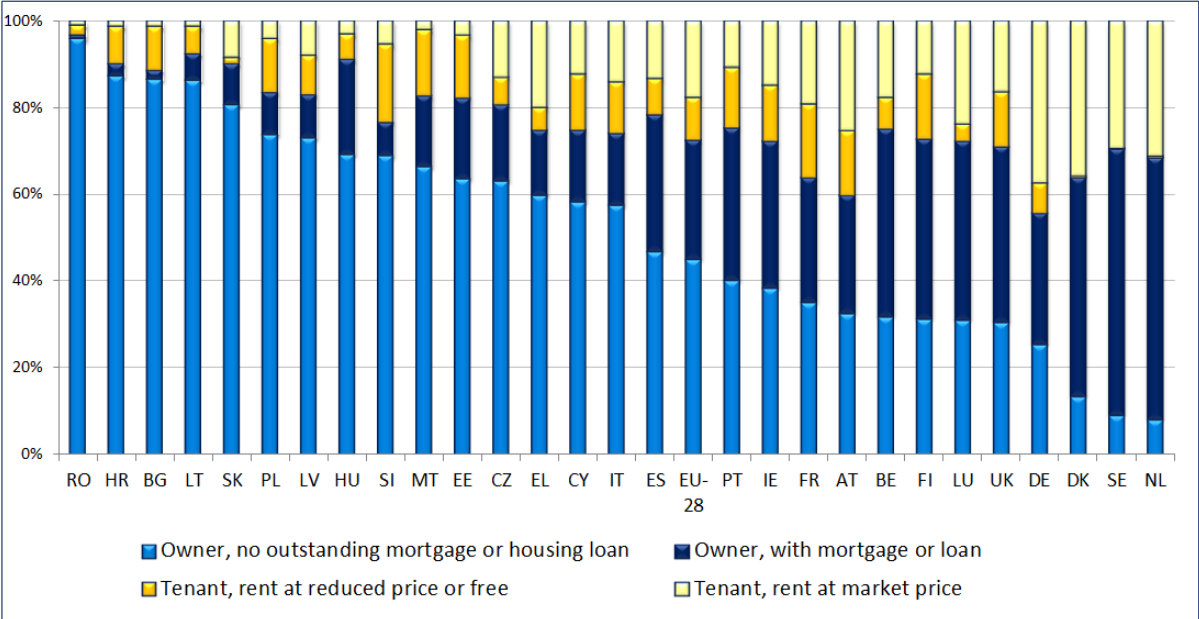
The value and quality of assets, investment possibilities, the level of home-ownership, employment possibilities and access to services and other non-pension benefits do all differ significantly across Member States. Even though such assets and asset-based incomes are likely to significantly affect living standards, they are not generally taken into account in assessing an individual's economic well-being and potential exposure to poverty. This section looks at housing and financial wealth of older people and provides a comparison to the wealth situation of the rest of the population.

2.3.1. Housing

Housing is an important component of both current consumption and private investment. In 2012 (latest data available), over a quarter (27 percent) of the total²⁰ EU-28 population lived in an owner-occupied home for which there was an outstanding loan or mortgage, while more than two fifths (45.1 percent) of the population lived in an owner-occupied home *without* a loan or mortgage (Figure 2.14). Again the situation differs significantly across Member States: from Sweden, the Netherlands and Denmark, where over 50 percent of the total population were owners with an outstanding loan or mortgage, against less than three percent in Romania, Bulgaria and Croatia.

²⁰ Note that detailed data on tenure status are not available separately for population aged 65+

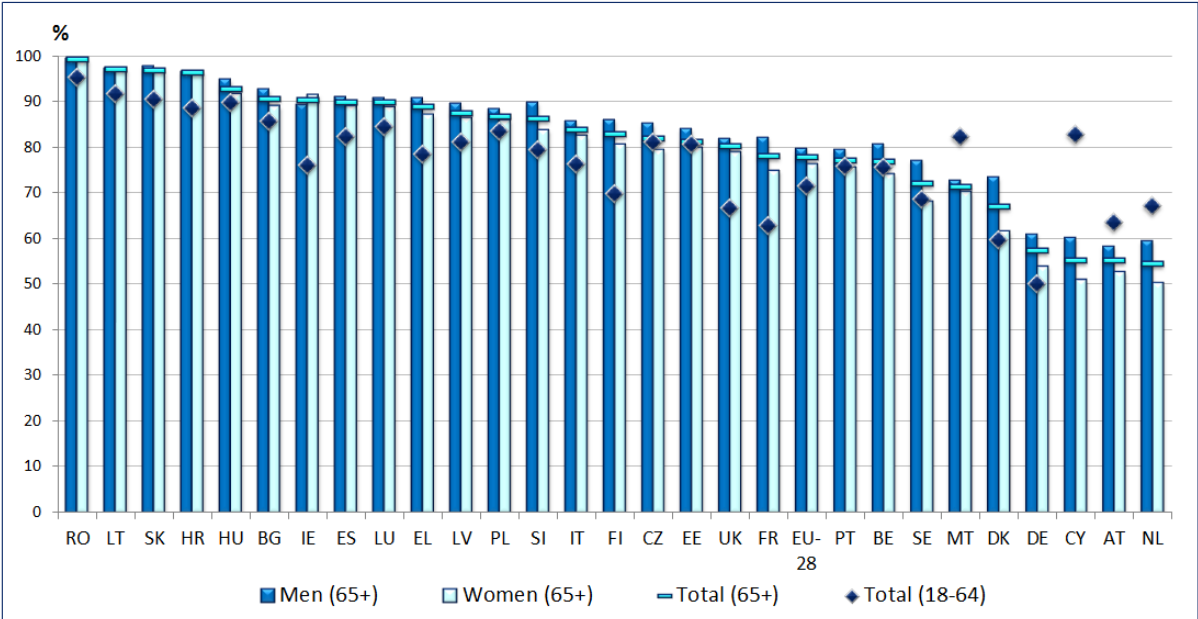
Figure 2.14: The population by tenure status (owners and tenants), total, 2012



Source: Eurostat. Note: 2013 data and data for age group of 65+ are not available

The highest share of tenants (more than 40 percent) is observed in Germany and Austria, with the lowest share of tenants (less than 10 percent) in Romania, Croatia, Hungary, Lithuania and Slovakia. In 2012, over 17.5 percent of the total population in the EU-28 were tenants paying a market price rent, while 10 percent benefited from reduced-rent or free accommodation. The highest share (over 15 percent of the population) of tenants in reduced-rent or free accommodation were found in Slovenia, France, Malta, Finland and Austria, with the smallest share (less than 1 percent of older people) in Sweden, Denmark and the Netherlands.

Figure 2.15: Tenure status – owners, among people aged 65 and over (by gender) and total (18-64), 2013



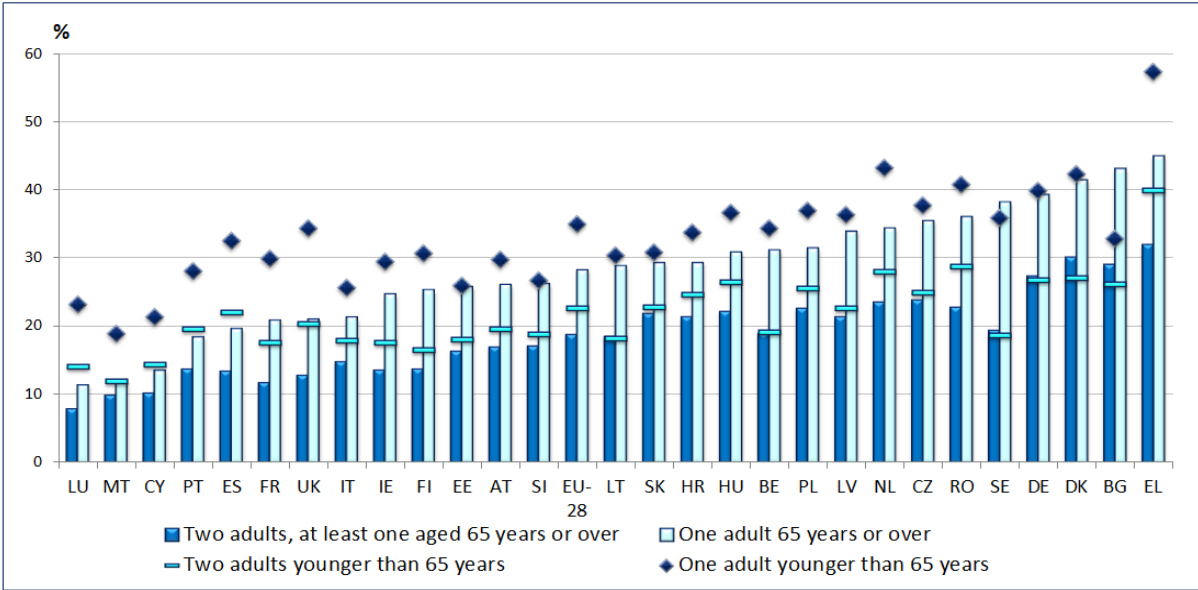
Source: Eurostat. Note: sorted by the values for total population aged 65+

Age-disaggregated data are available on house ownership rates in general, though not covering information on outstanding mortgages or housing loans. Figure 2.15 reports the share of house owners among those aged 65 or over and those at working age (age 18-64), respectively, as well as separately for men and women. In 2013, 77 percent of the EU-28 population aged 65 and over lived in owner-occupied dwellings, ranging from 54 percent in the Netherlands up to 99 percent in Romania.

The house ownership rate for older people was thereby higher than that of the population between age 18 and 65 in the EU-28 as a whole (71 percent) and in all but four Member States (the Netherlands, Austria, Cyprus and Malta). The greatest differences in terms of house ownership between older people and the working age population are observed in France, Finland, the United Kingdom and Ireland. In contrast, the share of owners does not change significantly with age in Belgium, Portugal, Estonia and the Czech Republic.

In most Member States, the share of men who are home owners is higher than the respective share of women, with the biggest differences between men and women seen in Denmark, the Netherlands and Sweden, and the smallest in Romania, Lithuania and Croatia. Only in Ireland the percentage of owners women is higher than the percentage of owners men aged 65 and over. There are many explanations of the different patterns of house ownership across Member States, covering factors such as differences in the extent of inter-generational transfers/inheritance, the availability of public housing, credit market imperfections, differences in taxation of housing, as well as longstanding social and cultural differences. In general, the extent to which people are willing and able to purchase a dwelling also depends on household composition. Couples above age 65 or over are more likely to be home-owners relative to both one-person households and couples below age 65 (results not illustrated).

Figure 2.16: Share of housing costs in disposable household income, by household type, 2013

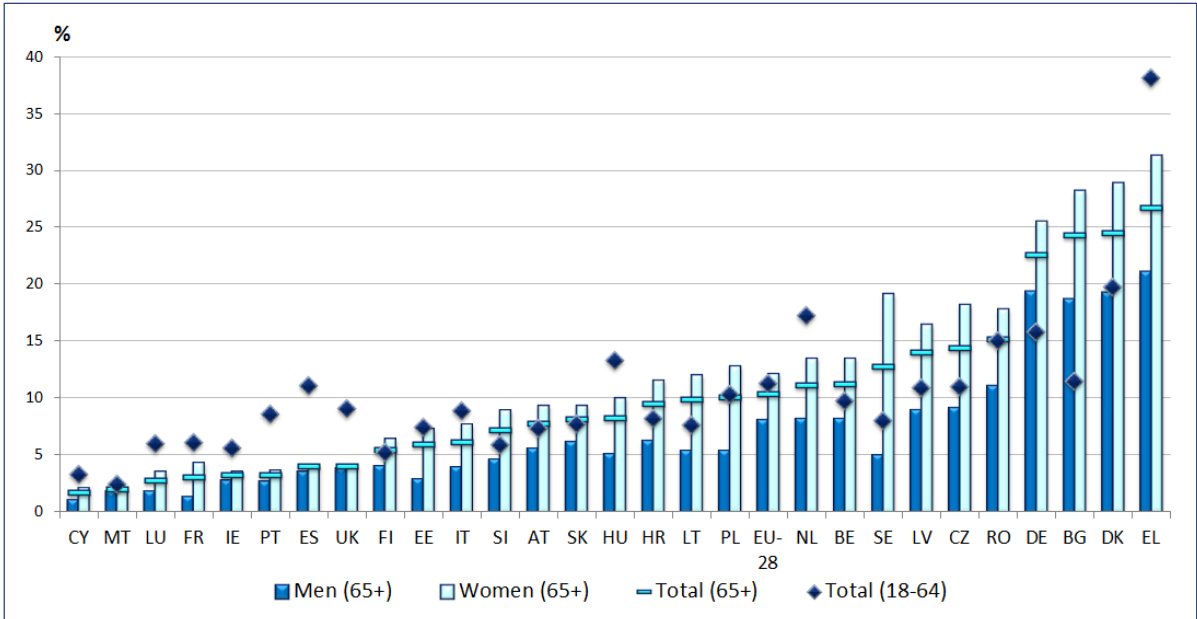


Source: Eurostat. Note: sorted by the values for one adult 65 years or over

Household composition thereby also has a strong impact on the share of housing costs in disposable household incomes.²¹ In the EU-28, the lowest housing costs are, on average, observed for household with two adults and at least one person above age 65, compared to both single adults aged 65 or more and adults younger than age 65 (Figure 2.16). Housing costs were thereby lower for elderly singles (28 percent) compared with younger single households (35.1 percent).

In some countries, a substantial share of older single people spent more than 40 percent of their equivalised disposable income on housing, which is recognised as being the threshold at which households are considered to be overburdened with housing costs (see Figure 2.17). Overall, some 10.3 percent of the EU-28 population aged 65 or more live in a household that spends more than 40 percent of its disposable income on housing (compared to the 11.3 percent of those aged 18 to 64). On the other hand, the reverse is true in 14 Member States (Finland, Slovenia, Austria, Slovakia, Croatia, Lithuania, Belgium, Sweden, Latvia, the Czech Republic, Romania, Germany, Bulgaria and Denmark). In fact the housing cost overburden rate for the elderly ranges from around 1.6 percent in Cyprus to over 26.7 percent in Greece. Gender differences in old-age material wellbeing are also reflected in the housing cost overburden rate, which is higher on average for women (12 percent) than for men (8 percent), both on average in the EU and in the majority of Member States.

Figure 2.17: Housing cost overburden rate, by age and gender, 2013



Source: Eurostat. Note: sorted by the values for total population aged 65+.

A second indicator commonly used to assess the housing situation is the severe housing deprivation rate, which is defined as the proportion of persons living in dwellings considered to be overcrowded.²² Figure 2.18 shows, however, that, on average, older people are less

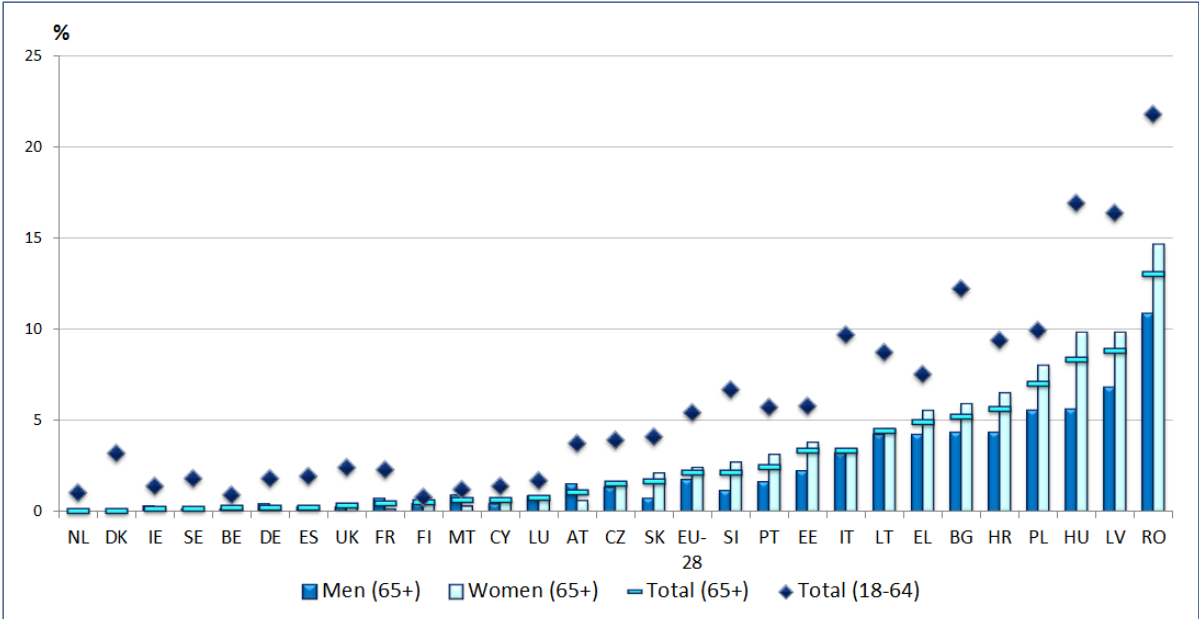
²¹ Disposable household income includes: all income from work, private income from investment and property; transfers between households; all social transfers received in cash including old-age pensions.

²² Severe housing deprivation rate is defined as the percentage of population living in the dwelling which is considered as overcrowded, while also exhibiting at least one of the housing deprivation measures. The items considered are: (i) leaking roof, damp walls/floors/foundation, or rot in window frames or floor; (ii) lack of bath or shower in the dwelling; (iii) lack of indoor flushing toilet for sole use of the household; (iv) problems with the dwelling: too dark, not enough light.

affected by severe housing deprivation than the working-age population (2 percent as against 5.5 percent).

Nevertheless in six Member States more than five percent of the elderly population face severe housing deprivation (Bulgaria, Croatia, Poland, Hungary, Latvia and Romania) in contrast to, less than 0.2 percent in Denmark, the Netherlands, Ireland and Sweden. Again, women suffer from severe housing deprivation more than men, especially in Romania, Hungary, Latvia, Poland, Croatia, Bulgaria and Greece. On a positive note, the available data suggest that the overall proportion of older people facing severe housing deprivation across EU-28 slightly decreased by 0.4 percentage points between 2010 and 2013 (not shown).

Figure 2.18: The severe housing deprivation rate, by age and gender, 2013



Source: Eurostat. Note: sorted by the value for total population aged 65+

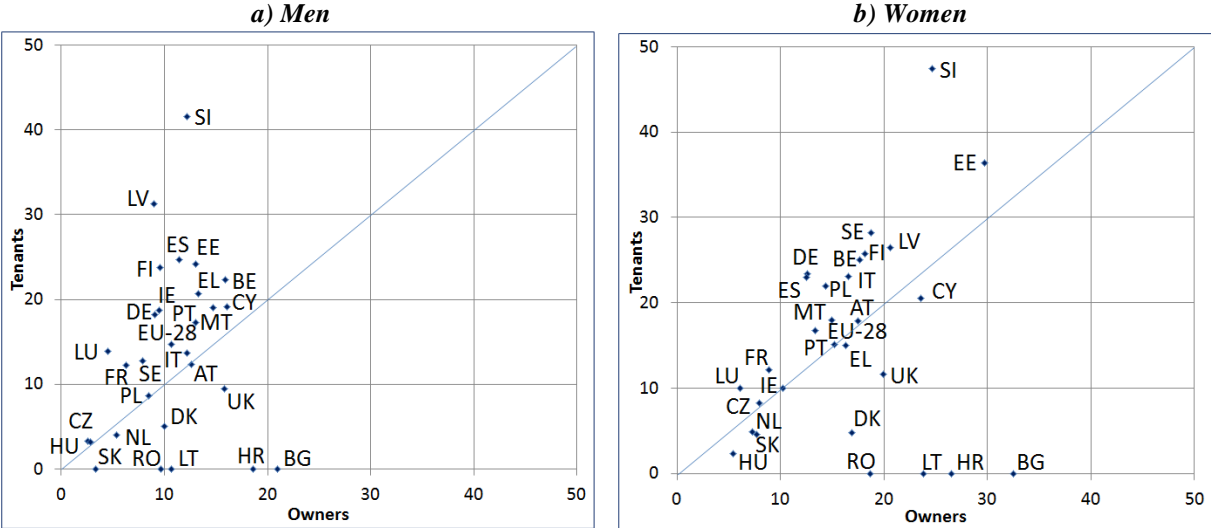
Whether or not a person owns the property in which they live is thus correlated with the risk of old age poverty and severe material deprivation, with generally lower monetary poverty among home-owners than non-owners in old age. In 2013, 13 percent of home-owners aged 65 and over in EU-28 were at risk of poverty, although this ranged from a low of 4.5 percent in Hungary to around 23 percent in Greece and Croatia, and nearly 28 percent in Bulgaria. This compared with the somewhat higher at-risk-of-poverty rate for tenants of 16.5 percent, ranging from 2.5 percent in Hungary to 45 percent in Slovenia (see Table A2-8 in the Annex 6).²³

Figure 2.19 illustrates the at-risk-of-poverty rates for owners and tenants in EU-28 by gender, showing a significantly higher rate of 15 percent for women property owner compared with under 11 percent for men. Similar gender differences are observed for tenants, with the poverty risk for female tenants at 18 percent compared with under 15 percent for men. Overall the at-risk-of-poverty rate for tenants in EU-28 is 3.5 percentage points higher than for owners, with the exception of Denmark, the United Kingdom, Slovakia, the Netherlands and

²³ Information on severe material deprivation by tenant status is not available separately for the population above age 65. For the entire population, home owners (with mortgage or loan: 3.6 percent; no outstanding loan: 9.3 percent) are significantly less affected by severe material deprivation than tenants (rent at market price: 13.8 percent; rent at reduced price or free: 18.9 percent) in the EU-28 in 2013.

Hungary, where owners face a higher poverty risk compared to tenants. This, perhaps surprising, evidence may be explained by the fact that over 27 percent of the EU-28 population living in an owner-occupied home still have an outstanding loan or mortgage. At the other end of the scale, the poverty risk is substantially higher for tenants than owners in Slovenia as well as in Bulgaria, Spain, Latvia, Finland and Germany.

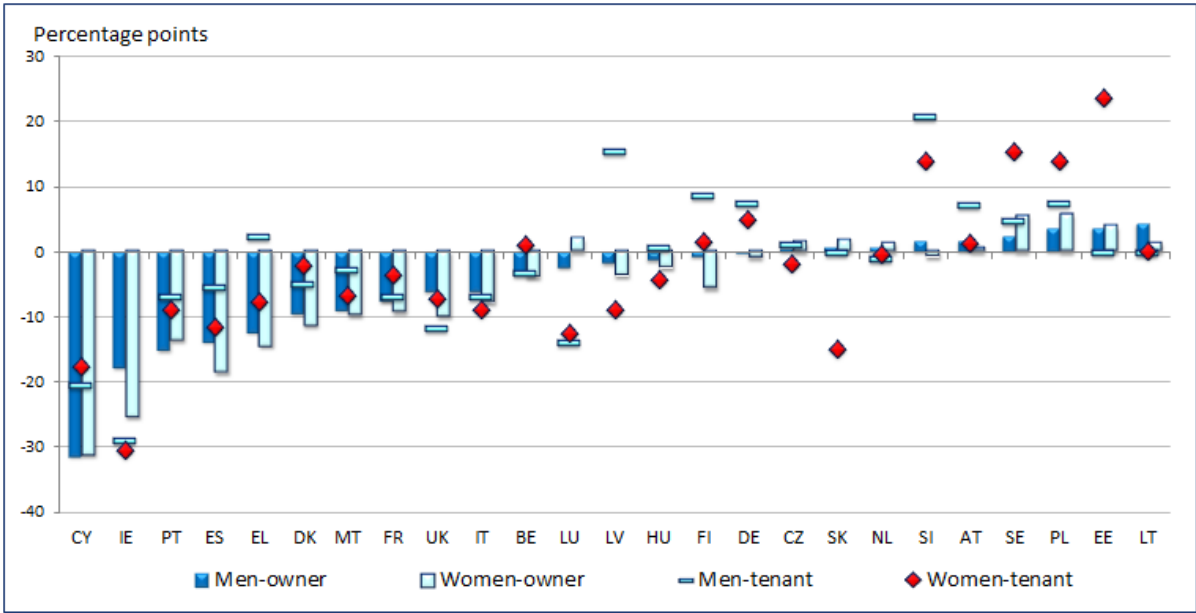
Figure 2.19: At-risk-of-poverty-rate for owners and tenants aged 65+, by gender, 2013



Source: Eurostat. Note: No data for tenants in RO, LT, HR and BG

Over time, the at-risk-of-poverty-rate of elderly owners has improved, as seen in Figure 2.20, which shows a decrease between 2005 and 2013 in many Member States, with more than a 10 percentage point reduction for men and women in Cyprus, Ireland, Portugal, Spain, Greece and Denmark. In contrast, the at-risk-of-poverty-rate of elderly tenants increased by more than 10 percentage points for men in Latvia and Slovenia and for women in Estonia, Slovenia, Sweden and Poland over the same period.

Figure 2.20: Changes in at-risk-of-poverty-rate by tenure status and gender, people aged 65 and over, 2005-2013



Source: Eurostat. Note: sorted by values for males-owners. Data for 2015 are not available for RO, HR, BG and EU-28. Data for tenants not available in EE (men), LT (women and men), SK (men).

In summary, older people are found to be in better position in terms of home ownership and financial wealth compared to the working age population with higher house ownership rates. As such, older people suffer less from severe housing deprivation and a slightly lower housing cost overburden rate. However, gender differences exist in most Member States in terms of home ownership, severe housing deprivation, and housing cost overburden rates.

Imputed rents

As noted already, old age poverty and severe material deprivation are correlated with the tenant status with the risk of poverty in old age being lower overall for home-owners. In order to obtain a more precise assessment, however, it is necessary to estimate the value accruing to households due to not paying a full rent.²⁴ Such imputed rents are intended to reflect the economic benefits for both owner-occupiers and of people living in rent-controlled social housing. Data from a recent Eurostat study²⁵ that takes net imputed rent into account suggests that this factor both lowers estimates of income inequality and poverty among the elderly, as well as increasing consistency between the indications provided by poverty and deprivation measures.

The impact of accounting for imputed rents on aggregate income and poverty measures depends in particular on a number of factors:

- the share of beneficiaries in a country, and especially the homeownership rate;
- the average rents or housing prices;
- the average level of the costs that are deducted from rental equivalences; and
- mortgage indebtedness and interest rates.

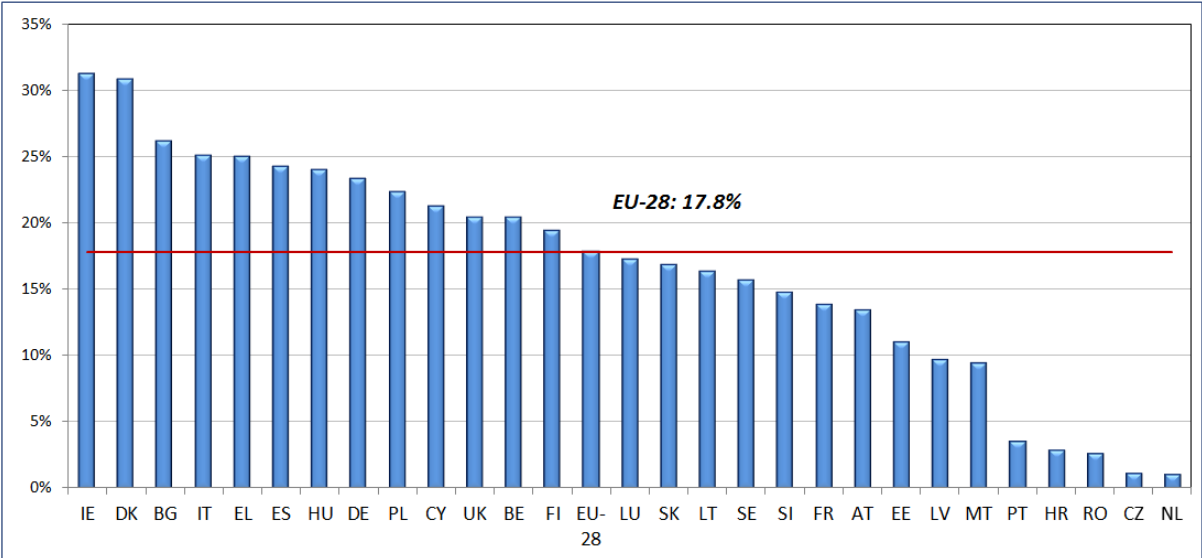
According to the OECD²⁶, the inclusion of imputed rent lifts disposable incomes of elderly home-owners by around 18 percent on average in the EU-28 (Figure 2.21). The largest positive effects are observed for Ireland, Denmark, Bulgaria, Italy, Greece, Spain and Hungary while the impact is estimated at much lower, below three percent, in the Netherlands, the Czech Republic, Romania, Croatia and Portugal.

²⁴ In terms of target variables, net imputed rent refers to imputed rents minus interest repayments on mortgage.

²⁵ The distributional impact of imputed rent in EU-SILC 2007-2010. 2013 edition. Eurostat. Luxembourg: Publications Office of the European Union, 2013.

²⁶ OECD 2013. Anna C. d'Addio *et al.* Wider Measures of Income Poverty. Final report, VS/2011/360. Evaluating pension and modelling policies in OECD and EU countries: modelling pension entitlements and evaluating pensions adequacy, 30 June 2013.

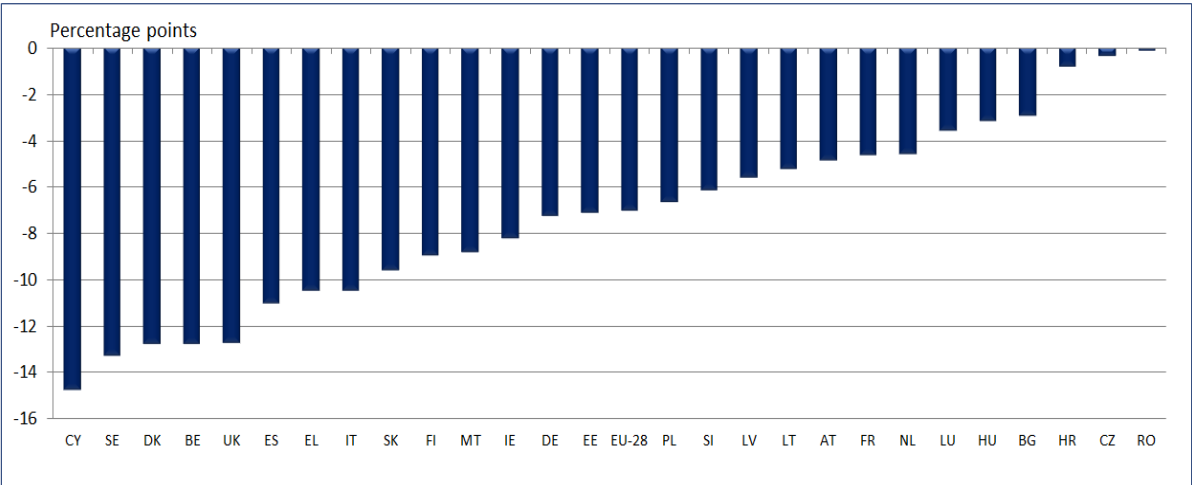
Figure 2.21: Percentage increase in disposable income when augmented with imputed rents for the home-owners aged 65 and over, 2013



Source: OECD calculation based on EU-SILC 2013 (August 2014). Note: Disposable income equivalised with the square root equivalence scale

The higher disposable income for home owners after the inclusion of imputed rents has a poverty reducing effect. Figure 2.22 illustrates the percentage point decrease in the at-risk-of-poverty rate for older people (65+) when accounting for home ownership. Poverty reductions amount to about seven percentage points when rents are imputed, with this effect found well above the average in Cyprus, Sweden, Denmark, Belgium and the United Kingdom, but less strong in Romania, the Czech Republic and Croatia. Generally, in countries where housing equity is mainly held by households at the top of the income-distribution, imputed rents may play a limited role in reducing poverty. In consequence, the inclusion of imputed rents changes the ranking of countries in terms of old age poverty rates.

Figure 2.22: Percentage points change in the at-risk-of poverty rates when including imputed rents for the home-owners aged 65 and over, 2013



Source: OECD calculation based on EU-SILC 2013 (August 2014). Note: Data for PT – not available. Poverty is computed with respect to a threshold of 60 percent of the median equivalised household income. However, OECD calculation uses the square root scale to equivalise the income while Eurostat uses a different equivalence scale. The OECD-modified scale gives different weights to the members of the households (1 to the household head, 0.5 to each additional adult member, and 0.3 to each child)

However, while taking account of imputed rents leads to lower estimates of income-poverty in most countries, there remain a number of unresolved data issues. In effect the scale of the changes depends on the amount of imputed rents themselves, which in turn are linked closely to housing equity values and to the methods of calculation. According to the Eurostat (2013),²⁷ the imputed rental equivalences may be over-estimated if rental costs are abnormally high, or under-estimated if a lack of detailed rental price data leads to crude approximations.²⁸ Furthermore, the quality, completeness and transparency of the estimation methods used to analyse the EU-SILC have been questioned and Eurostat considers that further methodological studies and improvements in data quality are necessary before estimates of disposable income including imputed rents can substitute the current concept of cash disposable income.

2.3.2. Financial wealth

The amount of data on financial wealth held by older people, and its contribution to the adequacy of old age incomes, is generally limited. However the Eurosystem Household Finance and Consumption Survey (HFCS) of the European Central Bank (ECB), carried out in 2013 did seek to document the financial wealth of households in 15 Member States (Belgium, Germany, Greece, Spain, France, Italy, Cyprus, Luxembourg, Malta, the Netherlands, Austria, Portugal, Slovenia, Slovakia and Finland).

This data showed that the distribution of wealth is very unequal among both older people and the population as a whole.²⁹ In particular, the bottom 20 percent of the total population holds no aggregate net wealth according to ECB estimates (net wealth being described as the difference between total household assets³⁰ and total household liabilities³¹). In contrast, households in the top 20 percent hold close to 70 percent of the euro area's household wealth, with the top 5 percent owning well over a third (some 37 percent) of total net wealth. Disaggregating the data on the distribution of net wealth shows that the net wealth in the countries covered tends to decrease at the end of the life course (Figure 2.23), it was lower in almost all countries for people aged 65 or more and, in particular for people aged 75 or more, compared to people in the age group 55 to 64. From the cross-sectional information for the

²⁷ The distributional impact of imputed rent in EU-SILC 2007-2010. 2013 edition. Eurostat. Luxembourg: Publications Office of the European Union, 2013.

²⁸ The size of the rental markets vary across countries ranging from less than 10 percent in the Eastern European countries, Iceland and Spain to nearly 40 percent in Germany. Another reason may be that the rental market is relatively small and the share of households living in reduced-rent or rent-free dwellings is significant, as is the case in Poland and the Czech Republic. The low level of imputed rents may for example explain why they play little or no role in the Czech Republic.

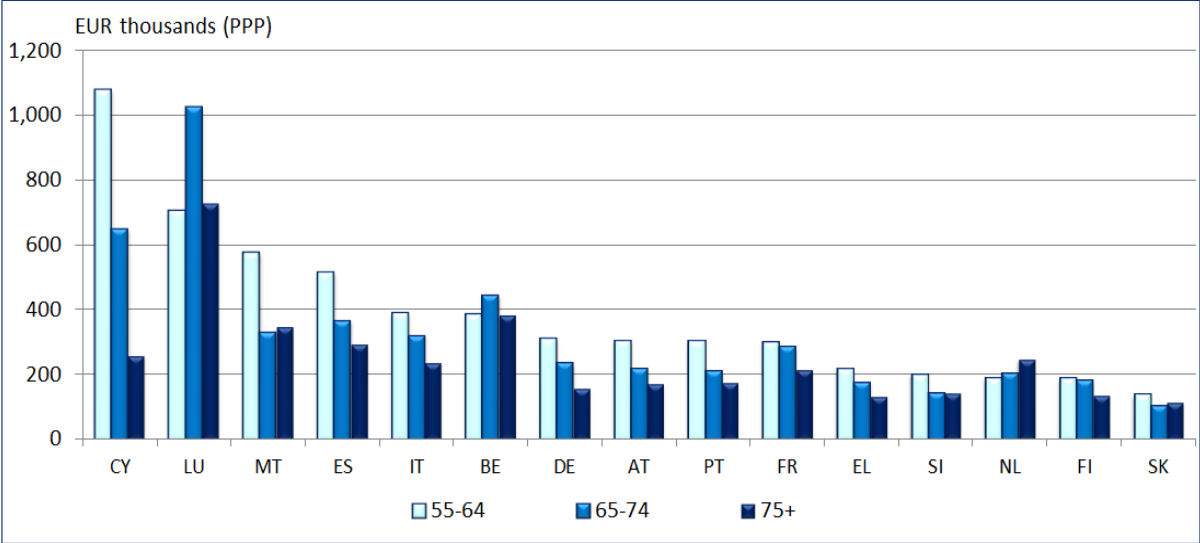
²⁹ Source: The Eurosystem Household Finance and Consumption Survey. Results from the first wave. Statistics paper series. No. 2 / April 2013.

³⁰ Total assets include real assets (the value of the household main residence for homeowners, other real estate property, vehicles, valuables such as jewelry, works of art, antiques, etc. and value of self-employment businesses) and financial assets (deposits (sight and saving accounts), mutual funds, bonds, shares, money owed to the households, value of voluntary pension plans and whole life insurance policies of household members and other financial assets item - which includes private non-self-employment businesses, assets in managed accounts and other types of financial assets).

³¹ Total liabilities include mortgages collateralised on household's main residence, mortgages collateralised on other real estate property owned by the household, non-mortgage loans (consumer credit loans, private loans and other loans not collateralised on household's real estate property), credit lines/bank overdrafts debt and credit card debt (outstanding amount on which interest is paid at the end of the billing period) - unless otherwise specified for a given country (see country notes below for more detail).

survey year 2013, however, it remains unclear whether this is the result of the consumption, or transfer of ownership, of wealth in the retirement phase, or a cohort effect.

Figure 2.23: Net wealth (means), by age group, EUR thousands (PPP), 2013



Data source: ECB, Eurosystem Household Finance and Consumption Survey. Note: The net wealth is the difference between total household assets and total household liabilities. Corrected for price level differences using purchasing power parities.

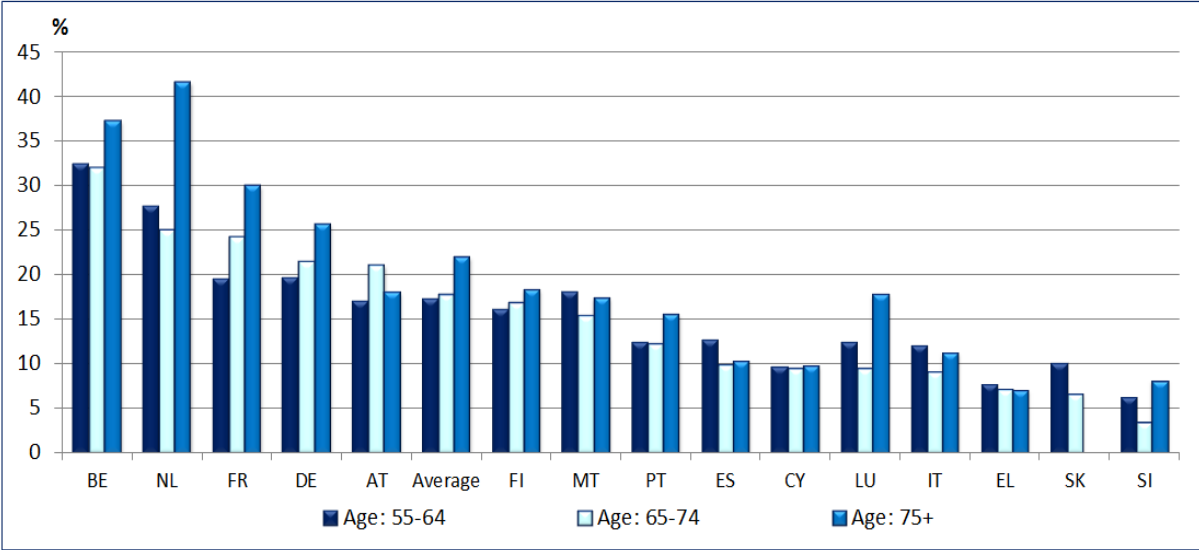
Beyond total net wealth, the HFCS also allows assessing the composition of assets held by different age groups. Figure 2.24 indicates the share of financial assets out of the total grossed up amount of assets held by particular age-groups of the population.³² Here, differences across age groups are rather small, whereas household asset portfolios appear to differ more substantially between countries than within them. Generally, the structure and the components of household wealth depend on the overall macroeconomic environment and, in particular, asset price dynamics. Much of the dynamics of net wealth is driven by capital gains/losses on real and financial assets rather than the accumulation of active saving by households.

As different financial assets have different risk profiles and transaction costs, certain financial assets are traditionally more widely known by a broader public. The highest values of publicly traded shares are held by the age bracket 65-74, with the highest value of mutual funds and bonds held by those aged 75 and over. Riskier assets are concentrated in the hands of the richest. In contrast, households in the lowest income deciles tend to have safer products such as deposits accounts and bonds.³³

³² Financial assets thereby include deposits (sight and saving accounts), mutual funds, bonds, shares, money owed to the households, value of voluntary pension plans and whole life insurance policies of household members and other financial assets item - which includes private non-self-employment businesses, assets in managed accounts and other types of financial assets.

³³ Source: The Eurosystem Household Finance and Consumption Survey. Results from the first wave. Statistics paper series. No. 2 / April 2013.

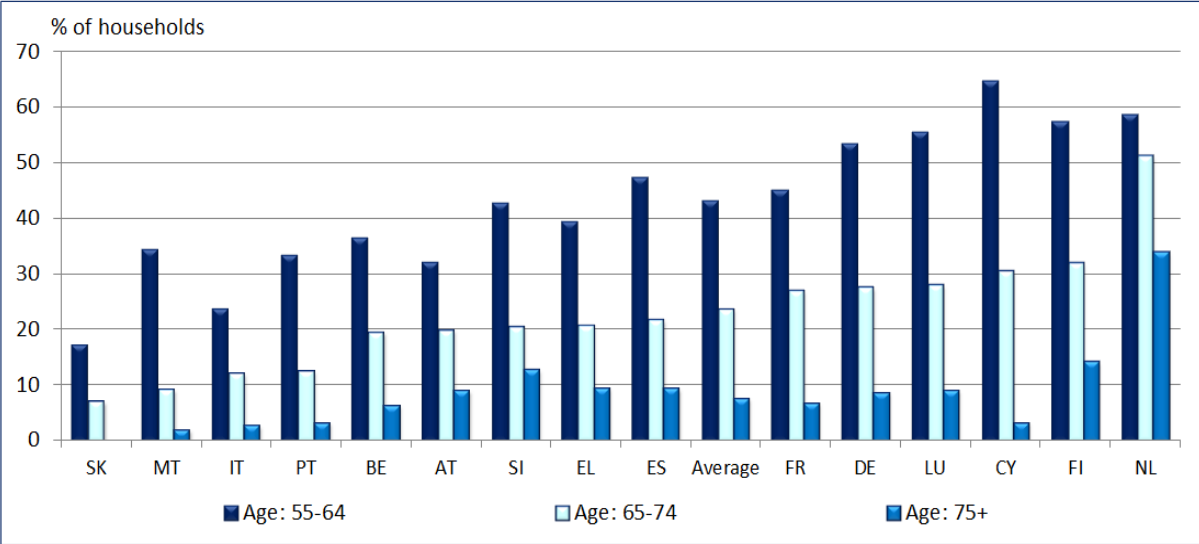
Figure 2.24: The share of financial assets in total gross assets, by age groups, 2013



Source: Eurosystem Household Finance and Consumption Survey. Note: data for age group 75+ are not available for SK.

Moreover, financial wealth cannot be examined in isolation from household debts. Debts come in many different forms, with much household debt accounted for by mortgages secured on the value of property. However, one third of all households report having another type of debts: credit card debt and other non-mortgage debt, which includes consumer, personal and instalment loans, but also private loans. Figure 2.25 illustrates the percentage of households holding debts by age groups. On average, for the 15 Member States covered, nearly 24 percent of people aged from 65 to 74 report holding debt, but the percentage decreases significantly with age, with debt of less than 8 percent declared by people aged 75 and over).

Figure 2.25: Percentage of households holding debts by age groups, 2013



Data source: ECB, Eurosystem Household Finance and Consumption Survey. Note: Debt instruments include mortgages collateralised on household's main residence, mortgages collateralised on other real estate property owned by the household, non-mortgage loans (consumer credit loans, private loans and other loans not collateralised on household's real estate property), credit lines/bank overdrafts debt and credit card debt (outstanding amount on which interest is paid at the end of the billing period) - unless otherwise specified for a given country.

2.4. Access to services and non-pension benefits

The well-being of the elderly can depend not only on their incomes but also on their access to services and non-pension benefits, where differences in Member State policies and practices regarding the provision and mix of in-kind and cash benefits are substantial.

According to the OECD,³⁴ public services have the highest poverty reducing effects for people of working age. Out of the total public expenditure on services targeted on households with incomes below the poverty line, this age-group receive the largest share -58.5 percent - accounting for 62 percent of people at risk of poverty. The older poor, who account for 15 percent of people of risk of poverty receive some 11 percent of all public services intended to address poverty. Public services are thereby likely to also produce secondary redistributive effects. Elderly (and child) care services, for example, favour female employment which entails higher earnings for the family and higher employment levels in the economy.

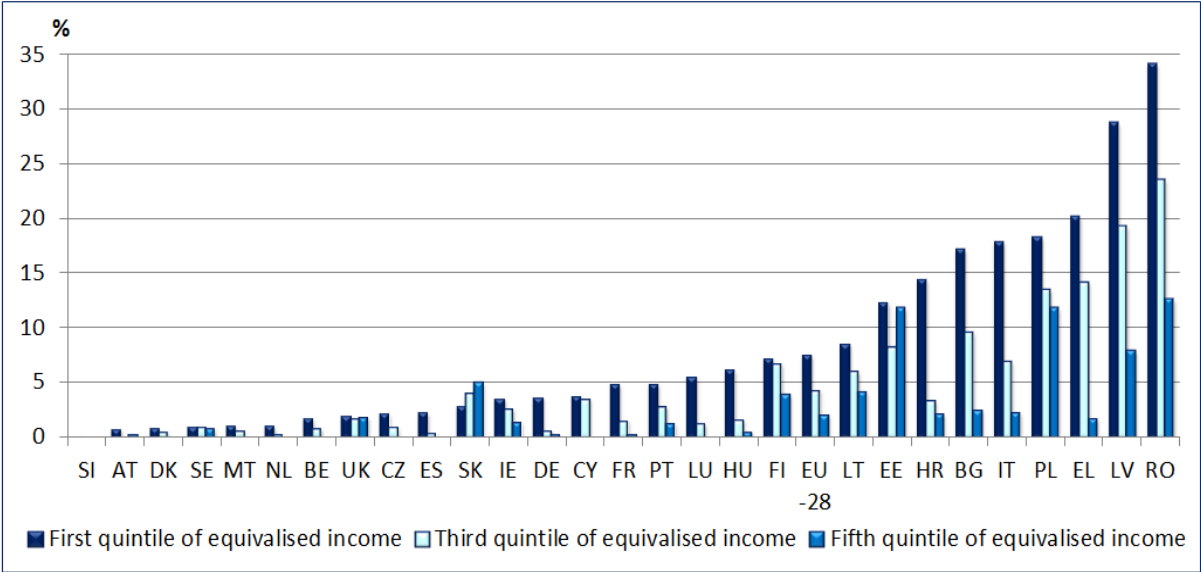
Access to health care

According to EU-SILC data, some 93 percent of the population aged 65 plus have access to medical care in EU-28 although in some Member States people in vulnerable situations and with low-income continue to experience difficulties in accessing healthcare. In 2013, 4.8 percent of elderly (65+) reported unmet needs for medical examination due to 3 reasons: too expensive or too far to travel or waiting list. Among the poorest 20 percent of the elderly in EU-28, 7.5 percent reported unmet needs³⁵ for medical examination in 2013. Generally, older people in the bottom quintile of equivalised income face higher unmet needs for medical examination (because of 3 reasons: too expensive or too far to travel or waiting list) compared with those with higher income (Figure 2.26). The highest levels of unmet needs for health-care in 2013 were reported in Romania, Latvia and Greece and the lowest in Slovenia, Austria and Denmark. These comparisons, however, should be interpreted with care. Cultural differences between countries hamper the cross-country comparability of self-reported health needs although the data helps to illustrate the situation within countries.

³⁴ Source: OECD 2013. Anna C. d'Addio *et al.* Publicly provided services. Final report. VS/2011/360. Evaluating pension and modelling policies in OECD and EU countries: modelling pension entitlements and evaluating pensions adequacy, 30 June 2013.

³⁵ Reasons - too expensive or too far to travel or waiting list. Other reasons are not included.

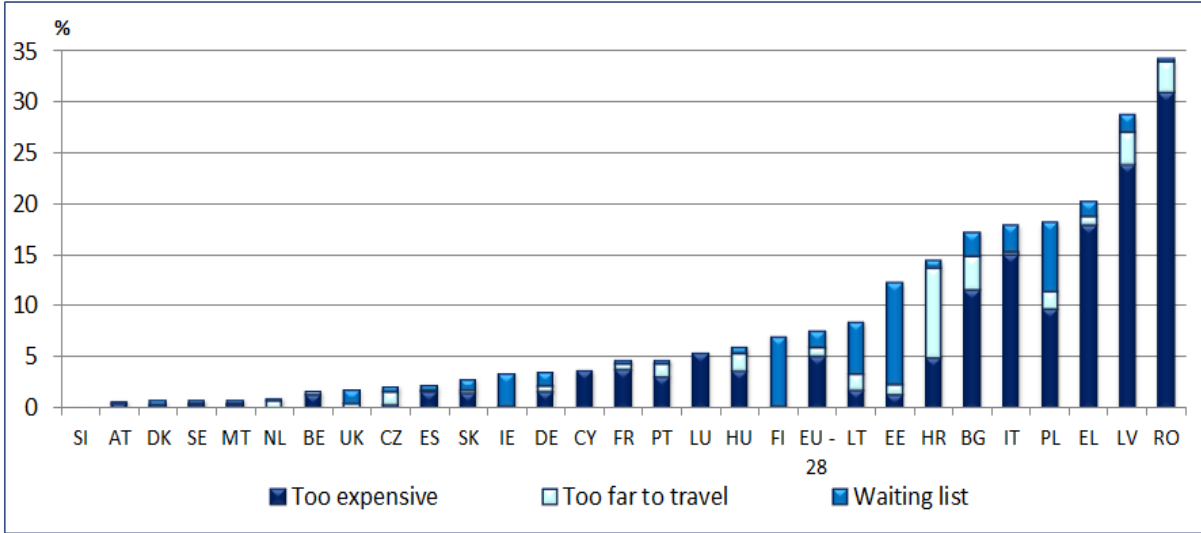
Figure 2.26: Self-reported unmet needs for medical examination, different income quintiles of people 65+, 2013



Source: Eurostat. Note: Reasons - too expensive or too far to travel or waiting list. Sorted by the first quintile of equivalised income. Note: Other reasons are not included.

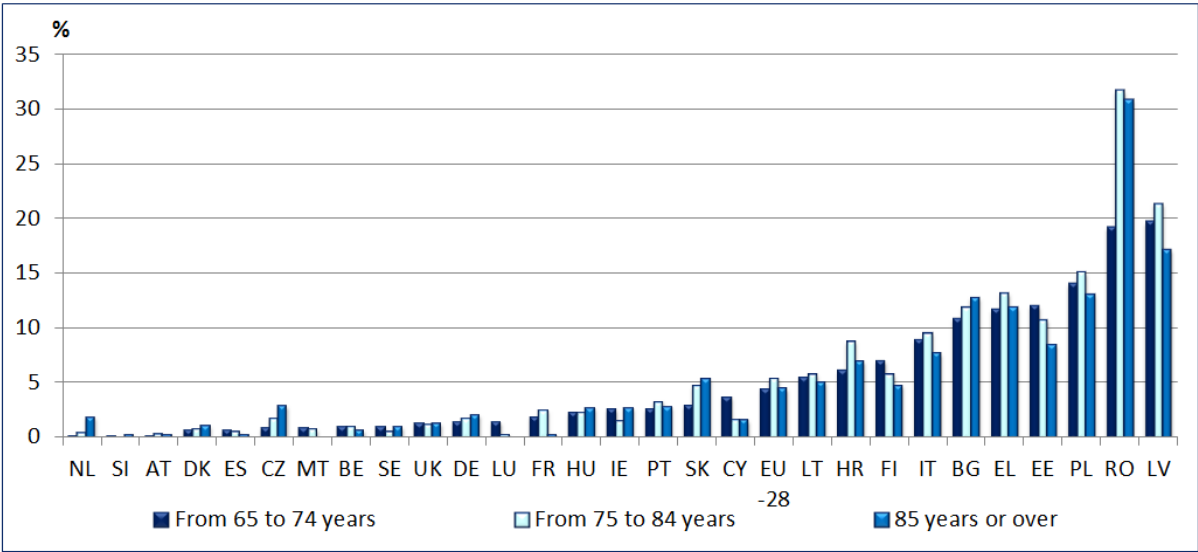
The main reasons for self-reported unmet needs for medical examination are that they are too expensive; too difficult to reach; or delayed because of waiting lists. For elderly in the poorest income quintile, access problems are particularly related to costs (Figure 2.27). Long waiting times are a problem in several Member States (Poland, Estonia, Lithuania, Finland and Ireland), whereas geographical distance to service providers is seen as a particular problem in Croatia, Bulgaria, Latvia and Romania.

Figure 2.27: The main reasons of self-reported unmet needs for medical examination, poorest income quintile of people 65 and over, 2013



Source: Eurostat. Note: Reasons - too expensive or too far to travel or waiting list. Other reasons are not included (No time; Didn't know any good doctor or specialist; Fear of doctor, hospital, examination or treatment; Wanted to wait and see if problem got better on its own; Other reasons).

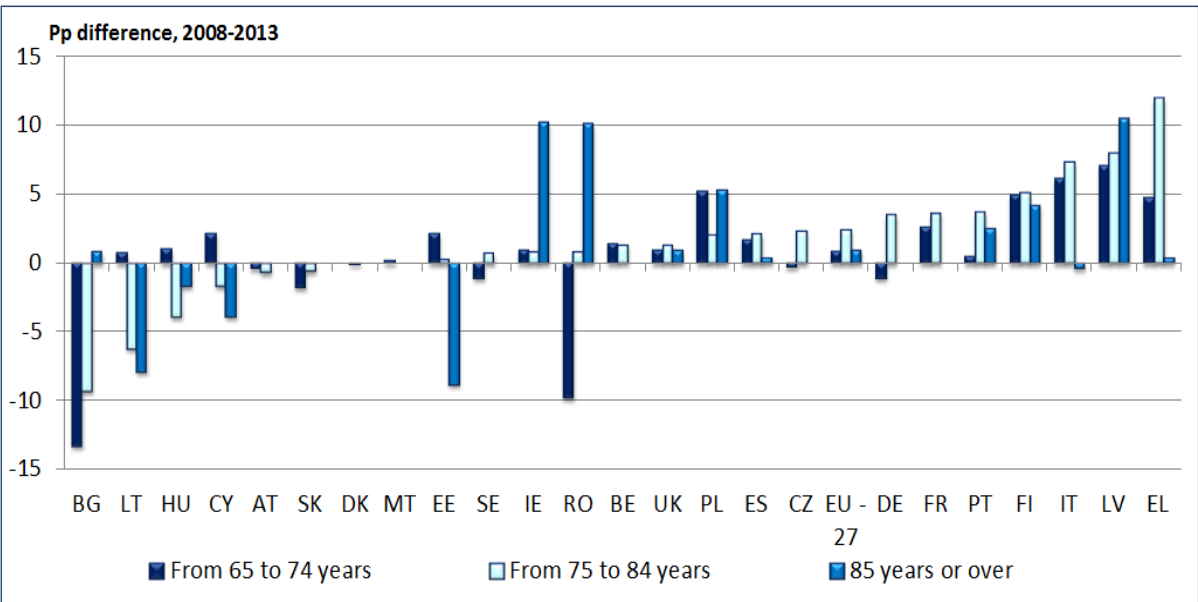
Figure 2.28: Self-reported unmet needs for medical examination, total people from 65 to 74, from 75 to 84 years and 85 years and over, 2013



Source: Eurostat. Note: total people (all quintiles of equivalised income). Reasons - too expensive or too far to travel or waiting list. Other reasons are not included. Sorted by age group: from 65 to 74 years.

Difficulties in accessing health care services tend to increase with age, with the highest unmet needs for medical examination being reported by people aged 75 to 84 years. Those of 85 years and over report lower unmet needs for medical examination in many Member States, although they are higher than for other age groups in Bulgaria, Slovakia, Ireland, Hungary, Germany, Sweden, the Czech Republic, Denmark and the Netherlands (Figure 2.28). Clearly, however, the reasons for these different patterns across age groups are likely to depend on a range of country-specific circumstances.

Figure 2.29: Changes in self-reported unmet need for medical examination, poorest income quintile (people from 65 to 74 years, from 75 to 84 years and 85 years and over), 2008-2013



Source: Eurostat. Note: Reasons - too expensive or too far to travel or waiting list. Other reasons are not included. Due to cultural differences between countries this indicator should not be used to make international comparisons. Data for 2008 are not available for HR, LU, NL and SI. BE: the increase between 2010 and 2011 is largely explained by a change in the wording of the unmet need question in the 2011 SILC questionnaire. Evolutions between years before 2011 and years from 2011 cannot be interpreted.

Over time, the share of people in the poorest income quintile who reported unmet health care has increased somewhat in the EU-27 (2008-2013; Figure 2.29) with significant increases reported in Ireland, Romania and Latvia for people aged 85 and over, and in Greece, Latvia and Italy for those aged between 75 and 84.

Long-term care

Long-term care (LTC) encompasses a range of services and support for people who are dependent on help with their daily living. According to the report "*Adequate social protection for long-term care needs in an ageing society*"³⁶, an increasing proportion of Europeans can expect to reach an age in which they are at risk of becoming frail and developing multi-morbidity conditions, requiring both medical and social care on a continuing basis. EU citizens aged 65 can expect less than half of their remaining years to be free from conditions affecting their ability to manage daily living activities, with the risk of needing long-term care rising steeply from the age of 80.

The way in which LTC is treated in the social protection systems³⁷ of Member States varies greatly, notably in the relative weight assigned to formal and informal care. There is also marked diversity in the way formal care is organised (e.g. by public, for-profit or NGO providers), financed (e.g. via general taxation, obligatory social security, voluntary private insurance or out-of-pocket payments) and delivered (e.g. as home care or institutional care).

Formal LTC services may be provided in a variety of settings, including institutions, from traditional old people's homes to modern nursing homes, in supported living arrangements (e.g. residential care) or in people's own homes (e.g. home help or home care). In these respects, LTC may cover very different mixes of health care and social services.

Several countries offer cash benefits or vouchers that can be used to pay for LTC services delivered by professional care providers and, in some cases, by informal carers. In countries where untrained family members can be contracted as informal carers and receive an allowance for the care they provide, the distinction between informal and formal care is blurred even further.

In all Member States, informal care provided by relatives plays a significant role in the overall amount of long-term care provided. But there are enormous variations in the degree to which affordable formal services have been developed and made available.

There is no consistency in the legal framework for providing long-term care across the EU. In many Member States extended families are obliged to provide and/or finance care for their elderly relatives, but countries differ in the extent to which they enforce this legal responsibility and monitor whether the care needs are actually met. Table 2.1 groups Member States into five groups in terms of LTC delivery.

³⁶ Adequate social protection for long-term care needs in an ageing society. Report jointly prepared by the Social Protection Committee and the European Commission. Luxembourg: Publications Office of the European Union, 2014.

³⁷ Source: Social Investment Package, SWD(2013) 41 final, European Commission, Brussels, 20.2.2013

Table 2. 1: LTC services in Member States

Characteristics	Member States	Public provision on LTC	Spending on formal-care (FC)		Informal care (IC)		Cash benefits for care
			Public	Private	Use	Support	
Formal-care (FC) oriented provision, generous, accessible and affordable	DK, NL, SE	Financed from general revenue allocations to local authorities	High	Low	Low	High	Modest
FC of medium accessibility, some informal care (IC) orientation in provision	BE, CZ, DE, SK, LU	Obligatory social insurance against LTC risk financed from contributions	Medium	Low	High	High	Modest
FC of medium to low accessibility, medium IC orientation	AT, UK, FI, FR, ES, IE	Social insurance against LTC risk financed from contributions or general revenue	Medium	Medium	High	High	High
Low FC accessibility, strong IC orientation	HU, IT, EL, PL, PT, SI	Modest social insurance against LTC risks	Low	Low	High	Low	Low
Rather low FC accessibility, almost exclusive IC orientation	BG, CY, EE, LT, LV, MT, RO	Little social insurance against LTC risks	Very low	Data not available	Very high	Little to no support	No or very low

Source: Social Investment Package, SWD(2013) 41 final, European Commission, Brussels, 20.2.2013

Two demographic factors threaten the supply of long term carers, namely the decline in the number of people of working age who are potentially available to take on this work, and the wide-ranging societal changes that make it less likely that near or extended families will, in the future, provide the informal, home-based care on which the great majority of older people now rely.

Non-pension benefits

Other non-pension benefits, such as services for free or at discounted prices, can contribute significantly to higher living standards in old age, especially for those living on small pensions with no other sources of income. Access to these services or benefits, and the level of discounts, as well as the quality of services provided, vary however across Member States as well as between regions within many countries. The most typical services or benefits for those on very low incomes are summarised below.

Housing and heating allowances

A number of countries have means-tested systems to help people who cannot afford to pay their rent or heating costs (see Box 2.3). In some local areas, low-income households can also seek a reduction or total exemption from charges such as for waste and water made by private operators or local authorities. Some countries provide housing aid for housing adaptation for people with disabilities while local authorities may provide grants to improve homes that are below basic standards, mostly targeted at older people in rural areas.

Box 2. 3: *Housing and heating allowances in Member States*³⁸

In Austria, any needs which are not covered by the minimum standard (for instance expenses for appropriate accommodation and heating) can be covered by supplementary benefits (in cash). These benefits are very diverse and vary between a flat-rate allowance and the coverage of the actual appropriate costs for dwelling. They are provided by the *Länder*, who may grant housing allowances (*Wohnbeihilfe*) as a supplement to guaranteed minimum resources or as an independent benefit.

According to the special programme in **Bulgaria** ("*Insuring targeted social protection for heating of the low-income population*"), support is provided for heating during the winter period for the persons at risk of severe material deprivation, including elderly. The heating allowance depends on the price of electricity for households consumers and provides fully compensation for the increasing energy prices. The amount of the allowance is fixed and determined by the selling price of electricity for household consumers. The aid currently amounts €168 for the entire heating season. The same conditions as for monthly social allowance are applied for granting targeted heating allowance. The access is significantly wider and depends on the average monthly income for the preceding 6 months compared to the date of submission the claim in the period from 1 of July to 31 of October.

According to another programme in **Bulgaria** on "*Providing social assistance through implementing a differentiated approach*", targeted social allowances are granted for payment of rent of municipal housing. They are granted to older people (over 70 years) living alone. The amount of the aid depends on the respective rent for the municipally housing.

A number additional cash benefits are provided in **Cyprus** under the Guaranteed Minimum Income (GMI) scheme (effective 1-Jul-2014), to those who fulfil the criteria for GMI. Housing (rental and mortgage interest allowances) varies by composition of family-beneficiary and residence area.

In the **Czech Republic**, benefits are provided in the System of Assistance in Material Need (SAMN). Persons/households whose housing costs exceed 30 percent of their income are eligible for housing allowance (income and housing costs tested benefit from the state social support system).

Individual housing allowance for old age-pensioners (*Boligydelse*) is available in **Denmark**. Pensioners' housing allowance is calculated as the difference between 75 percent of the annual housing costs with addition of DKK 6,300, and 22.5 percent of the household income exceeding DKK 149,300. The calculation in respect of one person includes the housing costs for a gross floor space of 65 square meters. For each additional member of the household the calculation includes the housing costs for additional 20 square meters. The maximum housing costs included in the calculations is DKK 83,700 (2014 data). The pensioner shall as a minimum pay a share of the housing costs corresponding to 11 percent or more of his/her household income, provided always that such amount shall constitute not less than DKK 15,800. The calculated allowance for owners, including a pensioner living in a single-family house or an owner-occupied flat, is granted as a loan.

Denmark provides heating allowance for old-age pensioners (*Varmehjælp*). Heating allowance is calculated as decreasing percentage of the heating costs above a certain amount (the minimum the pensioners are obliged to pay themselves) and the pensioners' incomes. The maximum heating costs included in the calculations is DKK 24,700. Heating allowance is means-tested in the same way as the supplementary pension amount. The amount of assets is not taken into consideration. Maximum yearly amount: DKK 9,636 for a couple, and DKK 11,400 for a single pensioner.

Pensioner's housing allowance is available in **Finland** of maximum amount of 720 EUR per month (for singles). Pensioner's housing allowance may be awarded to pensioners residing in FI and whose amount is proportional to the pensioner's income and housing costs, as well as some other factors.

³⁸ Member States information provided for the SPC questionnaire "Information on Minimum Income Provision for Older People (MIPOP)", 2014

In **Hungary**, home maintenance support (*lakásfenntartási támogatás*) can be claimed if the income per consumption unit in the household does not exceed 250 percent of minimum old-age pension (*öregségi nyugdíj minimum*). The claimant is not entitled if the property of his/her household exceeds the limit defined by law. In addition, persons participating in a debt management procedure also qualify for this support. Around 15-20 percent of the whole spending is spent for older people; about 2-4 percent of old-age pensioners get this type of benefits.

Ireland provides a Household Benefits Package which includes a free TV license and a 35 EUR per month electricity/gas allowance for those aged 70 and other (or aged 66+ dependent on means test). A fuel allowance of 20 EUR per week is available during winter months (26 weeks). A domestic water conservation grant of 100 EUR per year is also available.

Lithuania provides reimbursement for Cost of House Heating, Hot Water and Drinking Water (*Būsto šildymo išlaidų, geriamojo vandens ir karšto vandens išlaidų kompensacija*). It is provided for poor families based upon a means test. A family should not have to pay more than 20 percent of the family income above the State Supported Income (valstybės remiamos pajamos), i.e. 101 EUR per family member for heating of a standard size of accommodation; 5 percent of the family income for basic standard of hot water; 2 percent of the family income for basic standard of drinking water.

In **Luxembourg**, the housing allowance is available (up to 123.90 EUR per month) when the household pays rent for the housing. The amount equals the difference of the effectively paid rent and an amount of 10 percent of the supplementary allowance, with a maximum of 123 EUR. Legal residences in LU are entitled to receive "Cost-of-living type allowance" (*Allocation de vie chère*): 1320 EUR per year for a single household and 1650 EUR per year for a couple. All beneficiaries of the minimum income scheme qualify for this additional benefit.

An allowance called "*complément accueil gérontologique*" is granted for residents of care institutions (nursing homes and so-called integrated centres for the elderly) whose income and wealth is insufficient to pay for accommodation in these institutions. The allowance is directly paid to the institution consists of the difference between the price of accommodation and the personal contribution of the beneficiary.

Local municipalities in **Latvia** are entitled to provide housing allowance to ensure material support for families or separately living persons with low income to pay rent and public utilities. According to the relevant legislation, a housing allowance is the second mandatory benefit (after GMI benefit) that shall be paid to a person or a family of the relevant local municipality. Housing allowance is paid from the municipal budget. Within the framework of a housing allowance municipalities pay for different services: rent, heating energy (fuel), water, drainage or sanitation, waste taking-out, electricity. The amount of this allowance varies from one municipality to another depending on the available resources. Local governments which pay the housing allowance as a fixed amount usually cover a narrower range of services, which are, in most cases, rent or management (administration) fee and part of expenses related to the purchase of heat or fuel. The municipalities also have different procedures for payment of housing allowance – some pay the allowance to the person directly, while some pay to service providers and managers. The ratio of persons at retirement age is the highest among other social groups who receive housing allowance.

In **Malta**, Energy benefit is awarded where the total annual household income is less than EUR 8,800. The maximum amount is tied to consumption of electricity and capped.

In the **Netherlands**, the maximum amount of housing allowance is EUR 328 per month (has to be less than 21.600/yr gross), depending on personal income, assets and amount of rent (between 225 and 699 EUR/month).

Portugal provides benefit from Extraordinary, social support in the consumption of electricity and

natural gas (discount on the invoice of electricity and natural gas set annually by the government).

Housing supplement for pensioners is available in **Sweden** (maximum – SEK 4,990 per month) when income are below SEK 8,029 per month, for single persons (rent/housing cost – from SEK 5,000 per month, assets under SEK 100,000).

Slovenia provides rent subsidies.

In the **United Kingdom**, Housing Benefit payments are made by local authorities to help tenants with their rent and some service charge liabilities. For owner-occupiers, the Department for Work and Pensions makes payments towards the interest due on: loans taken out to buy the property; loans for specific repairs and improvements; as well as ground rents, and some service charges. Help towards tenants' and owner-occupiers' housing costs will be delivered by one benefit, Universal Credit, which is being rolled out at present Winter fuel payments are provided for older people (£200 per household where everyone is under the age of 80, or £300 where there is a person in the household aged 80 or over).

Box 2.4 provides examples of other allowances available in Member States for older people with low income.

Box 2. 4: *Other allowances in Member States*

According to the programme in **Bulgaria** on "*Providing social assistance through implementing a differentiated approach*", monthly targeted allowances are designed to meet an incidental health, educational, public utilities and other vital needs of the persons.

In **Cyprus**, additional benefits are provided under the Guaranteed Minimum Income scheme (effective 1-Jul-2014) for social care (this can be either granted on a cash or in-kind basis) and varies by type of care needed. Special eligibility conditions for social care should be fulfilled.

In **Denmark**, personal allowance (*Personligt tillæg*) may be paid to old-age pensioners whose financial situation is particularly difficult. The local council shall base its decision on a specific and individual assessment of the pensioner's financial situation. Pensioners, who do not receive a full public old-age pension due to less than 40 years of residence, and whose financial situation therefore might be particularly difficult, can apply for a personal allowance.

Estonia provides supplementary social benefit paid from state budget. A subsistence benefit recipient in a family where all other members are minors has the right to receive an additional social benefit of EUR 15 accompanying the subsistence benefit. For example a grandmother who is living together with her 14 year old grandchild may receive this benefit.

Other occasional/transitional support is available in **Hungary** depending on the local authorities' regulation and it may be granted in exceptional cases (serious illness, death in the family, etc.), in extraordinary life situations provided by local governments (e.g. the most typical is the temporary assistance, funeral aids). Around 30 percent of the whole spending is spent for older people, about 2 percent of old-age pensioners get this type of benefits.

Travel discounts for elderly people are available in **Hungary**. Persons (aged 65 years or over) travel free of charge on long distance and local services. Based on the "Supply travel voucher", retired persons under the age of 65 are eligible 16 times special ticket with 50-90 percent discount per year.

In **Luxembourg**, the means tested general social assistance "*revenu minimum garanti - RMG*" is available to residents aged 25+, and thus also for elderly people whose pension entitlements are below the RMG-threshold. As for 2015 the RMG amounts to 1.348 EUR for single households and 2.022 EUR for households with two adults (386 EUR for each additional adult).

A so-called education lump sum (“*forfait d’éducation*”) of 86 EUR/month/child is available to persons aged 65+ who were primarily occupied with the education of their children provided that the corresponding period has not been considered in any form for their personal old-age pension entitlements. The lump sum is tax financed and especially aims at former housewives.

In **Ireland**, the elderly aged 80 or over receive an "Over 80's allowance" of €10 per week on a State pension payment. The "Living alone allowance" of 7.70 EUR per week (rises to 9 EUR in 2015) is available to those aged 66 and over in receipt of a State pension.

In **Latvia**, a single benefit is available in an emergency situation if, due to a natural disaster or unforeseen circumstances he or she is not able to satisfy his or her basic needs. The amount of this benefit varies from one municipality to another depending on the available resources.

Malta provides Supplementary allowance when the total annual household income is less than EUR 8,800 if single, and EUR 10,968 if married.

Social supplement (*Complemento social*) is available in **Portugal** when the pension amount calculated in general terms is lower than the minimum guaranteed amounts. This supplement does not depend on a means or residence test.

In the **United Kingdom**, there is a free Television license for older people (aged 75 and over). Free public transport is available for people aged 66 and over in **Ireland**. Older people can also travel free on local buses in the **United Kingdom** (based on certain age criteria).

The elderly may also benefit from other services such as local food banks which have played an important role in many countries during the crisis in ensuring that vulnerable people have access to free food. Much of this support is provided through charitable organisations, however, and official data on the number of beneficiaries are not available.

In some countries it is possible for low-income seniors to receive free dentures, eye tests and prescriptions. Older people commonly receive discounts for museums, theatres, concerts and other cultural events and have easier access to information (internet, publications) in libraries. Some financial institutions (banks) do not charge the elderly for bank cards.

2.5. Working until and after the pensionable age³⁹

Pensions are meant to replace earned income at the time of retirement from work. With a few exceptions, entitlement to a full pension in EU Member States is contingent on paying earning-related contributions over a long working career. Hence it is important that the length of peoples’ careers and the age at which they cease working are reasonably well aligned with the pensionable age and with the contributory career requirements of pension systems. This subchapter explores data that may help us identify the extent to which people are currently able to work until the standard pensionable age. It also examines the reasons for continuing to be economically activity beyond the pensionable age.

³⁹ This subchapter draws heavily on the following sources: Eurostat (2014): ‘Transition from work to retirement’, Statistics Explained 03/09/2014; Eurofound (2012): ‘Income from work after retirement in the EU’; Eurofound (2014): ‘Work preferences after 50’; and OECD (2015): ‘Report to the European Commission on Delivering longer working lives and higher retirement ages in the EU’.

2.5.1. Pensionable ages versus effective retirement ages

Pensionable ages in public pension schemes (Table 2.2), pension take-up ages (Figure 2.30) and retirement patterns differ substantially among EU Member States. As we look to available data on retirement we are generally hampered by the absence of comparative administrative data on pension take-up. Moreover we need to be as precise and nuanced as possible in our use of terminology and concepts. Thus we need to distinguish between the age at which people stop working and the age at which they take up a pension benefit. That is we should avoid confounding the effective pension take-up age with the effective labour market exit age. To the extent possible we should also separate the take-up of an early retirement benefit and its functional alternatives (such as for example ‘bridges’ in unemployment insurance systems) from the take-up of an old-age pension. Unfortunately data that allow for this are only available in special LFS modules and in stand-alone studies, wherefore we will be drawing on these.

Table 2. 2: *Legislated pensionable ages (applied in 2013) in EU-28, 2013*

Member State	Men	Women	Member State	Men	Women
Belgium		65	Lithuania	62y10m	60y8m
Bulgaria	63y8m	60y8m	Luxembourg		65
Czech Republic	62y5m	57y8m-61y8m ⁴⁰	Hungary		62
Denmark		65	Malta		62
Germany		65	Netherlands		65y1m
Estonia	63	62	Austria	65	60
Ireland		65	Poland	65y1m ⁴¹	60y1m
Greece	67	62	Portugal		65
Spain		65-65y1m ⁴²	Romania	64y8m	59y8m
France		61y2m	Slovenia	65	63y6m ⁴³
Croatia	65	60y9m	Slovakia	62	57y6m-61y6m ⁴⁴
Italy	66y3m	62y3m ⁴⁵	Finland		63-68 ⁴⁶
Cyprus		65	Sweden		61-67 ⁴⁷
Latvia		62	United Kingdom	65	61y4m-61y10m

Data source: Member States

Figure 2.30 depicts the average age at which people aged between 50 and 69 first drew a pension, based on 2012 data from the Eurostat database and computed using the 2012 LFS specific module on transition from work into retirement.

⁴⁰ Depending on the number of children raised.

⁴¹ Since 1 January 2013 the retirement age gradually increases by 1 month per three months.

⁴² If qualifying period completed - and if not completed.

⁴³ It holds true only for women in the period 2013-2015; later 65 years (ZPIZ-2 27/1). Provided that his/her pensionable age is at least 15 years.

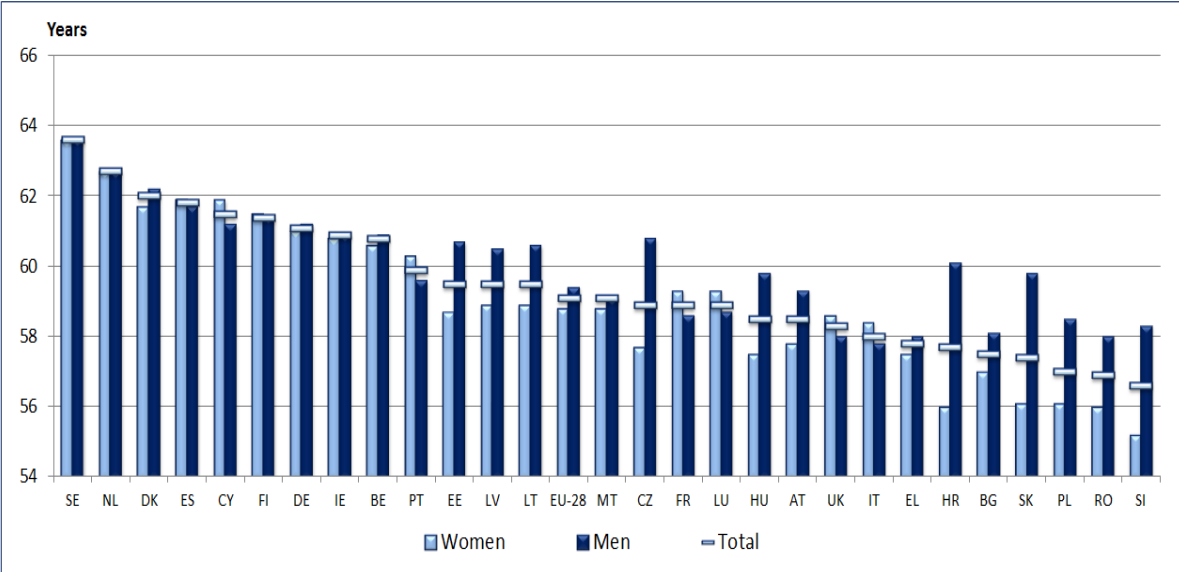
⁴⁴ Depending on the number of children raised.

⁴⁵ After 2020 SPA will be linked to life expectancy.

⁴⁶ Flexible retirement age linked to benefit level.

⁴⁷ Flexible retirement age linked to benefit level.

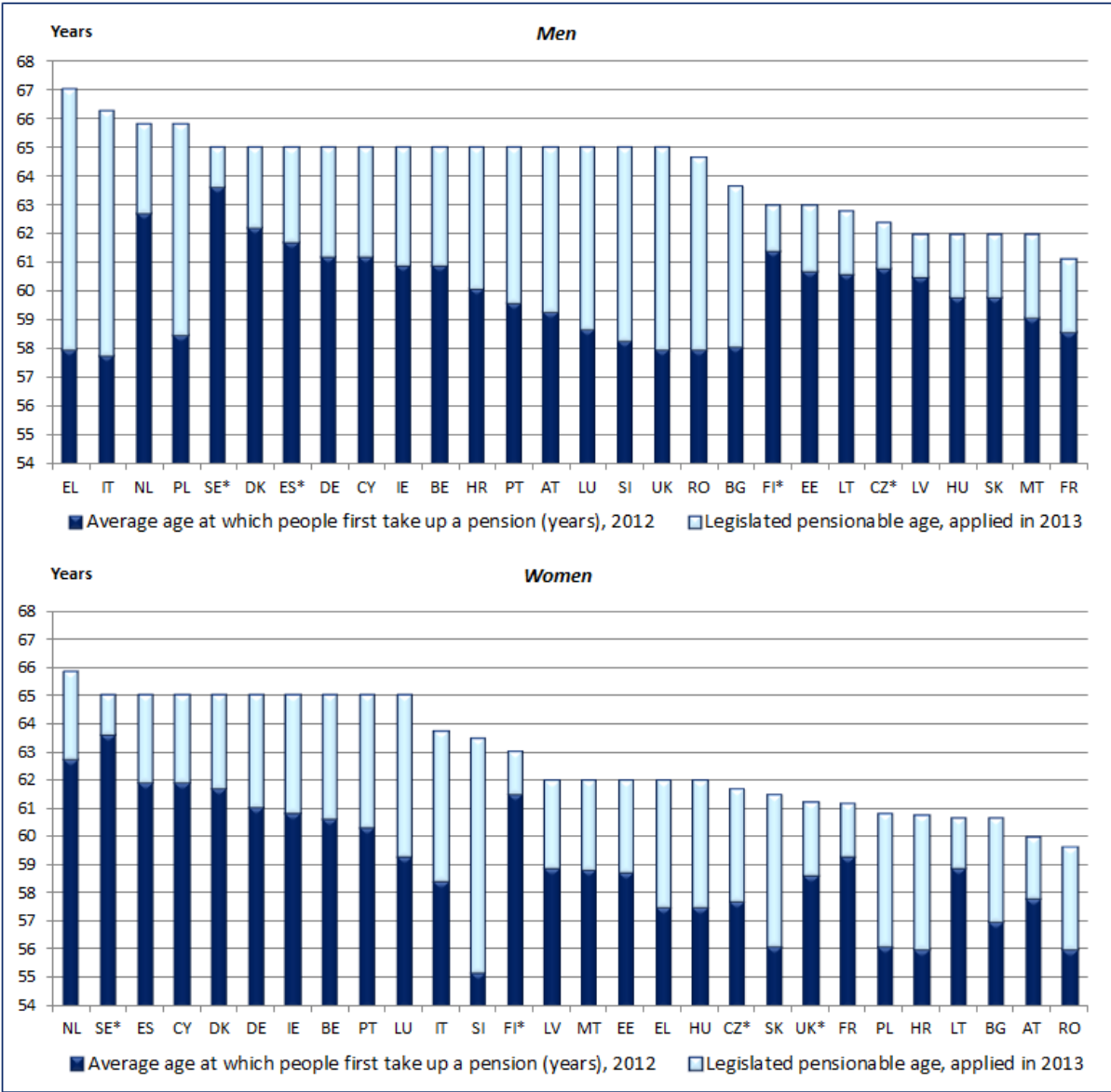
Figure 2.30: Average age at which people first take up a pension (years), 2012



Data source: Eurostat. Note: according to the national statistics, the average age in Hungary for new pensioners was 61.7 years (male), 59.1 years (female) and 59.9 years (total).

For men, this average age varies from under 60 in 14 European countries including Austria, France, Greece, Italy, Hungary, Luxembourg, Malta, Romania, Slovenia and the Slovak republic, to nearly 64 in Sweden. The average age for men is around 60, for women it is 59, and the age of first pension is lower for women than men in all countries bar Cyprus, Finland, France, Italy, Luxembourg, Portugal, Spain and the United Kingdom. The lowest average ages – 56 or under – are found in Croatia, Romania and Slovenia while the oldest female claimants, at 62-64 years of age, are found in Cyprus, the Netherlands, Spain and Sweden. In all Member States the average age at which people first take up a pension is below the legislated pensionable ages for both men and women (Figure 3.31).

Figure 2.31: Average age (years) at which people first took up a pension in 2012 and legislated pensionable age (applied in 2013), for men and women



Data source: Eurostat (average age at which people first take up a pension) and Member States (Legislated pensionable age). Note: * Legislated pensionable age varies (see Table 2.2)

2.5.2. Reasons people give for leaving the labour market at career end

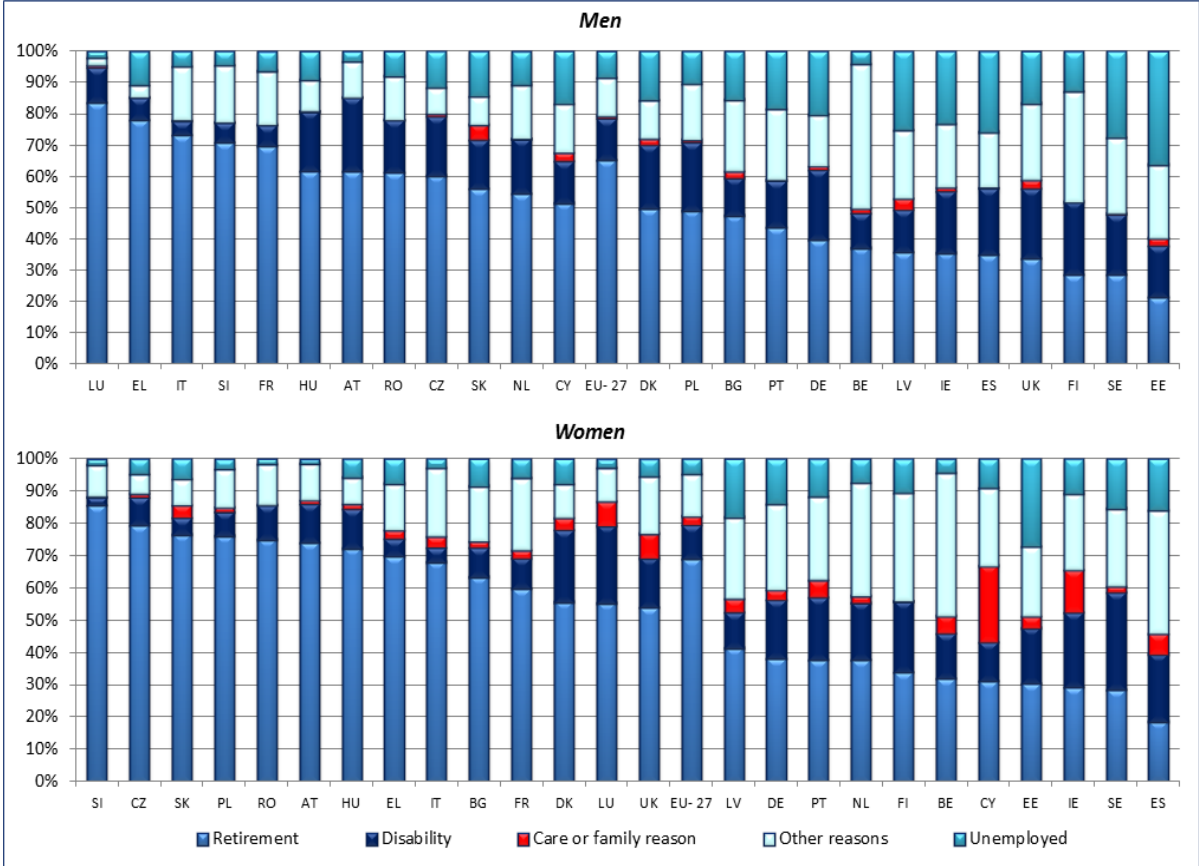
Data from the European Labour Force Surveys (2010) show that when people leave the labour market at the end of their working careers they do so for a number of other reasons than to take-up an old age pension (Figure 2.32).

Retirement – in the sense of ceasing to work and taking up a pension benefit - is a frequent reason for labour market exit for 55-64 year olds. But the data we have from the LFS also include early retirement. Thus in Denmark, Ireland, the Netherlands, and Poland more than half of men’s retirement exits in 2010 occurred through early-retirement benefit options. Moreover, labour market exit happens for many other reasons, including unemployment, disability and ill health, or the need to provide care or meet other family responsibilities.

More than a quarter of male exits from employment occurred through unemployment in six countries: Estonia, Germany, Ireland, Latvia, Spain and Sweden. Exit through unemployment

affected 27 percent of women in Estonia. More than one-fifth of men’s and women’s labour market exits occurred through disability or ill health in Austria, Finland, Denmark and Spain.

Figure 2.32: Reasons for leaving the labour market (by gender), 2010



Source: OECD calculation based on the European Labour Force Surveys (LFS), 2010

Though only 2 percent of male and 4 percent of female exits were primarily due to family caring duties, these averages mask very large differences between countries, with caring duties being a significant factor in Cyprus, Ireland and the Czech Republic. Moreover, caring obligations could also be a subsidiary reason for retirement in the sense of pension take-up.

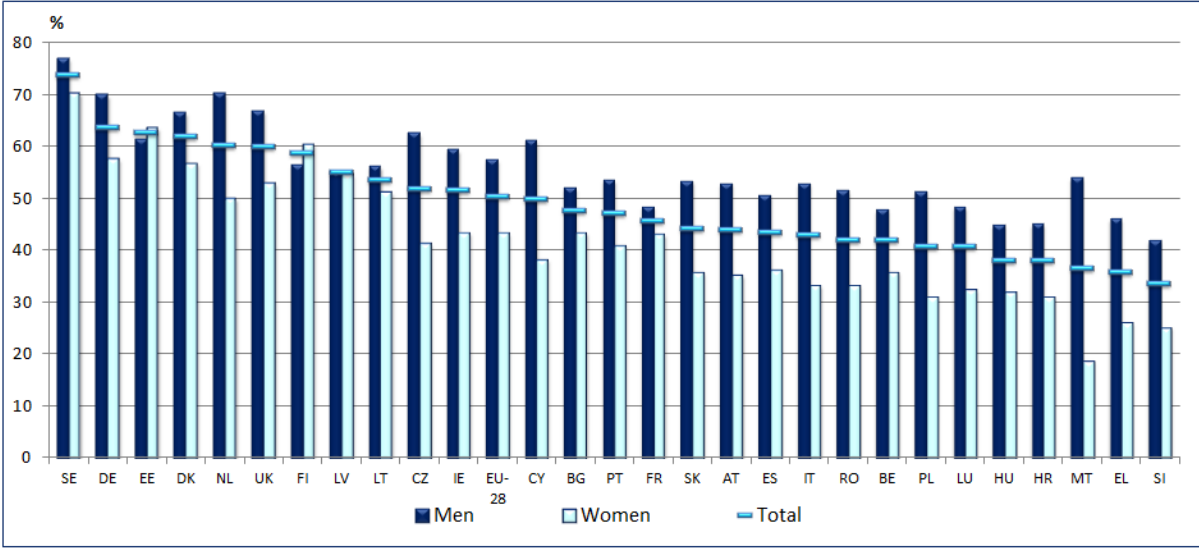
In fact, pension take-up is the main form of labour market exit in only nine European countries - Austria, the Czech Republic, France, Greece, Hungary, Italy, Luxembourg, the Slovak Republic and Slovenia.

2.5.3. Employment rates of older workers in Europe

Another proxy indicator of the extent to which Europeans work until the pensionable age before they retire is the employment rate of older workers.

As workers age they are less likely to be in employment than in their prime-age. While the employment rates of workers aged 55-64 in the EU28 countries averaged 50 percent in 2013, the average among workers aged between 25 and 54 was 77 percent. However, the extent to which employment rates decline as workers become older varies markedly across countries. In 2013, the employment rates of all workers aged 55-64 were more than twice as high in Sweden (74 percent) than they were in Slovenia (33 percent), as seen in Figure 2.33. At the same time there are big gender differences, with employment rates for women aged 55-64 employment rates ranging from 19 percent in Malta to 70 percent in Sweden.

Figure 2.33: Employment rate of older workers (55-64 years), EU-28, 2013



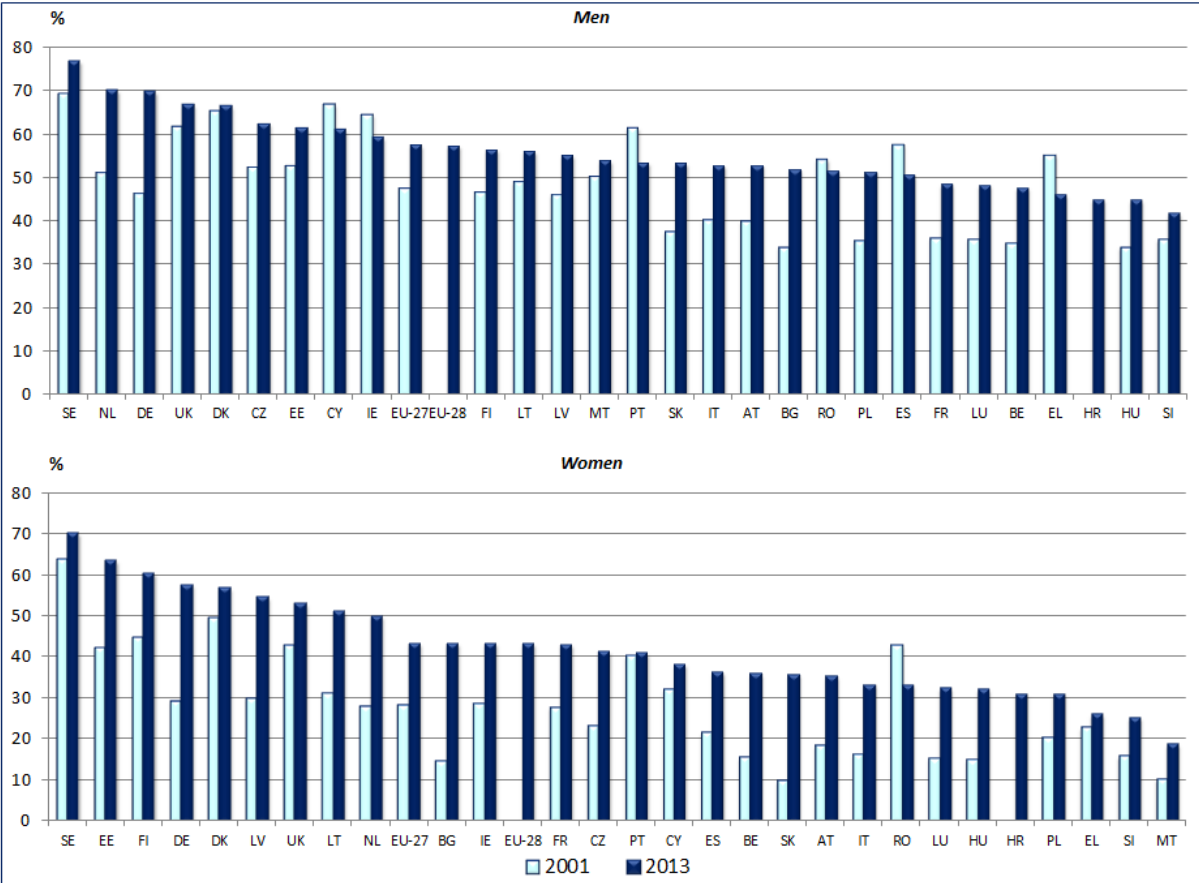
Data source: Eurostat.

Since the turn of the millennium, however, the long standing downward trends in effective exit ages in the EU has been reversed with employment rates of older workers improving by more than a third and having continued to rise even during the crisis in all countries, with the exception of those particularly badly hit by recession. The key characteristics that are related to the relative propensity to work longer are age, gender, educational achievement level and sector of employment.

Focusing on employment rates of older workers by age group, gender and education helps disentangle composition effects behind aggregate trends. In particular, breaking down the changes in employment rates between 2001 and 2013 by gender suggests that much of the increase has been due to increased employment rates of female older workers.

Figures 2.34 demonstrates that, while employment rates for men aged 55-64 had improved by about 10 p.p. from 48 percent to 58 percent, the rates for women have increased by 15 p.p. from 28 percent to 43 percent. Meanwhile, national rates have also converged somewhat: while rates for female older workers in 2001 varied by more than a factor of six (between 10 percent in Slovakia and 64 percent in Sweden) the range has now narrowed to less than a factor of four (between 19 percent in Malta and 70 percent in Sweden).

Figure 2.34: Employment rate of men and women aged 55-64, in 2001 and 2013

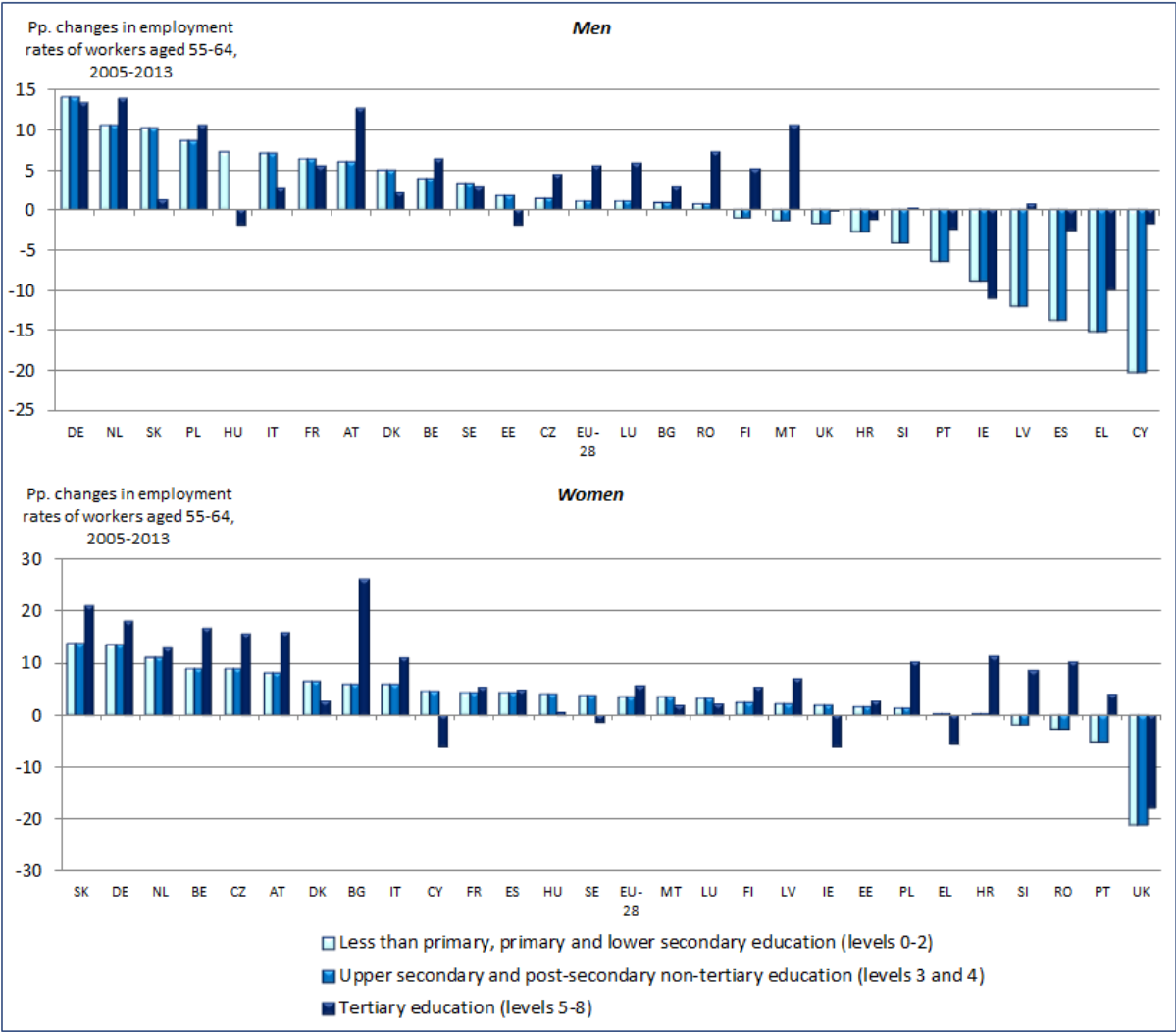


Data source: Eurostat. Note: data for 2001 are not available for HR and EU-28

Since the pensionable ages in most Member States have been stable, or only raised towards the end of this period, the sizeable improvements in employment rates of older workers can generally be taken to indicate that the gaps between effective retirement ages and pensionable ages have narrowed, and that people work until the pensionable age to a greater extent than a decade ago.

Further investigation suggests, however, that these changes vary widely across education levels. In the majority of European countries both men and women with the lowest education levels tend to display lower employment rates in 2013 compared to 2006, implying that the benefits of increased participation in the labour market are largely for those with stronger socio-economic characteristics. Also, increases in the employment of women with tertiary education have tended to be greater than those of men (Figure 2.35).

Figure 2.35: Changes between 2005 and 2013 in employment rates of people aged 55-64, by education level (by gender)



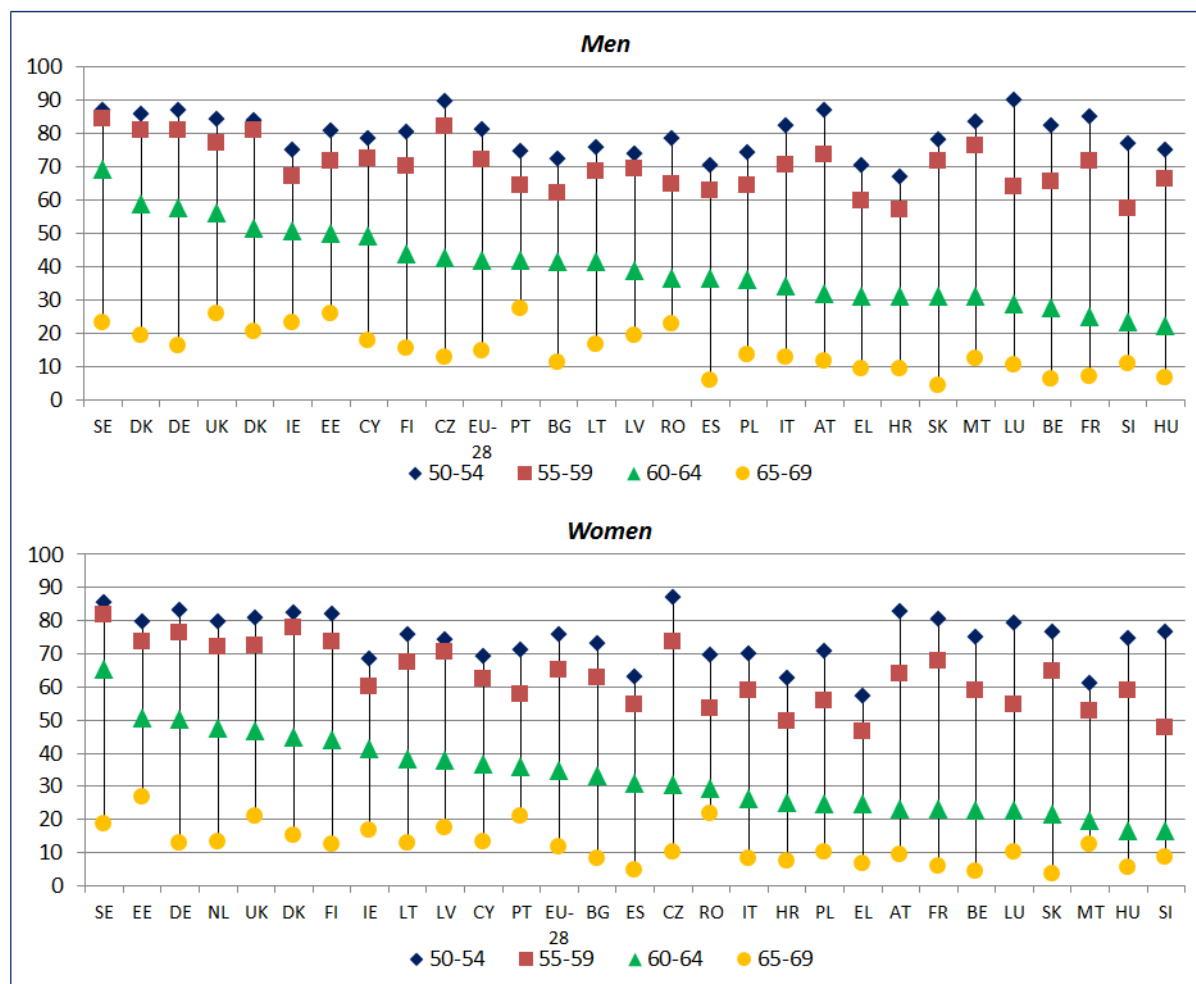
Data source: OECD, based on data from Eurostat, variable lfsa_ergaed

The distribution of older workers across different areas of economic activities also varies substantially across countries and by gender. For example, about one-third of female workers aged 55-64 are found in Education, Human, health and social work activities, while about one-third of men are found in manufacturing and construction activities. The proportion of older workers working in services as opposed to manufacturing and extractive industries or primary occupation like agriculture and fishing has grown significantly since the 1990's. Generally, this would facilitate that people to work to higher ages, both because people would tend to have started working live later and because their work would be less physically demanding.

2.5.4. The waning of late-career employment across the EU

Figure 2.36 further breaks down the late-career employment rates for men and women by age, confirming that they tend to decline rather unevenly with age. Pensionable ages and national retirement practices give rise to a rather varied set of exit age peaks.

Figure 2.36: Employment of men and women workers aged 50+ by 5-year age groups, 2013



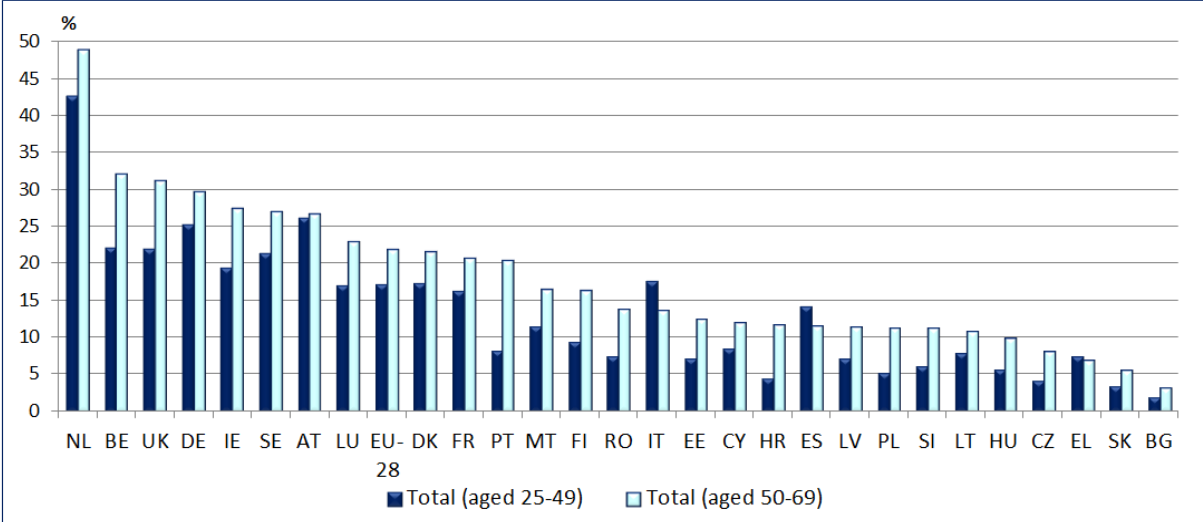
Data source: Eurostat. Note: sorted by age group: 60-64.

Thus cross-country differences are very large. In countries such as the Netherlands and Sweden, the gap between the employment rates of men aged 50-54 and 55-59 respectively is very small. By contrast, this gap is very wide in Austria, Belgium, Bulgaria, France, Italy, Luxembourg, Romania and Slovenia.

Very large differences are also observed between the employment rates of 60-64 year olds and 65-69 year olds. This is also evident in countries which have high employment rates of older workers such as Germany, the Netherlands and Sweden. The situation is very similar for women (bottom panel of Figure 2.36). The pattern of how employment tapers off and when retirement peaks occur reveals large variations across these 5-year groups, but the general picture for women is still one of decreasing employment rates. Countries to the left of the table have key retirement thresholds after ages 55 and 59 while, for those on the right side of the table, peak exits start five and, for a few countries, ten years later.

Moreover, it is important to notice that it is not just the levels of employment, but also the average number of working hours, that are changing as people age. The growing importance of part-time work from prime-age to late-career employment is illustrated in Figure 2.37.

Figure 2.37: Difference in part-time frequency between prime-age and older workers (part time employment by age group), 2012

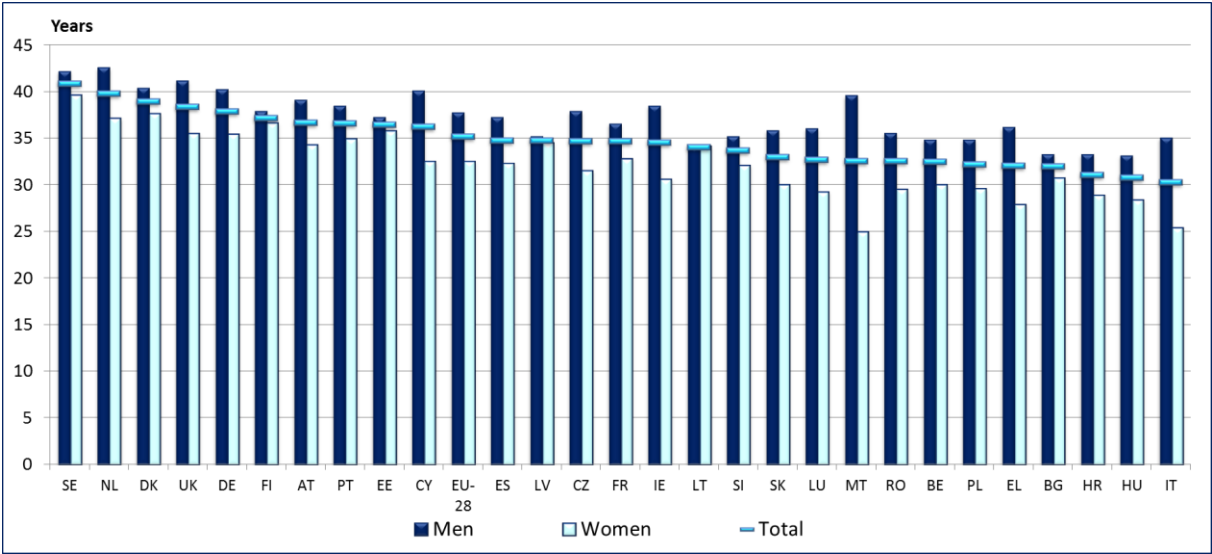


Source: Eurostat – Transition from work to retirement, LFS AHM 2012

When we look at the length of the working careers people manage to complete (excluding time that may be credited to them by pension systems due to the crediting of non-contributory periods) the indicator for the average duration of working lives is seen to represent the best proxy.

Figure 2.38 demonstrates a difference in the total average duration of working lives of more than 10 years across the EU. For men these differences amount to about 9 years and it is only in four Member States that the duration meets or exceeds the reference pension career length of 40 years.

Figure 2.38: Duration of working life, 2013, EU-28



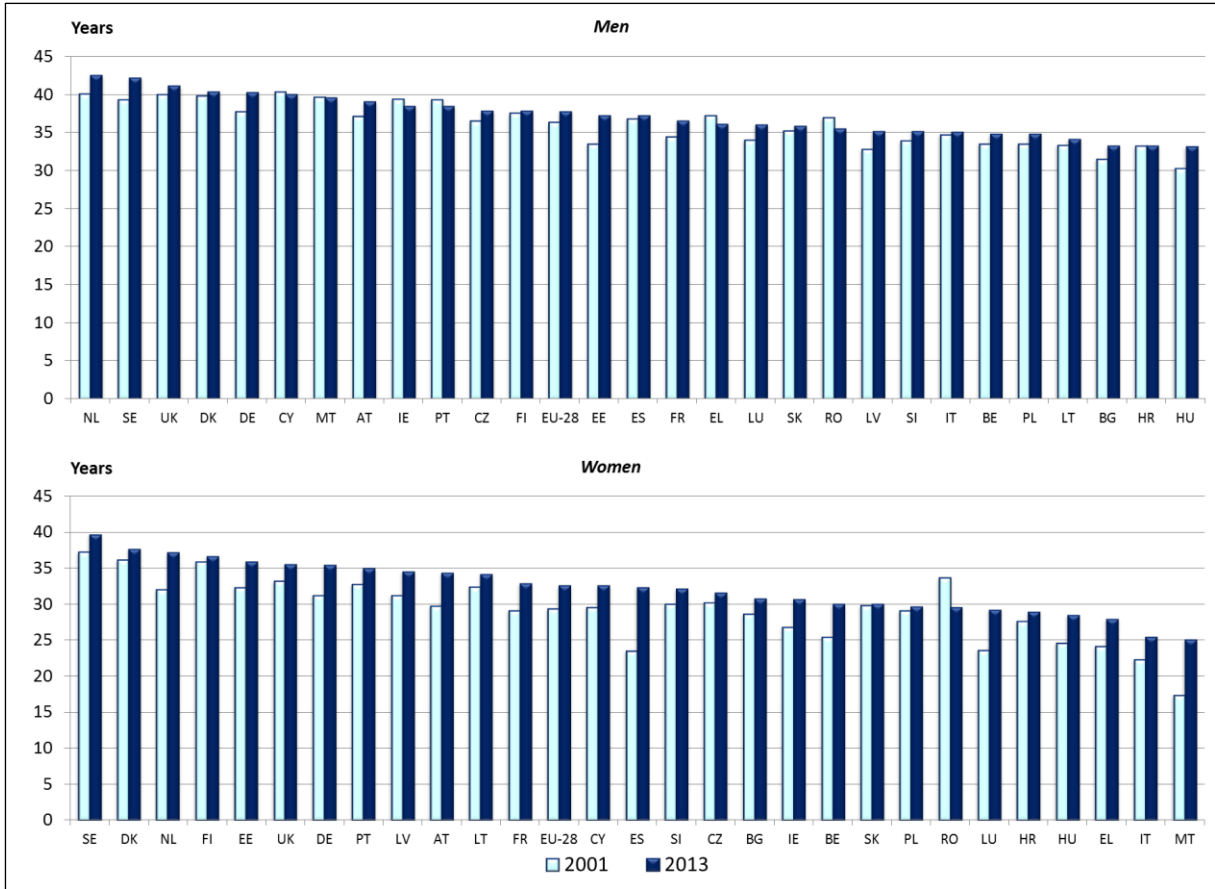
Data source: Eurostat

For women the duration ranges from 25 years in Italy to 40 in Sweden but with the duration of working life for women still below 30 years in eight Member States.

When we turn to recent developments in the duration of working lives, the picture becomes more positive. While improvements for men were moderate between 2001 and 2013, they did improve in all but six particularly crisis affected Member States and Malta.

For women average working lives extended in all EU countries with the exception of Romania (Figure 2.39). Particularly large improvements occurred in countries such as Spain, Malta, Luxembourg, Belgium, Ireland and the Netherlands, while countries like Germany, Austria and France experienced notable increases.

Figure 2.39: Duration of working life for men and women in 2001 and 2013



Data source: Eurostat

This shows that more women are completing careers that are long enough to allow them to qualify for a contributory pension. However, average women’s working lives are still far shorter than the 40 years reference base used for theoretical replacement rates.

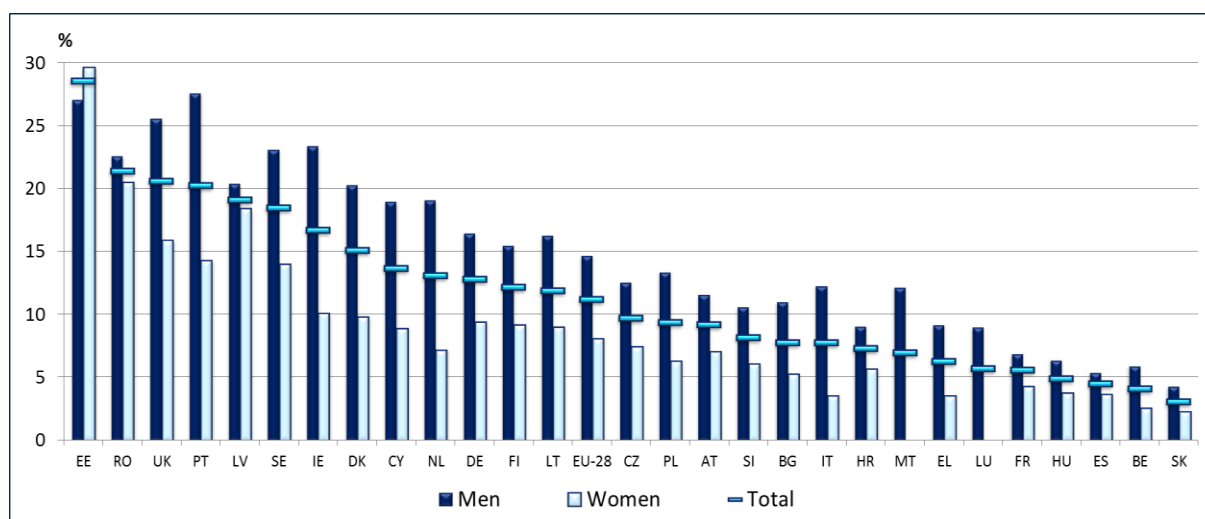
Figure 2.39 provides data on duration of working life for men in 2001 and 2013, showing the highest duration of working life for men in 2013 being in the Netherlands, Sweden and the United Kingdom. However, from 2001 to 2013 it decreased in Romania, Greece, Ireland, Portugal, Cyprus and Malta.

2.5.5. Working beyond 65 and combining income from work with pension

Over the past decade, it has become more common for Europeans to work beyond the age at which they are entitled to a public old-age pension or an occupational pension, with well over four million people aged 65 and over in employment in the EU in 2013.

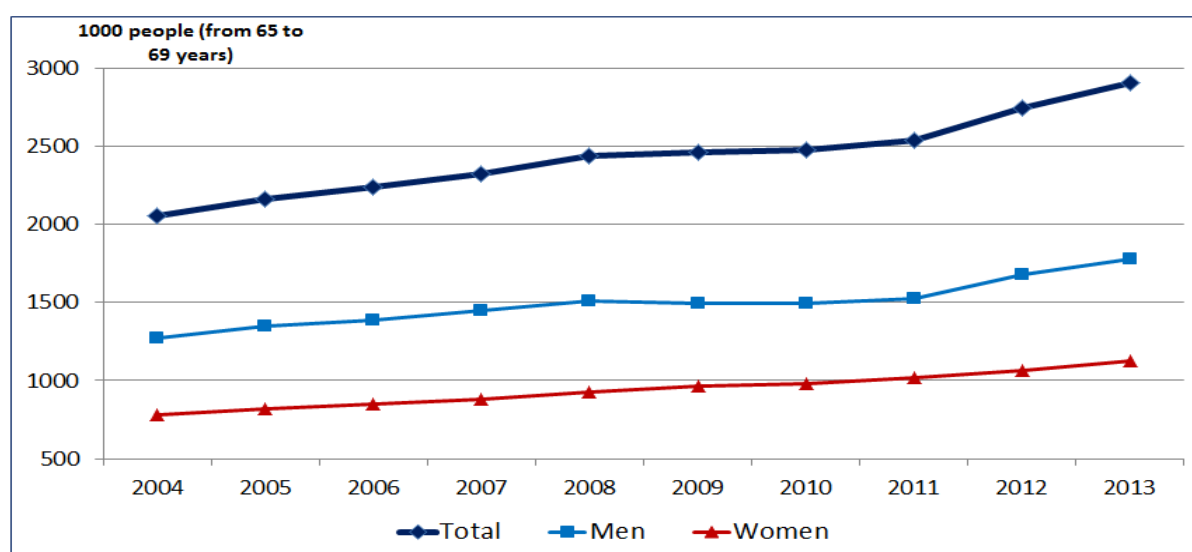
The average employment rate for 65-69 year olds in EU-28 was 11 percent, with 15 percent of men and 8 percent of women still working (Figure 2.40). The frequency of employment varies by a factor of nine, ranging from 27 percent in Estonia to 3 percent in Slovakia. In seven Member States more than one in five men in this age range was in paid work. The gender gap tends to be large but in a few countries it is moderate and in Estonia the frequency is higher for women than for men.

Figure 2.40: Employment rates for 65-69 year olds, 2013



Data source: Eurostat

Figure 2.41: Trend in work beyond retirement: employment rate of older people (aged 65-69 years) in the EU-28 (2004-2013)

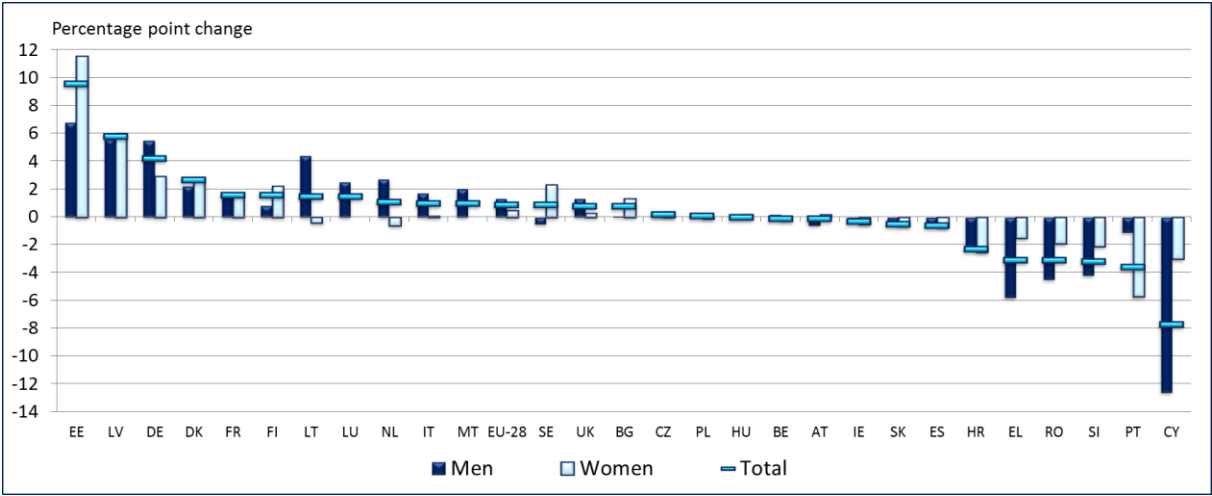


Data source: Eurostat

From 2005 to 2013, the employment rates (self-employment included) of people aged 65 to 69 increased from 9 percent to 11 percent in the EU-28 (Figure 2.41). The largest increases

occurred in Finland, the UK, Lithuania, Germany and Austria. From 2010 to 2013, the largest increases were found in Estonia, Latvia and Germany (Figure 2.42).

Figure 2.42: Percentage point changes in employment rates of older people (aged 65-69 years) in Member States (2010-2013)



Data source: Eurostat

But what are the consequences if people work and earn income after reaching the pensionable age? Do they have to take-up their pension or can they defer it and what are the rules for combining pension benefits with earned income? In most EU Member States (except Ireland, Luxembourg and the Netherlands), public pensions can be deferred beyond the standard statutory retirement age for a limited or unlimited period (Table 2.3).

Table 2. 3: Limits on combining work and pensions, 2012

Member State	Rule	Member State	Rule	Member State	Rule
Austria	<65: above EUR 349.01/month the pension is fully withdrawn; > 65: no limit	Greece	Possible after age 55. Limited if monthly pension income is > EUR 733, the pension in this case is reduced by 70 percent for every extra euro.	Portugal	No limit, but working in the same company as before retirement is not allowed for three years after pension
Belgium	If above EUR 21,436.5 (single) the pension is reduced by the amount beyond the limit. If earnings are 15 percent above the threshold, the pension is fully withdrawn	Hungary	Payment of pensions for people working in public sector is suspended. For pensioners below statutory retirement age, the pension payment is suspended until the end of the year once the annual earnings reach 18 times the minimum wage (€ 6,027).	Romania	It is only allowed to combine work and pension if pension < than the gross average wage (EUR 463/year)
Bulgaria	No limits	Ireland	Limit: EUR 38/week under the State pension (transition) payable between age 65 and 66. There is no limit for the SPC	Slovakia	No limits. There are restrictions for early retirement (it is not possible to receive an early old-age pension and also have mandatory pension insurance).
Cyprus	No limits.	Italy	No limits. However other social benefits (i.e. disability) or survivors' pensions are cut progressively if annual income is > EUR 23,826.40 or > EUR 18,229.77 respectively	Slovenia	Limits below normal retirement age

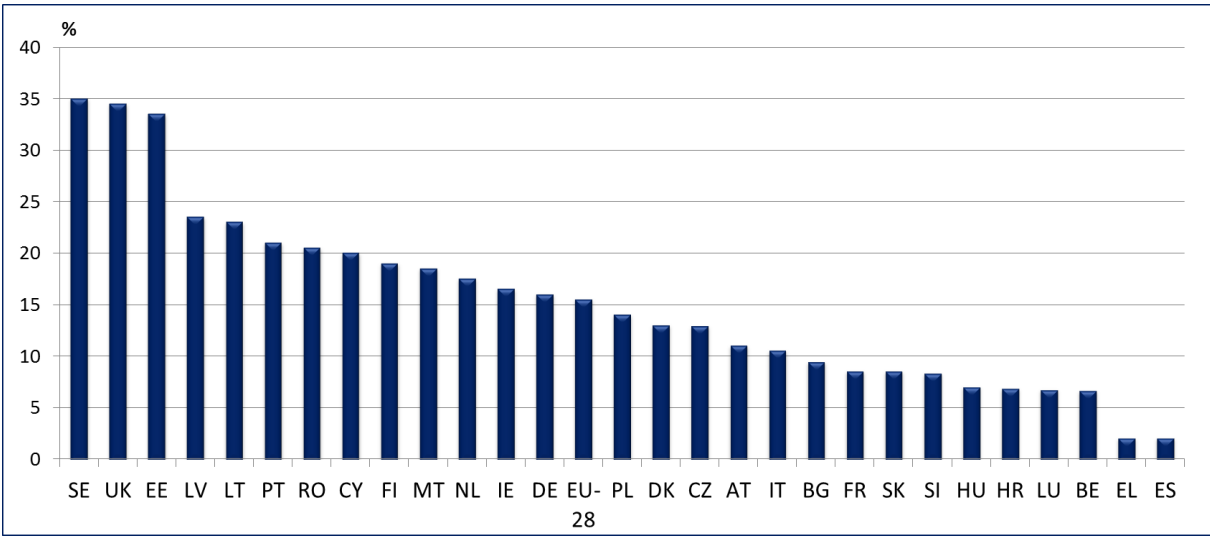
Member State	Rule	Member State	Rule	Member State	Rule
Czech Rep	No limits. Additional annual 0.4 percent receiving full pension. There are restriction for early retirement	Latvia	No limits. The pension contribution rate is lower when combining work and pensions rather than for pension deferral	Spain	<65: pension reduced according to the length of the working day
Denmark	The basis pension amount is reduced by 30 percent of the pensioner's personal income from work exceeding DKKs 305,700 (2015). The pension supplement is reduced if the sum of (1) the pensioner's income from work exceeding DKK 60.000 and (2) the pensioner's other incomes and (3) a possible spouse / cohabiting partner's incomes (all sources) together exceeds DKK 67.000 (single pensioner) or DKK 135.400 (married or cohabiting pensioner).	Lithuania	No limits	Sweden	No limit
Estonia	No limits	Luxembourg	<65: Pension is reduced (or withdrawn) if pension income + work income > average of 5 highest salaries of the career. >65: No limits. Contributions paid when working are refunded on request at the end of the year	United Kingdom	Pension credit is reduced by full income receipt as long as income is below EUR 168.77/week
Finland	No limits	Malta	No limits. Contributions rate: 10 percent of wage until 65 (then contributions stop)		
France	No limits for the over-65s and for those aged between 60 and 65 who have contributed for at least 40 years	Netherlands	No limits		
Germany	Means-tested benefit for the over 64 if > EUR 180/month: reduced by 30 percent of income earned and fully withdrawn if income > of the full means-tested (i.e. EUR 180). For those aged <65 on early statutory retirement: amounts exceeding EUR 400 /month are deducted from pensions	Poland	Limits below normal retirement age		

Source: OECD (2013b) "OECD Reviews of Pension Systems: Ireland" compiled using information provided in Eurofound (2012), *Income from work after retirement*.

Moreover, additional accruals may be earned over these years resulting in a higher pension when the retiree starts draw it. In some Member States this accrual rate is particularly high compared to pre-statutory retirement age accruals, and there may be no limits to the period over which the pension can be deferred. In others, however, additional accruals are moderate and deferral times limited.

Figure 2.43 depicts the percentage of people, who continue working while drawing their old-age pension. In Sweden, the UK and Estonia this is more than one third of old age pensioners. But in the ten Member States to the right of the figure the share is below 10 percent.

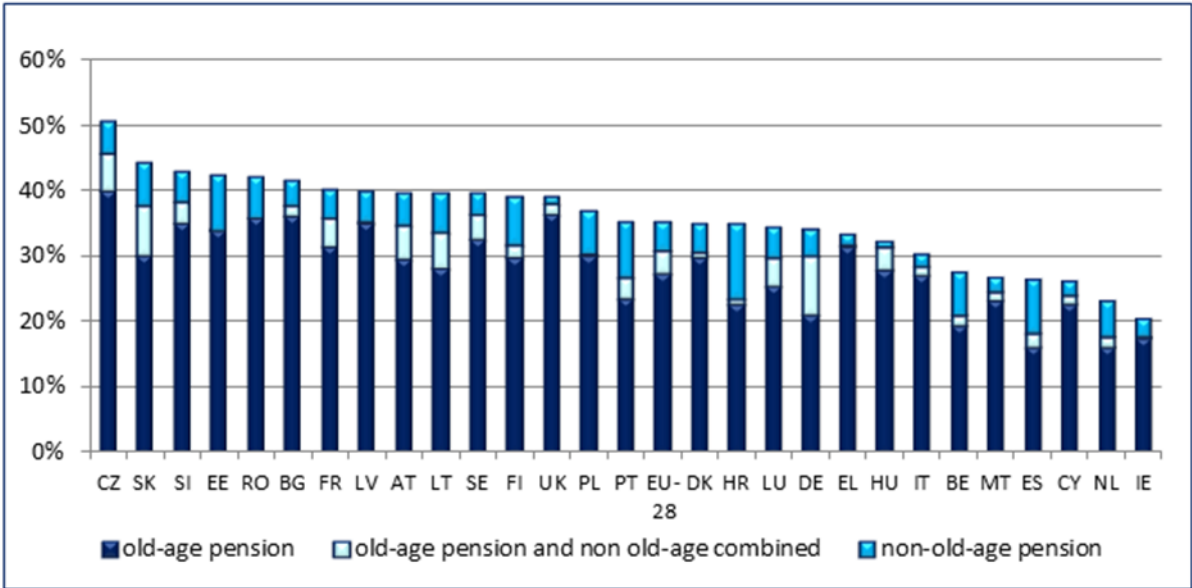
Figure 2.43: People who continue working while receiving an old-age pension (% of people receiving an old-age pension), 2012



Source: Eurostat – Transition from work to retirement, LFS AHM 2012

In several countries the pensionable age is below 65 and people may be in receipt of different types of pensions, while they continue to work. Figure 2.44 illustrates pension recipients aged 50-69 years across the EU and the type of pensions they receive.

Figure 2.44: Pension receivers (aged 50-69): type of pension, 2012



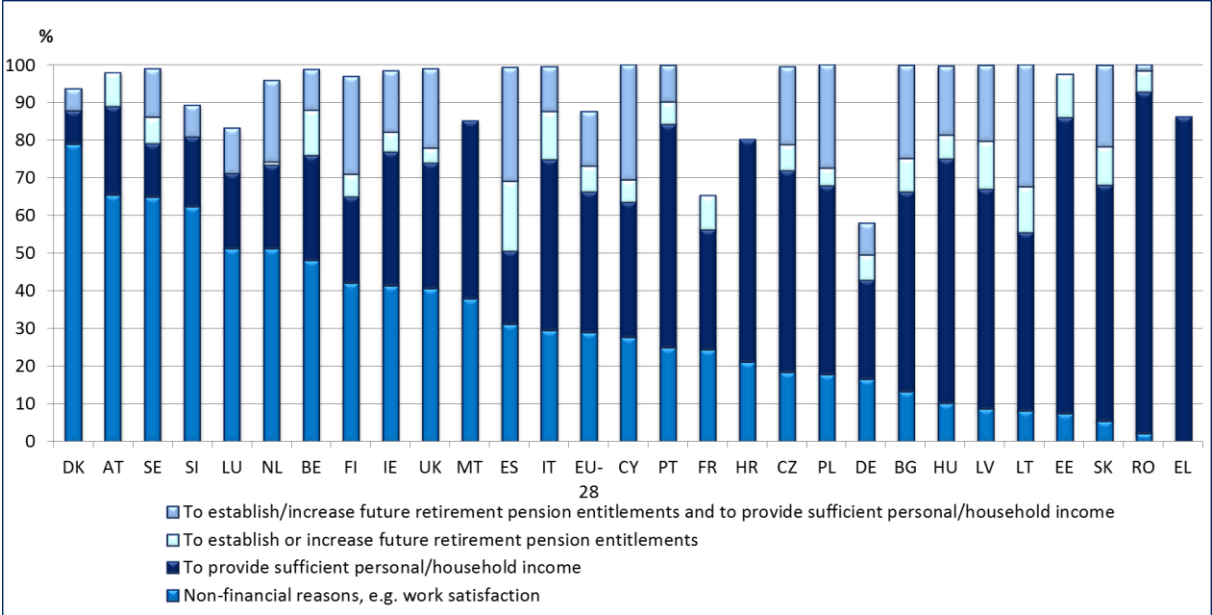
Source: Eurostat – Transition from work to retirement, LFS AHM 2012

In a recent study, Eurofound⁴⁸ investigated the motivations of people who continue in paid work after they turn 65 (notably the age group 65-69), and how their reasons relate to income adequacy. The study highlights the characteristics of these working retirees and the work they are doing. As nearly all Member States have pensionable ages of 65 or below, this group is composed almost exclusively of people who continue working to some extent beyond the age at which most people have retired.

⁴⁸ Eurofound (2012): ‘Income from work after retirement in the EU’

Additional income forms part of the motivation with work income providing more than half of their income. But only about one-fifth work primarily due to financial need, this group tends to have low incomes and insecure work conditions. For most, the key motivation comes from a combination other factors: including various satisfactions such as contact with colleagues and clients, opportunities to learn and contribute to society (Figure 2.45).

Figure 2.45: People who continue working while receiving an old-age pension: main reasons for continuing to work (age from 50 to 69 years), 2012 (%)



Source: Eurostat – Transition from work to retirement, LFS AHM 2012. Note. Other reasons are not included.

Whereas most of those who work beyond the age of 65 are predominantly male, more highly educated, living in urban areas, and/or having a mortgage, the recent growth in employment rates among 65-69 year olds has particularly come from female retirees and those with a medium level of education.

The majority of these active 65-69 year olds work part time. About half are self-employed but often work as a one-person enterprise for a single employer. Almost one-fifth of working retirees have a temporary contract, and, while this is higher than for other age groups it may reflect the preference of older workers. Moreover, as in other age-groups, employment beyond age 65 may be undeclared.

People working beyond the age of 65 are spread across a number of sectors, but they are frequently in the agriculture and fisheries or professional, scientific and technical activities sectors. Furthermore, they work relatively often in SMEs. It is particularly uncommon for retirees to work in public administration. Most receive some pension income and can thus maintain their standard of living, while working reduced hours in line with their preferences.

Much work beyond retirement is a continuation of work with a former employer based on individual agreements between the employer and the employee. Workers in this age group are often open to flexible work arrangements and the Eurofound study found that employers indicated that they often exhibit particularly high levels of work motivation. Among retirees, who do not work, a significant proportion would like to work but cannot find suitable employment, with many already disadvantaged in the labour market long before their retirement.

Paid work after retirement has proven necessary for some, who have inadequate incomes, but can find suitable jobs to allow them to make ends meet. This is the case for at least one-fifth of working retirees in the EU. Most of these retirees have low incomes, but the group also contains retirees with higher incomes, who still work beyond retirement, because they need to - for example to pay mortgages or support families/relatives.

The increase in uptake of work beyond retirement also reflects other factors. Generally speaking, people who have recently reached retirement age are healthier than preceding generations, have a higher level of education, and may often be enjoying their professional life too much to let it go completely, or may not want to lose the social contacts made through work. Such factors seem to play a larger role among retired than non-retired workers. Retirees, who work, often appreciate the additional income, but at least three-fifths of them are mainly motivated by non-monetary factors.

3. THE ROLE OF PENSION SYSTEMS IN SECURING ADEQUATE LIVING STANDARDS IN OLD AGE FOR MEN AND WOMEN

This chapter aims to assess the ability of pension systems to secure adequate living standards for the current generation of older people in the EU. Section 3.1 examines the extent to which pension systems replace income from work after retirement, taking into account the different pillars of the pension system as far as possible. Section 3.2 shows how minimum income provisions play an important role in protection against old age poverty, particularly for older people with short contributory periods. Section 3.3 shows how pension credits for time spent out of the labour market, for instance during periods of care obligations, maternity, unemployment, sickness, military service or education, can help secure adequate income replacement after retirement. Section 3.4 presents similar evidence with regard to derived pension rights e.g. of surviving spouses. Section 3.5 shows how differing family and career patterns of men and women when filtered through pension systems can lead to substantial gender differences in pension entitlements.

3.1. *Income replacement*

The income replacement capacity of pension systems is usually assessed by comparing pension incomes to the earnings of people below pensionable age. This section reviews available evidence on the degree to which pension systems allow the current generation of pensioners to maintain their standard of living after retirement. Section 3.1.1 offers a macro-level assessment, using information on the average level of income replacement provided by today's pension systems. Section 3.1.2 considers the individual pension rights of people who retired in 2013. So-called theoretical replacement rates (TRRs) are used to assess the retirement income of a pensioner with a given career profile, relative to his final pre-retirement income. The section also includes a stylised assessment of the roles of non-mandatory second and third pillar pension schemes in old age incomes.

3.1.1. *Assessing the income replacement capacity of pension systems*

A number of different EU level indicators have been used to assess the ability of pension systems to replace income after retirement. The various indicators are introduced and compared in Box 3.1.

Box 3. 1: Measures to assess the income replacement capacity of pension systems

The four different indicators which are employed to measure the degree to which pension systems replace work income after retirement are introduced below. Three of these indicators offer an overall perspective on pension adequacy by providing variants of an economy-wide average, whereas the fourth indicator describes the hypothetical situation of an individual worker with certain characteristics. These four indicators capture various aspects of pension adequacy and rely on different assumptions that prevent direct comparison. Hence an assessment of the potentially different messages evolving from the analysis has to be made.

The **Aggregate Replacement Ratio (ARR)** is the ratio of (i) the median individual gross pension of people aged 65-74 to (ii) the median individual gross earnings of people aged 50-59. As with the median relative income ratio (see chapter 2.1.), the ARR is based on income data from EU-SILC. Compared to the median relative income ratio, the ARR is narrower in scope, both in respect to the

income concept (old age benefits, survivor benefits and individual private plans are included but other forms of income are excluded) and to the age ranges that are considered. It should be noted that the ARR indicator is not calculated at household level but is based on individual gross incomes. Several other factors, such as household composition and size and the taxes/social contributions paid on gross pensions can have a strong influence on the disposable incomes and living standards of individuals. Moreover, the fact that ARR compares the income situation of two different cohorts (before and after retirement in the survey year) also needs to be taken into account.

In the Ageing Report prepared jointly by the EPC-AWG and the European Commission, two alternative measures are employed to estimate the level of income replacement after retirement, namely the Benefit Ratio and the Gross Average Replacement Ratio. The **Benefit Ratio** is defined as the average pension benefit *relative* to the economy-wide average wage. The average pension is calculated as the ratio of public pension spending relative to the number of pensioners, whereas the average wage is proxied by the change in the GDP per hours worked. The ratio of these two indicators is intended to provide an estimate of the overall generosity of pension systems. The **Gross Average Replacement Rate** compares the average first pension *relative to* the economy-wide average wage at retirement. The information is provided by Member States in the AWG pension questionnaire.

Finally, **Theoretical Replacement Rates (TRR)** are case study-based calculations of the level of pension income in the first year after retirement, measured as a percentage of individual earnings at the moment of retirement. Similar to the Gross Average Replacement Rate, the TRR provides a proxy for the (change in the) standard of living at the time of transition from work to retirement. However, TRRs are not based on economy-wide averages but calculated, on an individual basis, for an assumed hypothetical worker and include schemes that are mandatory, typical or have widespread coverage. The gross TRR is defined in relation to the pre-taxed income (excluding employer contributions but including employee contributions), whereas the net TRR includes income taxes and employee contributions. The TRR concept is used to measure both current and future adequacy. In this section the focus is on current replacement rates, while prospective TRRs are discussed in Chapter 5. The assumptions that apply to the different cases of current TRRs are presented in detail in Section 3.1.2.

How do the four different indicators of pension adequacy compare?

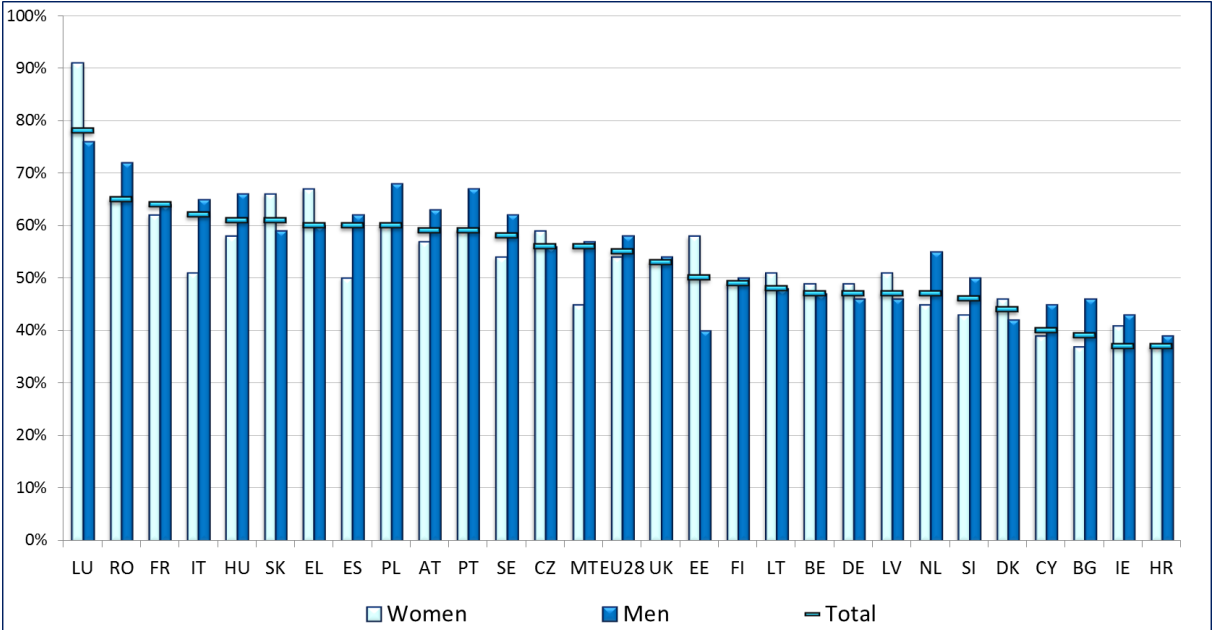
The concept of the four indicators, their coverage of pension schemes and their time horizons are all different, which impedes direct comparison. In terms of the pension schemes covered, the Benefit Ratio includes old-age and early pensions and other public pensions, such as invalidity and survivor, whereas the Gross Average Replacement Rate, as reported in this chapter, only includes earnings related old-age pensions. Private pensions are excluded for all Member States. In contrast, the Aggregate Replacement Ratio and the Theoretical Replacement Rates apply a wider concept by including private schemes (ARR) or schemes which are mandatory, typical or have widespread coverage (TRR). Differences in the underlying wage concepts further impede direct comparison.

In terms of time horizon, the Benefit Ratio provides the widest measure by comparing all (public) pension payments with economy-wide incomes, whereas the Aggregate Replacement Ratio compares the pension income of people aged 65-74 to the earnings situation of people aged 50-59. In contrast, the Gross Average Replacement Rate and the Theoretical Replacement Rate focus on the moment of changing from work to retirement. Moreover, the three ratio indicators represent the average situation of all retirees rather than individuals with a full career, covered by the most general scheme at the time of retirement (as in theoretical replacement rates). The varied cases of TRRs allows for assessment of pension adequacy beyond the median.

To conclude, while all four indicators assess the adequacy of pensions, they follow different concepts and shed light on different aspects of pension adequacy. Such differences need to be born in mind when interpreting the results.

Figure 3.1 reports the aggregate replacement ratio (ARR), which relates the median individual gross pension of people aged 65-74 to the median individual gross earnings of people aged 50-59. Data is provided for all Member States, both overall and disaggregated by gender. On average for the EU-28, the median individual gross pension of people aged 65-74 amounted to 56 percent of the median individual gross earnings of people aged 50-59. The ARR in Member States ranges from more than 60 percent, in France, Romania, Luxemburg, Italy, Hungary and Slovakia, to below 50 percent in 12 Member States.

Figure 3. 1: Aggregate replacement ratio, total and by gender, 2013



Source: Eurostat. Note: Ratio of income from pensions of persons aged between 65 and 74 years and income from work of persons aged between 50 and 59 years. Sorted by total ARR. Data from EU-SILC 2013, referring to the income year 2012.

Significant differences in the ARR exist not only between Member States but also between men and women. As for the relative median income ratio (see section 2.1), female pensioners are found to be, on average, in an inferior income position relative to their male counterparts (EU-28 average of ARR in 2013: 54 percent for women vs. 58 percent for men). Such lower relative pension entitlements of women might reflect shorter formal working careers but could be due to higher incomes of today's working-age women. However, a *higher* aggregate replacement ratio for women is observed in 11 Member States, with a positive difference of more than five percentage points in Greece, Slovakia, Luxemburg and Estonia.

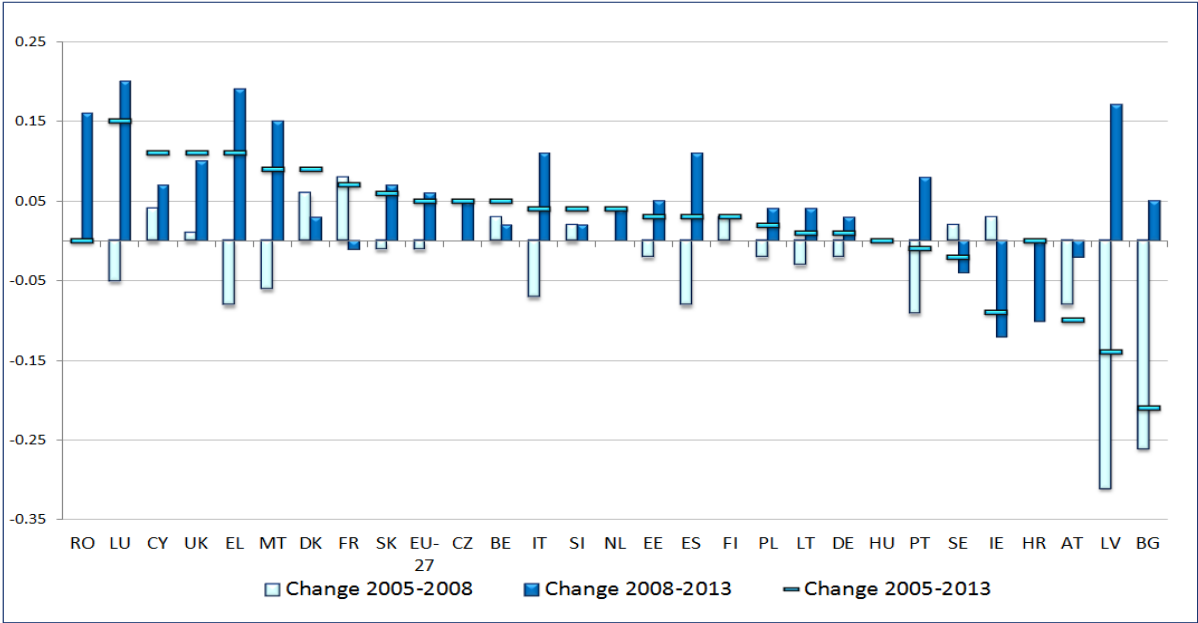
It is important to keep in mind that the ARR is based on gross pensions and earnings data, whereas net figures would provide a more accurate depiction of the actual (disposable) income situation. Further, the ARR has a rather narrow focus on individual income derived from pension payments (old age benefits, survivor benefits and individual private plans) relative to the earnings of people in the decade before retirement. In that sense, the relative median income ratio (see section 2.1) is a broader measure, taking all sources of income into account and relating the disposable household income of the entire elderly population to that of the entire population below age 65.

Despite these conceptual differences, results from the ARR indicator are generally in line with the overall trends described by the relative median income ratio (see Figure 2.1). Where a comparably low aggregate replacement ratios coincide with relatively high relative median

income ratios (e.g., in Greece, the Netherlands, Ireland and Croatia), this may be explained by factors such as the availability of other sources of income, the level of social contributions and taxes levied on pension income, or differences in household structures.⁴⁹

In a number of Member States, the relationship between median gross pensions of people aged 65-74 and median gross earnings of people aged 50-59 has changed quite substantially over recent years. Figure 3.2 illustrates the percentage point changes in the ARR over the periods 2005-2008 and 2008-2013, respectively. On average in the EU-28, the (gross) income position of 'young' pensioners has improved relative to the median gross income of older workers aged 50-59, with a total increase in the ARR of five percentage points between 2005 and 2013 (from 51 percent in 2005 (EU-27) to 55 percent in 2013 (EU-28)).

Figure 3. 2: Changes in the Aggregate replacement ratio, 2005-2008; 2008-2013 and 2005-2013



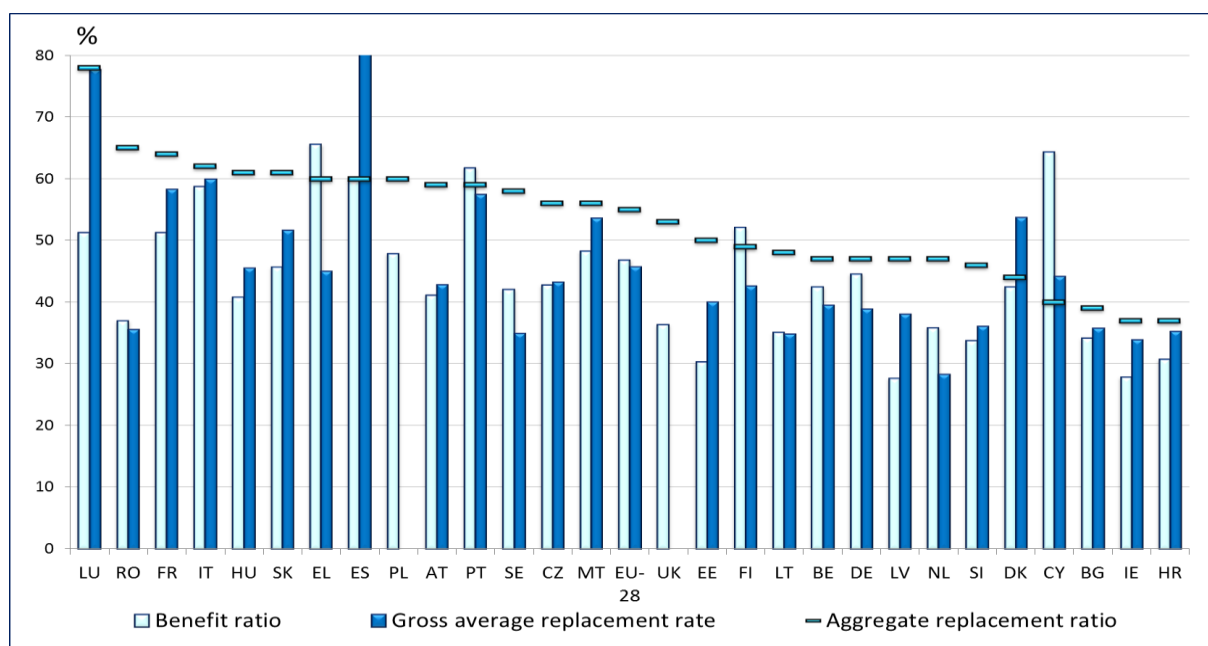
Source: Eurostat. Sorted by the total change in the aggregate replacement ratio 2005-2013. No data for RO and HR in 2005.

This trend is mainly driven by the increase in the ARR that occurred during the economic crisis. Between 2008 and 2013 a rise in the ARR was observed in 21 Member States, with an increase of more than 10 percentage points in Greece, Spain, Romania, Latvia, Malta and Luxemburg. In contrast, ARR decreased in five Member States over the same period. In this respect, it should be remembered that positive and negative developments in the ARR can, in principle, be driven by both changes in pension incomes (i.e. reform measures⁵⁰) and changes in the earnings of the people aged 50 to 59.

Finally, Figure 3.3 provides a comparison of the ARR with the two indicators of pension adequacy used in the Ageing Report. Overall, the figure illustrates the substantial differences in results that are obtained from the Benefit Ratio and Gross average replacement rate. On average in the EU-28, both the Benefit Ratio (45 percent) and the Gross Average Replacement Rate (48 percent) are lower than the ARR (56 percent in 2013).

⁴⁹ The country profiles in the Annex also provide a more national-specific assessment of the observed patterns.
⁵⁰ Section 4.1 provides an overview of recent pension reforms.

Figure 3. 3: Benefit Ratio, Gross average replacement rate and Aggregate replacement ratio, 2013



Source: Eurostat for ARR; BR and GrARR from the 2015 Ageing Report. GrARR refers to earnings-related public pensions. Benefit ratio refers to public pensions. Sorted by ARR. No data on GrARR for PL and UK.

The Benefit Ratio, which compares average public pension payments to the average wage, is lower than the ARR in most Member States (except for Greece, Portugal, Finland and Cyprus). A likely reason for this is the focus of the benefit ratio on public pension payments, whereas the ARR also includes income from private pension schemes. Likewise, the Gross Average Replacement Rate only takes earnings-related public pensions into account, which could explain the relatively low replacement levels in the majority of Member States (see Box 3.1 for a detailed discussion of methodological differences between the replacement rate indicators). In countries with higher Gross Average Replacement Rate (Luxemburg, France, Italy, Slovakia, Spain, Portugal, Malta, Denmark), earnings-related public pensions seem to allow for a rather smooth income transition from work to retirement.

In general, the heterogeneous picture provided by Figure 3.3 confirms the need for a broad assessment of pension adequacy noting that, for Member States with a strong focus on private pension provision indicators that only capture the outcomes of public schemes (such as the Benefit Ratio or the Gross Aggregate Replacement Ratio) may provide a distorted picture. In this regard, the Theoretical Replacement Rate (TRR) concept provides a more comprehensive assessment by taking into account all schemes that are mandatory, typical or have a wide reaching coverage.

3.1.2. Pension adequacy in 2013: current theoretical replacement rates

Current theoretical replacement rates (TRRs) describe the pension income, for a hypothetical worker who retired in 2013, relative to their earnings at the moment of retirement. The choice of common assumptions made about this hypothetical worker (i.e., career length, career breaks, earning profile, retirement age, etc.) obviously implies that not all individuals are going to be accurately represented in this scenario.⁵¹ The representativeness of these calculations depends on the degree to which the common assumptions reflect different labour market and retirement patterns across Member States. Therefore, theoretical replacement rates for a given career scenario are often not evenly representative across Member States.

Hence a number of alternative base cases are presented in this report in order to provide a comprehensive and relevant EU level assessment that reflects the increasingly heterogeneous set up of pension systems in the Member States. The career length assumptions and variant configurations for the four cases of current TRRs are summarised in Table 3.1.

Table 3. 1: Overview of Current TRR Cases

TRR case	Career lengths		Variants		
	Entry age	Exit age	Earnings	Gender	Net vs. Gross
Base case I	25	65	Low, Average, High	both if different SPA for men and women	All cases calculated in net and gross terms
Base case II	SPA-40	SPA			
Increase in SPA	25	SPA	Low, Average	Both	
AWG case	Country-specific				

Notes. SPA: standard pensionable age. See Box 3.2 for a description of the variant assumptions.

For reasons of continuity and comparability the same base case ('variant I') as in the 2012 Pension Adequacy Report is used. The 'base case I' refers to a hypothetical worker who started working at age 25 in 1973, and who had an uninterrupted career of 40 years with average earnings and who retired at age 65 in 2013.

Given that given that this base case has become increasingly complicated by 'early retirement' issues, changing retirement rules and rising pensionable ages, a second base case ('variant II') is defined as a 40-year career running up to the standard pensionable age (SPA) in 2013. The standard pensionable age is defined as the earliest age at which an individual with a 40-year career can retire without exit penalty, as summarised in Table A2 in the Appendix. 'Base case II' allows for assessment of the impact of reform measures *other* than legislated increases in the pensionable age (where the rise in SPA beyond age 65 leads to reduced pension rights due to early exit penalties in variant I).

The third variant ('increase in SPA' variant) assumes a career from age 25 up to the standard pensionable age. In this 'increase in SPA' case, the entry age remains constant (age 25), while the retirement age reflects the SPA at the time of retirement. In particular, this variant allows for analysis of the impact of reforms of the retirement age, for which future increases have been legislated in the majority of Member States (see also section 5.2).

⁵¹ For instance, the levels of theoretical replacement rates may be overstated for countries where the coverage of systems or the pensionable age is lower than the one assumed in the calculations, and understated when the contributory conditions for full pension rights exceed the simulated career length.

Finally, and complementing the above TRR variants, the so-called 'AWG case' is calculated. Based on the estimated average labour market entry and exit ages used by the Ageing Working Group (AWG) of the Economic Policy Committee (EPC), this variant uses country specific assumptions on the average career length of both current and future pensioners (see Box 3.3 for a more detailed introduction to the AWG methodology). The AWG case allows for a better alignment with the framework used by the Ageing Working Group (EPC-AWG) for budgetary projections in the 2015 Ageing Report.

Box 3.2 sets out the alternative assumptions underlying the TRR calculations. In general, all TRR cases are calculated:

- for different earning profiles
- for men and women (where different)
- in gross terms and net of taxes and social security contributions.

Box 3. 2: Theoretical Replacement Rates – variant assumptions

Earning profiles. Three different earning profiles are considered:

- (1) Default, average earnings are assumed throughout the career (based on historical data for current TRRs; based on AWG projections for future TRRs).
- (2) Under the low earnings variant, it is assumed that the individual earns 66 percent of the average wage throughout the career.
- (3) Under the high earnings variant, the individual starts at 100 percent of AWG average, and earnings grow linearly every year from 100 percent of average earnings to 200 percent after 40 years (the high earnings variant is calculated only for base case variants I and II).

Gender differences. All TRR cases are calculated separately for men and women. For base cases I and II and the 'increase in SPA' case, gender differences are explained (only) by gender differences in pensionable ages or other retirement rules. In contrast, the AWG case is based on gender-specific labour market entry and exit ages. Importantly, no gender-specific earning assumptions are used for the TRR calculations. The impact of income differences on TRRs is assessed in a general way through different earning profiles, while the variant cases on different types of career breaks help illustrate how periods of child care or unemployment affect pension outcomes. The use of gender-specific wages is methodologically problematic, since projections of the future evolution of income differences between men and women have to rely on strong assumptions and could easily be misleading. Therefore, TRRs are calculated for a wide range of career patterns that represent both males and females starting their careers today. Different TRR results for men and women would signal gender differences in the pension system itself.

Gross and Net TRR. The calculations take into consideration social security contributions to statutory and supplementary pension schemes or funds, as well as taxes and means-tested social benefits. This makes it possible to determine the contribution of different components of the pension systems to the pensioner's retirement income. In particular, the gross replacement rate is defined by the pre-taxed income (after employer contributions but including employee contributions). The net replacement rate is calculated as net of income taxes and employee contributions and includes means-tested benefits. Information on which contribution rates are assumed in the calculation is important when interpreting the representativeness of the TRR calculations (see Table 1 in Annex 3 on contribution rates for current and prospective calculations).

Table 3.2 provides the TRR results for the three core cases (base case I, base case II, 'increase in SPA' case) of a worker with average earnings retiring in 2013. For a better interpretation of the results, country-specific standard pensionable ages (SPA) are presented as well. Results are net of income taxes and social contributions and include means-tested benefits.

Table 3. 2: *Current TRRs for the different core cases (net, average earnings); underlying standard pensionable ages (SPA) and annual earnings*

Member State	Net Theoretical Replacement Rates (2013)						SPA in 2013	
	Base Case I		Base Case II		Increase in SPA			
	age 25 to 65		40 years to SPA		age 25 to SPA			
	men*	women*	men*	women*	men*	women*	men*	women*
BE	78.6		78.6		78.6		65.0	
BG	62.3	69.3	57.3		55.3	51.1	63.7	60.7
CZ	62.2	72.1	55.6		52.2	48.9	62.5	
DK	68.4		68.4		68.4		65.0	
DE	57.0		57.3		57.6		65.2	
EE	61.9	77.1	50.9	63.4	49.2	61.0	63.0	
IE	83.1		83.1		83.1		65.0	
EL	n.a.		n.a.		n.a.		62.0	
ES	96.2		96.2		96.2		65.0	
FR	80.2		80.2		80.2		65.0	
HR	55.5	59.7	55.5		55.5	49.6	65.0	60.8
IT	80.2		80.3	80.0	83.9	75.7	66.3	62.3
CY	58.0		58.0		58.0		65.0	
LV	71.9		65.0		61.1		62.0	
LT	61.6	70.0	52.6	52.4	49.9	47.3	62.7	60.6
LU	105.4		102.5		93.5		60.0**	
HU	100.8		85.4		80.6		62.0	
MT	79.0		79.0		79.0		62.0	
NL	114.0		114.0		114.0		65.1	
AT	85.1	93.7	85.1		85.1	77.1	65.0	60.0
PL	74.2	74.2	73.1		75.5	66.6	65.1	60.1
PT	92.3		92.3		92.3		65.0	
RO	73.1	62.1	73.1	62.1	71.3	59.5	64.8	59.8
SI	57.3	60.3	57.3	60.3	55.4	55.9	60.0	
SK	76.0	77.9	64.4		59.6	58.8	62.0	61.5
FI	69.5		69.5		69.5		65.0	
SE	69.3		69.3		69.3		65.0	
UK	83.4	88.0	83.4	73.4	83.4	71.4	65.0	61.3-61.8

Data source: Member States. Note: * if gender differences exist. ** LU: SPA of 57.0 assumed for base case I. Data for EL not available.

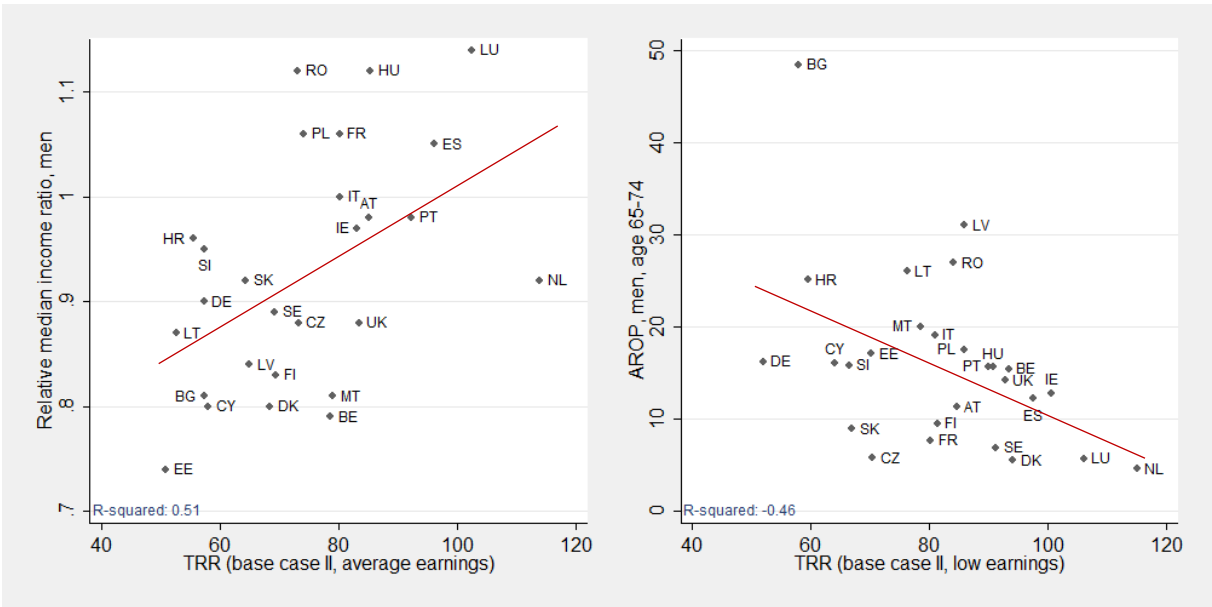
A number of general trends can be identified from Table 3.2. First, identical results for the three TRR variants (40 year from 'age 25 to 65', '40 years until SPA', and 'age 25 to SPA') occur in 11 Member States. This can be explained by the fact that in 2013 the standard pensionable age was 65 in most of these Member States. Secondly, in the majority of Member States with differing results for the three TRR cases, a somewhat higher TRR is reported for a 40 year career up to age 65 (as opposed to a 40 year career up to the SPA). Hence our hypothetical worker appears to benefit from a late retirement bonus when claiming his pension at 65 in countries with a SPA of under 65. In contrast, a comparably lower TRR is observed for the 'increase in SPA' case in the countries with an SPA of less than 65

(Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Luxemburg, Hungary, Romania, Slovenia, Slovakia), driven by the assumed under 40 year career span. Overall, the differences in theoretical replacement rates across Member States can be substantial. After a 40 year career on average earnings until the (country-specific) SPA, the net pension income varies between 51 and 114 percent of net average earnings in 2013.

However when interpreting these results it is important to bear in mind the relative concept of TRRs, which must be assessed against the average wage level in the particular Member State. Moreover, TRR calculations only consider pension schemes that are mandatory, typical or have a wide reaching coverage, thus excluding (3rd pillar) private pension entitlements in the majority of Member States. Finally, the uniform career length assumptions are not necessarily representative for a typical worker retiring in 2013. Therefore cross-country comparisons should take into account the actual retirement practices in each Member State; the ‘AWG case’ presented below aims to draw a more country-specific picture.

The potentially ambiguous relationship between TRR levels and actual living standards of older people is illustrated by comparing the current net TRR against the relative median income ratio and the at-risk-of-poverty rate for the elderly, respectively. Bearing in mind that the net replacement rate of those who retired in 2013 is compared to the living standards of an entire cohort of elderly, Figure 3.4 suggests a loose overall correlation between current TRR levels and observed living standards of today’s elderly. Hence factors other than ‘standard’ pension replacement rate levels clearly determine the income situation of older people as well.

Figure 3. 4: Correlation between the net TRR (base case II, average & low earnings) and the relative median income ratio (men) and the at-risk-of-poverty rate (65-74, men), respectively



Source: own illustration. Based on TRR calculations by Member States and 2013 SILC data. Red line: linear prediction. If gender differences exist, results for men are reported in this figure.

Country-specific career length assumptions ('AWG case'). The 'AWG case', which is intended to provide a more accurate view of a country’s actual labour market situation, is based on country-specific and gender-specific career length assumptions provided by the Ageing Working Group of the Economic Policy Committee (EPC-AWG). The underlying methodology is presented in Box 3.3. Apart from country-specific labour market entry and

exit ages, the 'AWG case' uses the same assumptions as the TRR 'core' cases presented above. In particular, the AWG case is calculated for low and average earning profiles and assumes an uninterrupted career between labour market entry and exit. Hence the 'AWG case' only differs from the other TRR base cases in terms of the assumed career length.

Box 3.3: Calculation of entry and exit ages for the 'AWG' case & 'duration of working life' indicator

AWG career length assumptions. The AWG estimates of labour force entry and exit rates are derived from the 'cohort simulation model' (CSM) developed by DG ECFIN.⁵² Based on labour market behaviour observed over the past 10 years, average probabilities of labour force entry and exit are calculated by gender and cohort. Data is derived from the harmonised EU Labour Force Survey (LFS), covering individuals aged 15 to 74 in 2004-2013.

The LFS data is used to compile a so-called "synthetic" generation/cohort of all individuals observed in the 2004-2013 period. The cohort is synthetic since specific individuals cannot be followed over their entire career due to the lack of longitudinal data. Therefore, estimated average entry ages are based on the 15-30 (covering birth cohorts from 1974 to 1998) reference age group, whereas the estimated average labour market exit ages are based on the 50-74 (covering birth cohorts from 1930 to 1963) age group.

The entry and exit ages used in the calculation of the current AWG case reflect labour market patterns of different cohorts. For more realistic comparisons, the average entry ages of those cohorts entering the labour market in 1973 would be preferable. It should also be noted that an uninterrupted career is assumed, whereas average contributory periods are likely to be lower for various reasons. The 'average working life duration' indicator, which takes career breaks into account, is included for comparison.

'Average duration of working life' indicator. This indicator measures the number of years a person is expected to be active in the labour market throughout their life. This indicator is calculated through a probabilistic model combining demographic data (life tables available from Eurostat to calculate the survival functions) and labour market data (Labour Force Survey activity rates by single age group). Similar to the AWG estimates of labour market participation, the indicator is based on recent survey data and does not reflect the actual employment history of those retiring in 2013. However, career breaks, caused by periods of unemployment or child care for example, are reflected in the estimates of labour market participation.

Table 3.3 presents the current TRRs under the AWG case (net, average earnings) for both men and women, and the underlying career length assumptions. In addition, the 'working life duration' indicator is reported, which takes into account career breaks and therefore helps assess the representativeness of the career length assumptions in the TRR calculations. Importantly, the career length used in the AWG case can vary substantially from the 40 year career assumed in base cases I and II. In 2013, average entry ages in the Member States varied between 19.7 and 24.0 years for men and 21.1 to 26.2 years for women. The exit ages of men ranged from 60.2 to 65.8 years and were below 65 in 24 Member States. In contrast, the average female exit ages varied from just under 60 to just under 65. The resulting average career lengths range from 37.8 to 45.2 years for men and 33.9 to 42.7 years for women.

⁵² For a more detailed discussion, see EC/EPC (2014), 'The 2015 Ageing Report: Underlying assumption and projection methodologies'.

Table 3. 3: Current TRRs under the AWG case (net, average earnings); underlying career length assumptions, and the duration of working lives

Member State	Current TRRs (2013) AWG case (1)		AWG career length assumptions 2013 (2)				Duration of working life in 2013 (3)	
	men	women	Exit age		Career length		men	women
			men	women	men	women		
BE	73.0	71.9	61.9	62.1	39.1	38.4	34.7	30.1
BG	59.2	57.8	63.8	62.0	41.0	36.9	33.2	30.7
CZ	57.8	57.8	63.1	60.7	40.9	35.2	37.7	31.5
DK	68.4	75.7	65.6	63.4	43.0	40.3	40.2	37.6
DE	62.8	55.4	65.1	64.2	44.1	42.0	40.1	35.4
EE	50.9	64.2	64.4	64.2	43.0	41.4	36.6	35.7
IE	82.6	82.6	64.9	64.8	42.8	41.4	38.3	30.5
EL	n.a.	n.a.	64.4	64.5	41.8	40.4	36.0	27.9
ES	81.7	89.1	62.8	64.1	40.7	41.2	37.1	32.3
FR	74.1	63.6	60.8	60.9	39.3	37.5	36.5	32.8
HR	52.1	51.9	62.4	61.4	39.9	37.0	33.1	28.8
IT	72.1	68.9	62.4	62.1	38.4	35.9	34.9	25.4
CY	58.0	55.0	64.9	62.8	43.9	40.2	39.8	32.5
LV	73.8	70.9	64.6	64.0	43.0	40.8	35.0	34.6
LT	53.3	54.7	62.8	61.9	40.6	38.1	34.1	34.2
LU	99.3	97.3	60.2	60.9	37.8	36.7	35.8	29.3
HU	90.6	85.5	63.0	63.0	40.0	37.5	33.0	28.4
MT	79.0	79.0	62.0	61.0	42.2	40.0	39.4	24.9
NL	114.0	114.0	65.5	63.7	44.4	41.8	42.2	37.0
AT	82.9	86.7	62.5	61.0	42.2	39.0	39.3	34.5
PL	82.3	65.7	63.9	60.2	41.7	35.4	34.7	29.6
PT	87.4	86.4	64.3	63.9	42.0	41.1	38.3	34.9
RO	68.1	57.1	64.0	62.3	40.5	36.4	34.6	29.2
SI	54.8	55.3	62.5	60.0	39.9	36.6	35.2	32.1
SK	62.8	48.6	61.6	59.7	40.0	33.9	35.6	30.0
FI	65.5	63.8	63.6	63.1	41.6	40.3	37.7	36.6
SE	75.1	70.5	65.8	64.5	44.8	42.7	42.1	39.6
UK	84.0	83.7	64.9*	63.6	45.2	42.5	41.1	35.5

Data source: (1) Member States; (2) The 2015 Ageing report; (3) Eurostat. Note: SPA- standard pensionable age. * Exit age of 65 assumed for the calculations. Entry age is the difference between exit age and career length. See Box 3.3 for the definition of the 'average duration of working life' indicator. Data for EL not available.

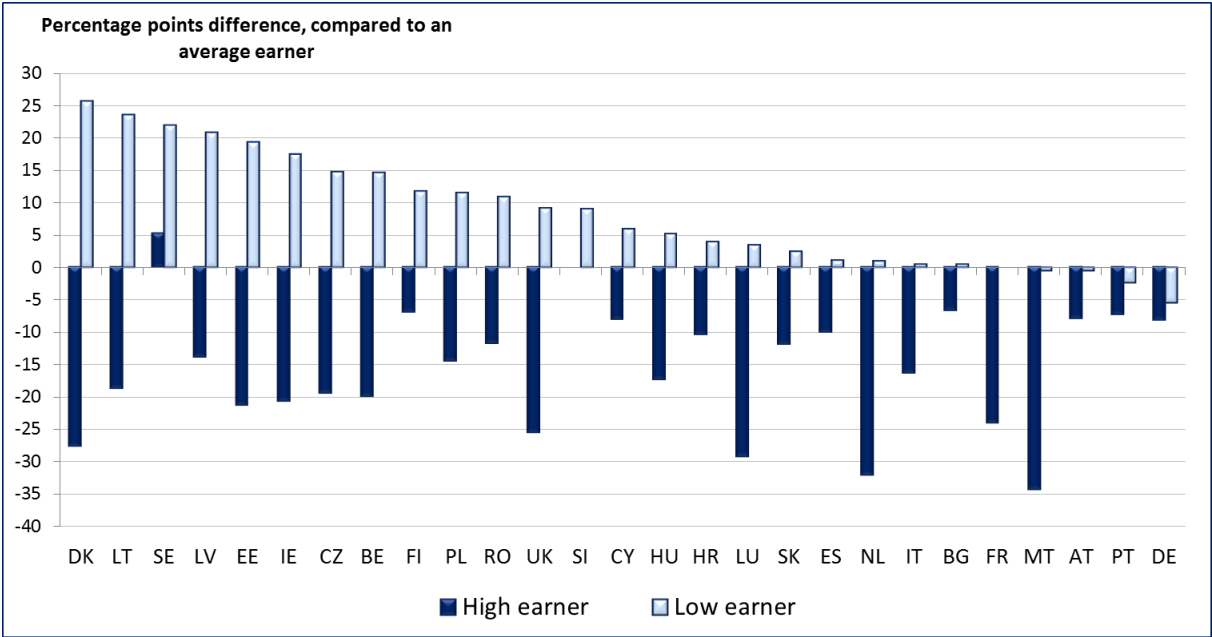
Consequently, the TRR results under the AWG case are often quite different from the results using the base case calculations. For average earners, TRR levels are lower under the AWG case in 12 Member States for both men and women. In most cases these lower pension outcomes are explained by the shorter career in the AWG scenario, particularly for women. However, even an assumed career of 40 or more years can lead to a lower replacement rate (compared to base case II) when the assumed labour market exit age is below 65.⁵³ Even so, higher replacement rates, in the AWG case as compared to base case II, are observed in nine (men) and eight (women) Member States.

⁵³ Other reasons might as well be at play. In Finland, for instance, there is no pension accrual in the first year of the AWG career as pension rights only were only accrued from the 23rd birthday onwards according to the legislation that was in force in the 1970s.

Representativeness of TRR calculations. In conjunction with the other current TRR cases, the AWG case provides a more comprehensive picture of today's pension outcomes in Member States. However, the representativeness of all TRR calculations, including the AWG case, depends very much on past labour market conditions in the Member States. In fact the average duration of working lives is estimated to be lower than the assumed career length in the majority of Member States and TRR cases. Hence the TRR results generally provide a rather positive description of the current generation of pensioners' pension entitlements. In what follows, assumptions other than career length are altered to assess their role in current pension adequacy. Unless stated otherwise, a 40 year working career (base case II) is used as the reference for these comparisons.

Results for different earning profiles. So far, all TRRs were presented for workers with average earnings. Alternatively, replacement rates are calculated for workers with low (2/3 of average earnings) and high earnings (linear growth from 100 percent to 200 percent of average earnings at career end). Figure 3.5 provides a comparison between the net TRRs of workers with low and high earnings and those of an average earner.

Figure 3. 5: Percentage point difference in net current Theoretical Replacement Rates between different earning profiles, base case II (40 years to SPA)



Data source: Member States. Note: Sorted by values for low earner. Data for EL – not available (n.a.). If gender differences exist, results for men are reported in this figure.

Overall, replacement rates tend to be relatively higher under the low earnings profile and relatively lower for workers with high earnings, reflecting the focus of pension systems on securing basic living standards in old age for all, while high income earners often rely more on supplementary, private pension schemes (see also Figure 3.7 on the composition of TRRs for different earning profiles, as well as chapter 3.2 on minimum pension provisions).

Behind these general trends exist significant differences between Member States. Net replacement rates are more than 10 percentage points higher for low income workers compared to average earners in 11 Member States. However, in another nine Member States net replacement rates for low income earners are close to or even below the TRR level of average income earners. This may be driven by a stronger impact of taxes and social security

contributions on the net replacement rates for low earners. While low-income workers typically pay less in taxes and contributions, retirement incomes of the lower earning are often at a level that does not allow them to benefit from income-tax reliefs (allowances, credits, etc.). In such circumstances, low income earners might pay a larger portion of their gross pension in taxes compared to an average earner, depending on the progressivity of income taxes.

Differences between gross and net replacement rates. The TRR results have been presented net of income taxes and employee contributions. Table 3.4 provides the gross TRR results for the four core cases for a worker on average earnings retiring in 2013.

Table 3. 4: Current gross TRRs for the different core cases (net, average earnings)

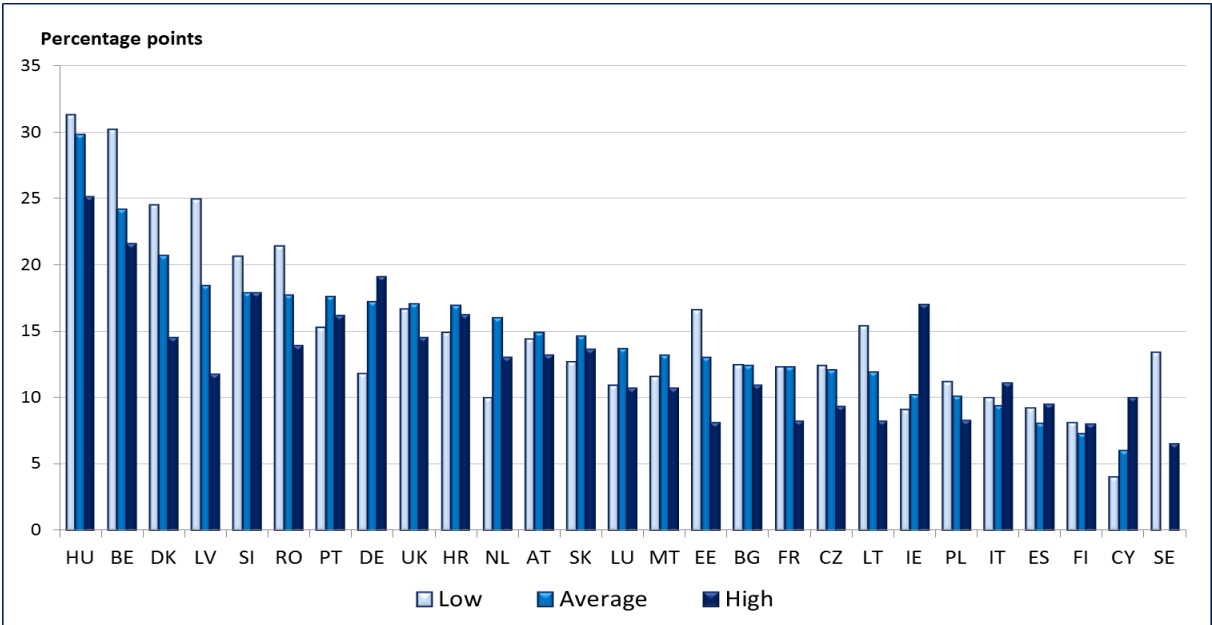
Member State	Gross Theoretical Replacement Rates (2013)							
	<u>Base Case I</u>		<u>Base Case II</u>		<u>Increase in SPA</u>		<u>AWG career length case</u>	
	<i>age 25 to 65</i>		<i>40 years to SPA</i>		<i>age 25 to SPA</i>		<i>AWG assumptions (Table 3.3)</i>	
	<i>men*</i>	<i>women*</i>	<i>men*</i>	<i>women*</i>	<i>men*</i>	<i>women*</i>	<i>men*</i>	<i>women*</i>
BE	54.4		54.4		54.4		47.7	46.5
BG	48.5	54.3	44.9		43.4	40.0	46.4	45.3
CZ	48.8	56.5	43.5		40.9	38.4	45.3	
DK	47.7		47.7		47.7		47.7	58.6
DE	39.9		40.1		40.3		43.9	38.8
EE	46.1	58.4	37.9	48.0	36.7	46.2	37.9	49.1
IE	72.9		72.9		72.9		72.9	
EL	:	:	:	:	:	:	:	:
ES	88.2		88.2		88.2		74.3	82.0
FR	67.9		67.9		67.9		62.7	53.9
HR	38.5	41.5	38.5		38.5	34.4	36.2	36.1
IT	70.8		70.9	70.6	74.5	66.2	63.1	59.8
CY	52.0		52.0		52.0		52.0	51.0
LV	52.9		46.6		43.0		54.6	52.0
LT	47.6	54.2	40.7	40.6	38.6	36.6	41.2	42.4
LU	92.4		88.8		78.5		85.0	82.8
HU	65.6		55.6		52.5		58.9	55.6
MT	65.8		65.8		65.8		65.8	66.2
NL	98.0		98.0		98.0		98.0	
AT	70.2	80.2	70.2		70.2	61.4	67.7	72.1
PL	64.1		64.1	63.1	65.2	57.4	71.3	56.6
PT	74.7		74.7		74.7		71.3	71.4
RO	55.4	45.9	55.4	45.9	52.4	41.2	50.4	40.9
SI	39.4	41.5	39.4	41.5	38.1	38.5	37.7	38.1
SK	58.8	60.3	49.8		46.1	45.4	48.6	37.6
FI	62.2		62.2		62.2		58.2	56.4
SE	69.4		69.4		69.4		76.2	70.7
UK	66.4	80.2	66.4	57.8	66.4	57.2	66.9	75.9

*Data source: Member States. Note: * if gender differences exist. Data for EL not available.*

By comparing net with gross replacement rates, we can assess how different tax treatments of work and pension incomes affect the income replacement of pensions. Figure 3.6 reports the percentage point difference between net and gross TRRs for different earning profiles. The difference between net and gross TRRs varies substantially across Member States, with the net TRR being more than ten percentage points higher than the gross TRR in 22 Member States. The larger the differences between net and gross TRR levels, the more favourable the design of the tax-benefit system is for pension recipients in comparison to wage earners.⁵⁴

Figure 3.6 also shows that the greatest differences between net and gross TRRs are mostly found for low wage earners, whereas differences are smallest for workers with high incomes. Many Member States appear to apply an active policy of ‘fiscal correction’ on pensions in order to obtain better redistributive results.

Figure 3. 6: Percentage point difference between net and gross current Theoretical Replacement Rates for different earning profiles, base case II



Source: Member States. A positive difference indicates a higher net TRR. Sorted by 'average earnings' variant. Data for EL – not available (n.a.). If gender differences exist, results for men are reported in this figure.

⁵⁴ In HU, for instance, the large difference between net and gross figures can be attributed to the fact that pensions are tax-free.

The role of private pensions in current pension adequacy. For a comprehensive illustration of the composition of pension incomes, the role of private pensions (occupational and individual pensions) in current pension levels is assessed. Three categories of pension scheme are distinguished:⁵⁵

- Statutory pay-as-you-go (defined-benefit (DB) or notionally defined-contribution (NDC));
- Statutory funded (usually defined-contribution (DC) schemes);
- Occupational and other supplementary schemes.

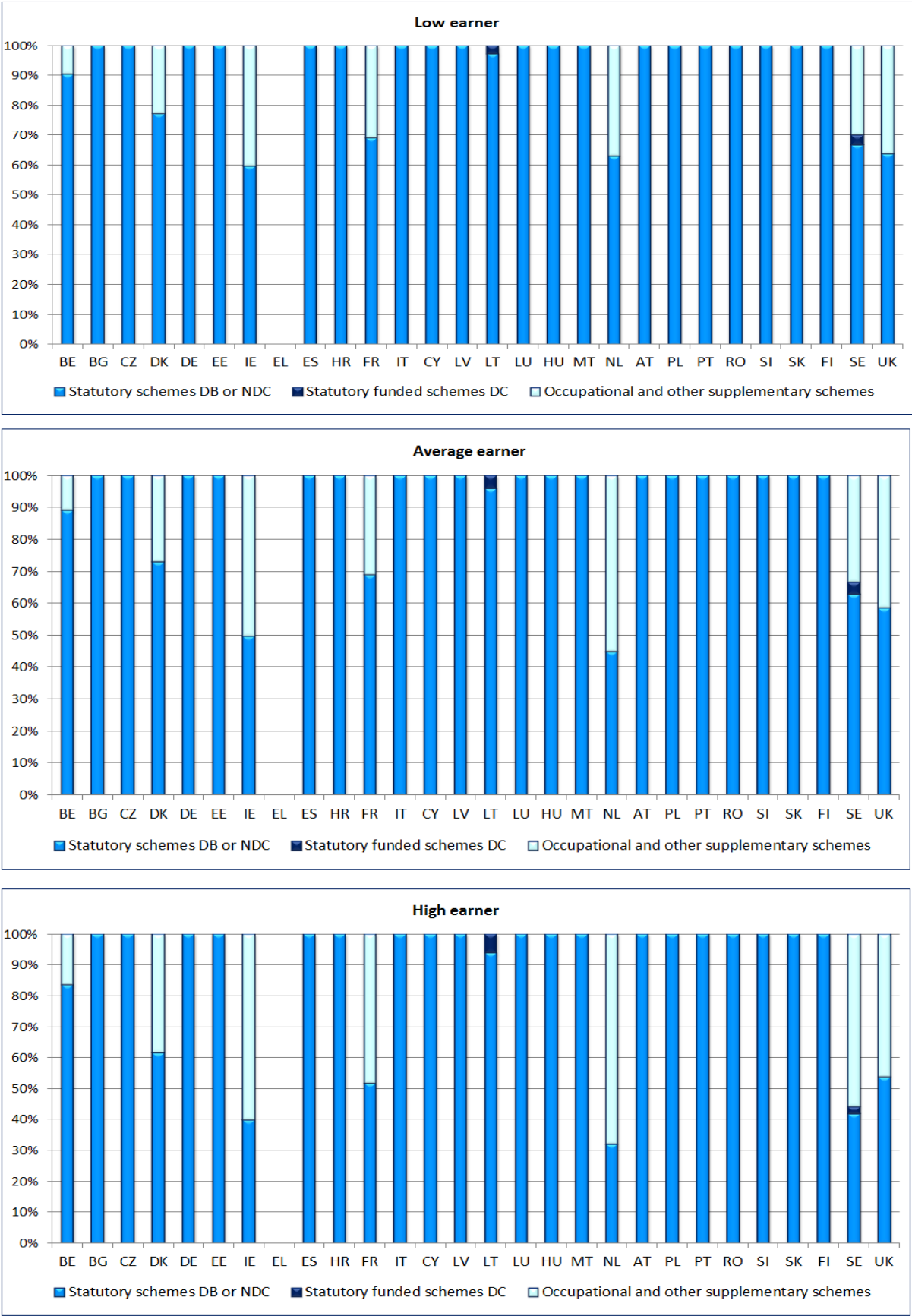
Table 1 in Annex 3 summarises the schemes covered, for all Member States. Figure 3.7 presents the share of the three types of pension schemes in current gross TRRs (base case II) for different earning profiles. Clearly, the public PAYG pension system (DB or NDC) is the main provider of pensions across the EU. However, occupational pension schemes based on either collective agreements or employer sponsorship have achieved a wide coverage in a number of countries and are gaining in importance in providing supplementary retirement income (see also the composition of prospective TRRs, Figure 5.20).

Occupational pensions contribute more than 20 percent to the TRR mix in France, the Netherlands, Sweden and the United Kingdom. Next to the overall design of pension systems and the relationship between 1st and 2nd pillar schemes, the contribution of occupational pension systems is largely influenced by the maturity of the systems, which vary between countries. Newly introduced statutory funded schemes contribute more substantially to pension income where these statutory funded DC schemes are already in the pay-out phase.

Generally speaking, the proportion of income from occupational or statutory funded pensions is lower for low-wage earners, since the redistributive features of statutory PAYG schemes play a more significant role for those with lower earnings.

⁵⁵ Note that this classification is not based on the traditional "three pillars" typology (including statutory, occupational and individual schemes). Generally, TRR calculations only include mandatory, typical or wide-reaching pension schemes, which usually exclude individual schemes unless they are part of official pension provisions and of substantial significance (e.g. Riester in DE).

Figure 3. 7: Shares of different pension schemes in gross TRRs for low, average and high income earner, 2013



Data source: Member States. Ref. base case variant II (40 years up to the SPA). Based only on the schemes included in the TRR calculations (Table 1 in Annex 3). Data for EL not available. If gender differences exist, results for men are reported in this figure.

Gender differences in current theoretical replacement rates. Where they exist, differences in theoretical replacement rates for men and women are assessed in more detail. However, since it has been assumed that the same career patterns apply for both men and women, gender differences in the TRRs results only exist in Member States with different retirement rules for men and women, noting that, in 2013, there was a lower pensionable age for women in 12 Member States, as summarised in Table 3.5.

Table 3. 5: Gender differences in standard pensionable ages in 2013 and 2053

MS	2013		Equalisation by 2053 legislated?
	<i>Men</i>	<i>Women</i>	
AT	65	60	✓
BG	63y8m	60y8m	
CZ	62y6m	61y4m*	✓
EE	63	61	✓
HR	65	60y9m	✓
IT	66y3m	62y3m	✓
LT	62y8m	60y7m	✓
PL	65y1m	60y1m	✓
RO	64y8m	59y8m	
SI	63y6m	61y6m	✓
SK	62	61y6m	✓
UK	65	61.3-61.8	✓

*Note: Member States with no gender difference in standard pensionable ages not listed. * SPA depends on the number of children raised; assumption of 0 children.*

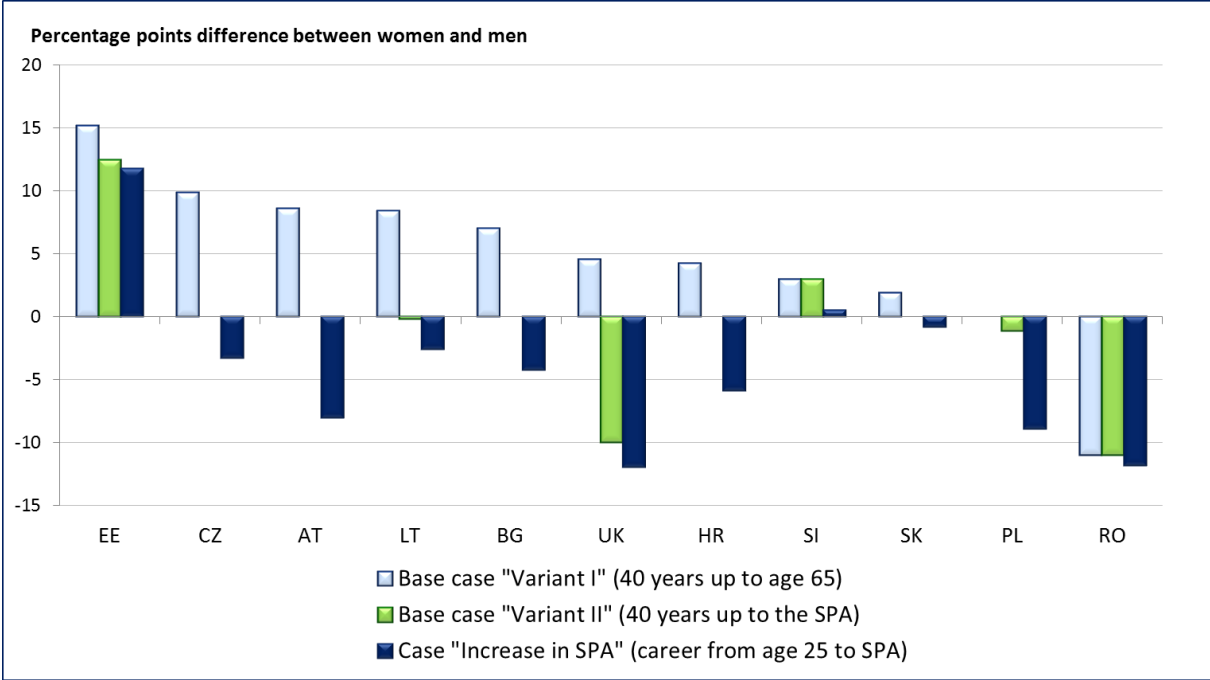
Figure 3.8 presents the percentage point difference in net TRR for men and women under the different career length variants for average earnings. In nine Member States, a 40 year career until 65 results in higher replacement rates for women in 2013, who benefit from late retirement bonuses or a benefit formula based on women having a career of less than 40 years.

Comparisons of TRRs for a 40 year career up to the gender-specific pensionable age (base case II) reveals that the higher theoretical replacement rates under base case I are explained by late retirement bonuses when working until age 65. A 40 year career up to SPA results in identical TRRs for men and women in Bulgaria, Czech Republic, Lithuania, Croatia, Austria and Slovakia, and in higher replacement rates for men in Romania and the UK. The results for women deteriorate further under the ‘increase in SPA’ case. Lower standard pensionable ages for women lead to shorter careers which translate into lower replacement rates upon reaching the gender-specific SPA in nine Member States (Czech Republic, Austria, Lithuania, Bulgaria, UK, Croatia, Slovakia, Poland and Romania).

However, an uninterrupted career of 40 years generally tends to be un-representative since women, on average, still have shorter periods in which to build pension entitlements. With pension benefits being increasingly linked to the length of contributory periods, lower pensionable ages and earlier entry into retirement are no longer an advantage for women (as is also illustrated by the results for the AWG case). Beyond gender differences in retirement practices, career breaks due to periods of unemployment, child care or inactivity for instance,

can explain the gender gaps observed in pension outcomes (see chapter 3.5 on the gender gap in pensions and chapter 4.1 on related prospective TRR variants).

Figure 3. 8: Percentage point difference in net current TRRs between women and men, average earnings, base case I, base case II, and ‘increase in SPA’



Data source: Member States. Only countries included where gender differences exist. A positive difference indicates a higher TRR for women compared to men. Data for EL – not available (n.a.). Sorted by base case "Variant I".

3.2. Minimum income provision

Most public pensions are funded from contributions levied on earnings, and benefit levels are determined by an individual’s employment and earnings history, as illustrated also by the TRR calculations presented in the previous section. It is therefore good jobs that are supposed to keep people out of poverty not just when they are of working age, but also after retirement. However, not everyone has an employment history that results in a sufficient retirement income. Thus strictly earnings-related pension schemes would leave many older people exposed to poverty.

Different ways of protecting people against poverty in old age have therefore been developed, either within the public pension scheme, or as separate schemes. This section reviews the variety of minimum income provisions for older people that can be found across EU Member States, and tries to assess how effective these are in keeping older people out of poverty today and in the years to come. The following definition is applied:

Minimum income provisions for older people can be broadly defined as any provisions that seek to guarantee people a clearly defined income even if their employment or contribution history would not be sufficient to yield such an income level.

Such provisions therefore imply a redistribution of income. However, it should also be noted that not every redistributive feature of a pension scheme is also a minimum income provision. Examples of such other redistributive features would be pension credits (discussed in section

3.3 below) or contributions that do not give rise to pension entitlements (or only at a lower rate). Moreover, according to the broad definition of minimum income provisions proposed above, targeting and means-testing are not necessarily a feature of minimum income provisions. They can take the form of universal flat-rate pensions or a minimum pension accrual for every year worked.

Some minimum income provisions are based on effort, for instance the career length or a minimum of hours worked in a given period; others link the benefit level to residency periods in the country. Such provisions, which are typically built into the public pension scheme, will still leave some people with insufficient income, for instance migrants or people with very low labour market engagement. Therefore, additional social-assistance type provisions are required as a basic safety net for older people. As a result, many countries have several minimum income provisions for older people in place.

3.2.1. Types of minimum income provision and their prevalence across the EU

Member States have developed different ways of preventing very low incomes in old age. Some are an integral part of the pension scheme design, while others could be regarded as add-ons to the pension scheme, or are completely unconnected to the pension scheme, as in the case of general social assistance.

Four different types of minimum income provisions can be distinguished: universal flat-rate pensions, contributory minimum pensions, specific social assistance for older people and general social assistance.

Universal flat-rate pensions are paid to all older residents as a uniform amount (sometimes distinguishing between singles and couples), regardless of the beneficiary's employment or contribution record. By contrast, the amount is reduced for people who did not reside all their life in the country that pays out the universal flat-rate pension. Only few countries in the EU have universal flat-rate pensions: in its purest form, this system exists in the Netherlands where the amount only depends on the length of residence in the country. In Denmark, the full flat-rate pension will only be paid to older people who do not have other income. In Sweden and Finland, the universal flat-rate pension is paid to people without sufficient other pension income, but it is not means-tested against other forms of non-pension income or assets.

Contributory minimum pensions are provisions that enhance the pension level for people whose careers were marked by low earnings and/or periods of low employment intensity. Basically, they ensure that there is a minimum reward for people's contribution effort. This can take different forms. The United Kingdom pays a full state pension to people who have paid 30 years of National Insurance contributions, even on extremely low earnings. In Ireland, too, the state pension amount depends on the number of contribution periods, not the contribution amount (which is linked to earnings). Other countries do link pension amounts to the levels of contributions (and earnings), but raise low pensions to a certain minimum level without testing for other means or assign a minimum value to each contribution year or period (Belgium, Bulgaria, Croatia, Slovenia). While this type of minimum income provision makes public pension outcomes more equal, it does so to a lesser extent than universal flat-rate pensions.

Specific social assistance for older people is a more targeted way of guaranteeing a minimum income to older people and represents a basic social safety net. It is characterised by

comprehensive means testing and can be delivered through the public pension scheme (France, Spain, Portugal) or specific agencies in charge of social assistance (e.g. Belgium, Cyprus, Ireland, Slovenia, the United Kingdom). Entitlement to social assistance is usually not subject to past residence or contribution requirements, as is the case for the previous two forms of minimum income provision. However, social assistance does require beneficiaries to be current residents in the country that pays social assistance, which is not ‘exportable’. Specific social assistance for older people is usually available for people above the standard pensionable age, which may still be different for women and men, but it may also be paid only from a higher age onwards.

General social assistance is not specifically targeted at older people. It supports all residents without sufficient resources for subsistence, with needs being established through comprehensive means testing. Some features of general social assistance may be adapted to older people, e.g. with regard to obligations to seek work or to provide support among relatives. Only two Member States rely exclusively on general social assistance as a basic social safety net for older people: Czech Republic and Germany.

Table 3.6 shows which of these four types of minimum income provisions can be found in the Member States. All countries have at least one type of minimum income provision, and many countries have more than one type. Particularly countries with contributory minimum pensions and flat-rate pensions need an additional social safety net for those who do not qualify for a sufficient pension under these first two types of minimum income provision.

Table 3. 6: Types of minimum income provision for older people (aged 65 and over)

MS	Universal flat-rate pension	Contributory minimum pension	Specific social assistance for older people	General social assistance cash benefit*
BE		Guaranteed minimum pension for the full career for employed persons Gewaarbord minimum pensioen voor een volledige loopbaan voor werknemers/Pension minimale garantie pour une carrière complète de travailleur salarié Minimum entitlement per career year for employed persons Minimumrecht per loopbaanjaar/Droit minimal par année de carrière Guaranteed minimum pension in case of a mixed career Gewaarbord minimumpensioen voor een gemengde loopbaan/Pension minimale pour carrière mixte	Guaranteed income for elderly persons (GRAPA), from age 65 Inkomensgarantie voor Ouderen (IGO) – Garantie de ressources aux Personnes Âgées (GRAPA)	
BG		Minimum pension (full contributions to the pay-go state pension scheme) ПЕНСИЯ ЗА ОСИГУРИТЕЛЕН СТАЖ И ВЪЗРАСТ Minimum pension (15 years of contributions to the pay-go) ПЕНСИЯ ЗА ОСИГУРИТЕЛЕН СТАЖ И ВЪЗРАСТ ЗА ЛИЦАТА, ПРИДОБИЛИ 15 ГОДИНИ ОСИГУРИТЕЛЕН СТАЖ	Social old-age pension, from age 70 / СОЦИАЛНА ПЕНСИЯ ЗА СТАРОСТ	Social assistance СОЦИАЛНО ПОДПОМАГАНЕ
CZ				Allowance for Living Pomoc v hmotné nouzi
DK	Public old-age pension Folkepension		Cash assistance, from age 65 / <i>Kontanthjelp</i>	
DE				Means-tested benefits from social assistance Grundsicherung im Alter und bei Erwerbsminderung
EE			National pension , from age 63 Rahvapension	Subsistence benefit Toimetulekutoetus

MS	Universal flat-rate pension	Contributory minimum pension	Specific social assistance for older people	General social assistance cash benefit*
IE		State Pension (contributory)	State Pension (non-contributory), from age 66	
EL		Minimum pension ΚΑΤΩΤΑΘ ΣΥΝΤΑΞΗ		
ES		Minimum pension Pensiones mínimas	Non-contributory old-age pension, from age 65 (with 10 years residence/insurance period) Pensiones no contributivas de jubilación	Non-contributory benefits Prestaciones no contributivas
FR		Minimum contributive pension Minimum contributif (MICO)	Solidarity allowance for elderly, from age 65) Allocation de solidarité aux personnes âgées (ASPA)	
HR		Minimum pension Najniza mirovina		Social Assistance (Socijalna pomoc)
IT		Minimum pension supplement Integrazione al Trattamento Mínimo Minimum pension – Social increase (from age 70) Maggiorazione Sociale	Social Allowance, from age 65 and 3 months (and 10 years residence period) Assegno Sociale	Social Allowance Assegno sociale
CY		Minimum pension (GSIS)	Social pension, from age 65 (and residence period) Κοινωνική Σύμβαση	Scheme supporting pensioners' households with low income Σχέδιο ενίσχυσης νοικοκυριών συνταξιούχων με χαμηλά εισοδήματα
LV		Minimum old-age pension Minimālā vecuma pensija		Guaranteed minimum income Pabalsts garantētā minimālā ienākuma līmeņa nodrošināšanai
LT			Social assistance pension Šalpos pensija	Cash general social assistance Piniginė socialinė parama
LU		Minimum pension Pension minimale		Guaranteed minimum income Revenu minimum garanti - RMG
HU		Minimum old-age pension (contributory) Öregségi nyugdíjminimum	Old-age allowance (non-contributory), from the statutory retirement age Időskorúak járadéka	
MT		National minimum pension Pensjoni Minima Nazjonali	Non-contributory Age Pension, from age 60 (with 5 years residence period) Pensjoni tal-Eta' mhux kontributorja	
NL	General old-age pension AOW: Algemene Ouderdomswet			Minimum level welfare benefit WWB: Wet Werk en Bijstand
AT			Compensation supplement to pension (with insurance period of 15 years) Ausgleichszulage zu Pensionen aus der Pensionsversicherung	Means-tested minimum income scheme Bedarfsorientierte Mindestsicherung
PL		Minimum pension Emerytura minimalna		Permanent benefit for incapacity to work Zasiłek stały
PT		Minimum pension (contributory) Pensão mínima do regime general	Social old-age pension (non-contributory), from 66 years Pensão social de velhice Solidarity supplement for the elderly, from 66 years Complemento Solidário para Idosos	
RO			Social Indemnity for Pensioners, from age 60 (women) or 65 (men) Indemnizatie sociala pentru pensionari	Social Assistance Asistentei sociale
SI		Minimum pension Najnižja pokojnina	Supplementary allowance, from age 63 (women) or 65 (men) Varstveni dodatek	Cash Social Assistance and Denarna socialna pomoč
SK			Benefit in Material Need	

MS	Universal flat-rate pension	Contributory minimum pension	Specific social assistance for older people	General social assistance cash benefit*
	Dávka v hmotnej núdzi			
FI	National Pension Kansaneläke Guarantee Pension Takuueläke			Social Assistance Toimeentulotuki
SE	Guaranteed pension Garantipension		Maintenance support for the elderly, from age 65 Äldreförsörjningsstöd	
UK		Basic State Pension	State Pension Credit – Guarantee Credit, from age 60 to 65	

*Source: Information collected from Member States and MISSOC comparative tables. For information collected from Member States please see Table 5 Description of minimum income provision for older people in Annex 3. Notes: *General social assistance schemes in the last column were indicated if at least some people aged 65 and over may need to rely on them and if specific social assistance for older people (or universal flat-rate pensions) do not protect all older people.*

Means tests apply to the social assistance-type minimum income provisions, but some means testing against other pension income may apply also in the case of universal flat-rate pensions and contributory minimum pensions. In the case of social assistance schemes, means testing can be extensive, covering all incomes of the household as well as assets and possibly also incomes of relatives (children) who may have obligations of mutual support. The extent of means testing will have implications of benefit take-up rates and hence the effectiveness of minimum income provisions in alleviating poverty.

3.2.2. Dependency of older people on minimum income provisions

The extent to which older people are protected against poverty in old age by minimum income provisions (rather than by their capacity to accrue sufficient pension entitlements through employment) is not easy to establish, particularly when minimum income provisions are an integral part of the pension scheme. Thus, the vast majority of older people will be benefiting from a universal flat-rate pension in those countries where this type of pension exists, but it would be very difficult to separate out those who would not have reached this pension level through their employment or contribution efforts, or, in other words, those who gain from the redistributive nature of universal flat-rate pension schemes. The same goes for contributory minimum pensions, although depending on how this type of minimum income provision is designed, it may be easier to identify those who get a higher pension than their contribution record would warrant.

Information on the impact of minimum income provisions is therefore patchy. One way of gauging the dependency on minimum income provisions in old age consists in looking at the numbers of beneficiaries of such provisions and putting these numbers in relation to the total population of older people. This is done in Table 3.7 which presents the shares of beneficiaries of minimum income provisions (MIPOP) among old-age pensioners and the population aged 65 and over.

The picture is quite varied. Countries with universal flat-rate pensions have very high shares of beneficiaries, up to 100 percent in the case of Denmark. Where the flat-rate pension is only paid to people without sufficient other pension income (Finland, Sweden), the shares are also quite high, but much higher for women than for men. This gender difference can also be observed for other types of minimum income provision; indeed, these provisions are clearly very important for mitigating the insufficient pension rights that women have been able to accumulate over their working lives.

Table 3. 7: Shares of beneficiaries of minimum income provision, 2013

MS	MIPOP name	MIPOP beneficiaries as share of old age pensioners		Beneficiaries aged 65+ in total population as % of total population	
		Men	Women	Men	Women
BE	<i>Guaranteed minimum pension for the full career</i>	:	:	:	:
	<i>GRAPA</i>	5.3*		4.3	6.5
BG	<i>Social old-age pension</i>	0.2	0.2	0.3	0.2
CZ	<i>Allowance for Living</i>	0.3		0.3	:
DK	<i>Public old-age pension</i>	100	100	97.0	98.8
DE	<i>Benefits from social assistance</i>	:	:	:	:
EE	<i>National pension</i>	0.3	0.4	0.7	0.6
IE	<i>State Pension (non-contributory)</i>	13.9	33.1	13.9	19.7
EL	<i>No reply</i>	:	:	–	–
ES	<i>Minimum pension</i>	24.0	36.2	22.6	29.9
	<i>Non-contributory old-age pension</i>	1.3	4.8	1.4	4.1
FR	<i>Minimum contributive pension</i>	:	:	:	:
	<i>Solidarity allowance for elderly</i>	:	:	:	:
HR	<i>Minimum pension</i>	24.7	44.5	20.5	25.7
IT	<i>Minimum pension – Social increase</i>	:	:	4.8	10.4
CY	<i>Minimum pension</i>	14.1	35.4	16.5	30.6
	<i>Social pension</i>	0.7	28.2	0.9	24.9
LV	<i>Minimum old-age pension</i>	4.9	9.0	15.8	14.4
LT	<i>Social assistance pension</i>	0.9	2.4	0.8	1.4
LU	<i>Minimum pension</i>	6.3	33.7	11.4	40.6
	<i>Guaranteed minimum income from general SA (not a MIPOP but data for 2013 for 60+)</i>	1.8	1.9	1.9	2.8
HU	<i>Minimum old-age pension (contributory)</i>	0.1	0.1	:	:
MT	<i>National Minimum Pension</i>	4.0	6.0	5.8	6.7
	<i>Non-contributory old age pension</i>	2.0	6.0	2.2	6.9
NL	<i>General old-age pension (AOW)</i>	:	:	:	:
AT	<i>Compensation supplement to pension</i>	5.7	13.7	6.0	11.9
PL	<i>Minimum old-age pension</i>	:	:	:	:
PT	<i>Social old-age pension (non-contributory)</i>	4.0	4.0	:	:
	<i>Solidarity supplement for the elderly</i>	5.0	12.0	6.0	9.6
RO	<i>Social Indemnity for Pensioners</i>	:	:	3.9	14.8
SI	<i>Minimum pension</i>	0.7		:	:
	<i>Supplementary Allowance</i>	:	:	:	:
SK	<i>Assistance in material need</i>	0.7	0.4	0.7	0.4
FI	<i>National Pension</i>	27.2	47.5	30.7	51.7
	<i>Guarantee Pension</i>	2.5	5.7	1.9	5.5
	<i>Social Assistance 60+</i>	2.8	2.3	1.4	1.4
SE	<i>Guaranteed pension</i>	17.6	60.0	18.1	61.2
	<i>Maintenance support for the elderly</i>	0.9	0.9	0.9	0.9
UK	<i>State Pension Credit – Guarantee Credit</i>	:	:	15.6	18.4

Data Source: Member States. : - data not provided. *GRAPA: No split by gender; the relation is made to the number of old-age and survivors' pensioners in the private sector.

Women's careers are, on average, shorter than men's, and their earnings level is lower. Member States were asked to calculate the pension levels for a person with a 30-year career on two thirds of average earnings and to indicate the composition of the retirement income for such a career profile, which can be regarded as being more representative of women's careers.

The results are presented in Table 3.8, relating the pension entitlement to (i) previous earnings (TRR); (ii) average earnings; and (iii) the at-risk-of poverty threshold (at 60 percent of the equivalised median income in a given country).

Table 3. 8: 2013 Pension outcomes after a 30-year career on two-thirds of average earnings

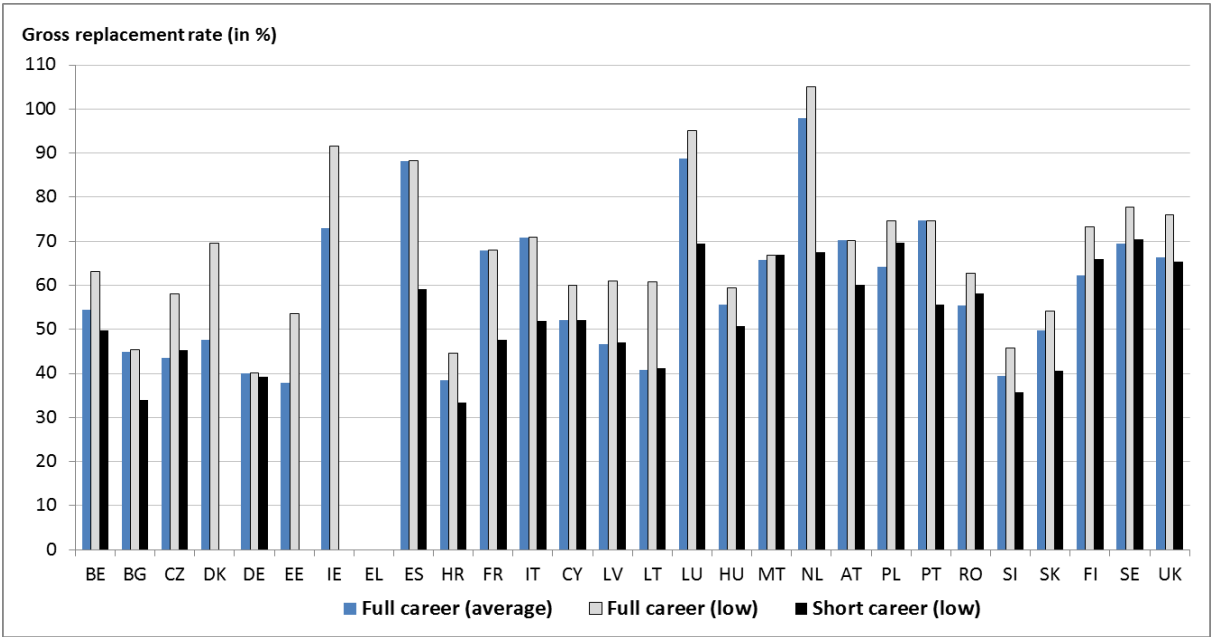
MS	Theoretical replacement rate, <u>net</u>		Theoretical replacement rate, <u>gross</u>		Total <u>net</u> entitlement as % of AROP threshold		Total <u>gross</u> entitlement as % of average gross earnings		Share of minimum income provision in total <u>gross</u> entitlement	Additional entitlement (annual amount)
	M	W	M	W	M	W	M	W		
BE	74.5		49.8		:		33.4		:	
BG	43.4		34.0		47.5		21.0		0	Heating (up to €185)
CZ	52.1	53.7	45.2	46.6	:		31.1	32.0	:	
DK	:		:		:		:		:	
DE	56.1		39.3		74.3		26.3		23.4	Housing
EE	42.5		33.9		77.7		26.9		0	
IE	:		:		:		:		:	Charges*** (up to €1,040)
EL	:		:		:		:		:	
ES	69.5		59.0		111.8		38.6		0	
FR	56.4		47.7		76.6		31.8		0	
HR	44.6		33.4		91.5		22.2		13.6	
IT	84.7		51.9		136.5		35.3		21.9	
CY	56.0		52.0		94.2		37.4		14.5	
LV	66.4		47.1		76.8		29.6		0	
LT	51.6		41.1		72.5		25.9		0	Housing (up to €288)
LU	78.9		69.5		101.4		46.6		0	
HU	77.5		50.8		113.4		33.0		37.4	
MT	78.5		66.9		119.8		45.1		0	Housing (up to €650)
NL	79.6		67.5		120.6		45.0		0	
AT	72.3		60.0		86.1		34.7		32.4	
PL	80.2	70.5	69.6	61.0	67.9		46.0	40.3	0	
PT	68.7		55.6		117.8		37.0		0	
RO	77.3	67.2	58.1	48.3	86.6	81.2	38.3	31.8	0	
SI	51.9	55.4	35.7	38.1	57.3	61.1	24.9	26.6	0	
SK	50.2		40.6		72.8		27.1		12.1	
FI	77.7*		66.0		89.7		44.5		16.5	Housing (up to €2,232)
SE	88.2**		70.4		87.5		46.7		16.3	Housing (up to €3,307)
UK	82.3	76.3	65.3	60.2	130.6	121.1	43.3	39.9	0	

Data source: Member States and own calculations. Data for AROP threshold (at 60 percent of national median disposable income): Eurostat. Notes: "0" no minimum income provision in total entitlement; : data not provided; * including housing allowance for pensioners (11.7 p.p.), ** including housing supplement (17.0 p.p.). *** electricity, fuel, water

The table shows that in many countries the income that is available to a person with this profile of low earnings and a short working life will remain below the at-risk-of-poverty threshold, but there are also several countries where the benefits clearly exceed this threshold. However, it is not the specific supplements from minimum income provisions that seem to keep most of older people above the poverty threshold; a good protection against the risk of poverty seems to be rather the result of the overall design of the pension system and its redistributive nature.

An indication of the redistributive nature of pension systems can be obtained by comparing replacement rates at different income levels and for different career lengths. Figure 3.9 presents three gross theoretical replacement rates: for full careers at average and low earnings (66 percent of average earnings), and for a short career (30 instead of 40 years) at low earnings. In the absence of redistribution, the replacement rates for full careers at different earnings should be equal (pensions are strictly linked to earnings), and the replacement rate for a 30 year career should be three quarters of the rate for a full 40 year career.

Figure 3. 9: Comparison of 2013 gross replacement rates for full careers (40 yrs, base case II) at average and low earnings and a short career (30 years) at low earnings



Data source: Member States. If gender differences exist, results for men are reported in this figure.

The pension systems in Bulgaria, Germany, France, Luxemburg and Portugal correspond to this non-redistributive pattern. Solidarity is not embodied in the pension formula, but can be found in other features of the pension system (e.g. pension credits, survivors’ benefits) and means-tested benefits.

Many countries have replacement rates that are higher for full careers on low earnings than on average earnings, and the replacement rates for short careers on low incomes are close to the replacement rates for a full career on average earnings. These pension systems are designed to mitigate the effect of short careers and low earnings on retirement incomes, and they typically do not achieve this by paying means-tested supplements.

3.2.3. Effectiveness of minimum income provisions in preventing/mitigating poverty

Finally, this section looks at the amounts guaranteed by minimum income provisions (inside or outside the pension system) and compares them to the at-risk-of-poverty threshold. When comparing levels of guaranteed minimum incomes with the poverty threshold, it should be kept in mind that the household composition, the financial situation of other household members, and possibly also that of family members not living in the same household may all impact on the actual material well-being of the older person benefiting from a means-tested income guarantee. There may also be specific supplements on top of the guaranteed income, such as housing and heating allowances, which need to be taken into account.

Table 3.9 shows the absolute amounts of the annual minimum income provision for older people for the most recent year for which information is available, as well as the ratio of the 2012 annual amount of the minimum income provision for older people and the at-risk-of-poverty threshold. It has been assumed that beneficiaries do not have any resources at their disposal and that they therefore receive the full guaranteed minimum amount.

Table 3. 9: Minimum income provision for older people (annual amounts, net) and at risk of poverty thresholds

MS	Name of MIPOP	Most recent minimum amount (net), EUR			2012 minimum income as share of the at-risk-of-poverty (AROP) threshold ⁵⁶		
		Year	Singles	Couples	Singles	Couples	Income supplements (housing, heating)
BE	Guaranteed minimum pension for full career GRAPA	2012	13,314	16,637	103.3	86.0	
		2014	12,140	16,187	90.5	80.5	
BG	Minimum pension (full career)	2014	934	:	49.4	:	10.5
	Minimum pension (15 years of contribution)		794	:	42.0	:	
	Social old-age pension		684	:	35.3	:	
CZ	Allowance for Living	2015	1,359	2,583	29.4	37.3	
DK	Public old-age pension	2014	16,031	25,564	94.0	99.3	
	Cash assistance		11,399	22,797	68.5	91.4	
DE	Benefits from social assistance	2013	4,584	8,280	38.2	45.9	
EE	National pension	2014	1,788	:	40.8	:	
IE	State Pension (non-contributory)	2012	11,388	:	99.5	:	9.1
EL	Minimum pension*	2014	5,949 ⁵⁷	:	:	:	
ES	Minimum pension	2014	8,861	10,933	106.8	87.8	
	Non-contributory old-age pension		5,123	8,708	61.7	67.0	
FR	Minimum contributive pension (min amount)	2014	7,027	:	55.2	:	
	Minimum contributive pension (max amount)		7,525	:	59.1	:	
	Solidarity allowance for elderly		9,600	14,904	74.2	76.9	
HR	Minimum pension (45 years period)	2014	4,164	:	135.4	:	
	Minimum pension (15 years period)		1,388	:	45.2	:	
IT	Minimum pension supplement	2014	6,518	:	66.2	:	
	Minimum pension – Social increase		2,473	:	26.1	:	
	Socil Allowance (MIPOP)		5,819	:	59.1	:	
CY	Minimum pension	2014	6,577	12,755	75.0	104.2	
	Social pension		6,362	12,323	66.5	85.4	

⁵⁶ The at-risk-of-poverty threshold is based on 2013 EU-SILC data (referring to the income year 2012)

⁵⁷ After 30 June 2015 it is 4.320 EUR annually (360 EUR monthly).

MS	Name of MIPOP	Most recent minimum amount (net), EUR			2012 minimum income as share of the at-risk-of-poverty (AROP) threshold ⁵⁶		
		Year	Singles	Couples	Singles	Couples	Income supplements (housing, heating)
LV	Minimum old-age pension	2014	960	:	27.1	:	
LT	Social assistance pension	2014	1,126	:	39.9	:	10.02
LU	Minimum pension	2013	18,572	:	88.7	:	
	Guaranteed minimum income - RMG	2013	16,899	24,978	84.0	82.7	
HU	Minimum old-age pension (contributory)	2014	1,170	:	43.0	:	
	Old-age Allowance min amount		1,030	1,734	40.9	45.9	
	Old-age Allowance max amount		1,409	1,734	56.0	45.9	
MT	National Minimum Pension	2014	6,152	7,154	81.1	62.8	9.0
	Non-contributory old age pension		5,437	6,905	71.3	60.6	
NL	General old-age pension (AOW)	2015	13,524	18,672	96.3	79.0	
AT	Compensation supplement to pension	2015	11,589	17,365	81.7	81.7	
PL	Minimum old-age pension	2014	2,021	:	65.0	:	
PT	Minimum pension (contributory)	2014	5,307	:	108.5	:	
	Social old-age pension (non-contributory)		2,793	5,587	55.8	74.4	
	Solidarity supplement for the elderly		4,909	8,591	102.5	119.5	
RO	Social Indemnity for Pensioners	:	937	:	76.2	:	
SI	Minimum pension	2015	2,400	:	32.6	:	Rental subsidy
	Supplementary Allowance	2014	5,589	8,690	75.9	75.8	
SK	Assistance in material need		2,166	3,869	53.9	64.2	
FI	National Pension	2014	7,607	13,494	52.3	61.9	16.0
	Guarantee Pension		8,921	17,841	61.3	81.8	
SE	Guaranteed pension	2014	8,692	15,791	68.9	82.0	20.9
	Maintenance support for the elderly		14,760	19,180	100.0	87.8	Housing included**
UK	State Pension Credit – Guarantee Credit	2014	9,904	15,121	81.1	82.6	

Data source: information from the Member States and from Eurostat (2013 EU-SILC). Notes: * Data for Greece - from MISSOC comparative tables. The maximum housing benefit for 2014 amounted to €4,344. Although not comparable to the 2014 amount of minimum pension, the AROP 2013 threshold for Greece was €5,023. ** According to the information from SE, the guarantee pension together with housing benefit always exceeds the amount of maintenance support for the elderly.

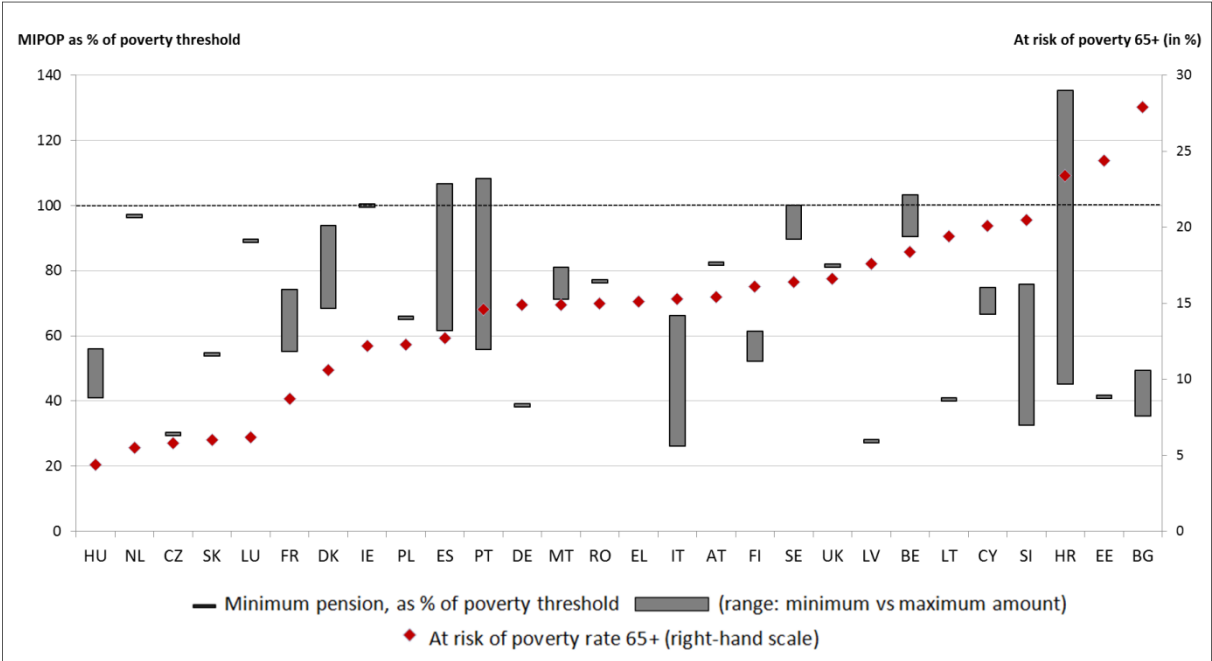
Overall, the financial situation is rather bleak in most Member States for those who have to rely on a minimum income guarantee. The table shows that only few minimum income provisions will lift older people without any other resources above the at-risk-of-poverty threshold. In a number of Member States, the minimum amount guaranteed does not even reach half of the at-risk-of-poverty threshold, although it should be borne in mind that income supplements may be available; in Germany, the maximum housing allowance amount is roughly as much again as the social assistance benefit for a single person, thus bringing the guaranteed income amount much closer to the at-risk-of-poverty threshold.

In some countries, the level of the income guarantee depends on the employment record. Thus, in Croatia, the amount of the minimum pension for 45 years of insurance period is well above the at-risk-of-poverty threshold, but for people who only have the minimum insurance period of 15 years it is well below. It is also interesting to note that there seems to be no consistency across Member States in the way couples are protected compared to singles. In some countries, the minimum amounts guaranteed for couples as a share of the at-risk of poverty thresholds are higher than the amounts for singles; in other countries, the opposite is

the case. The differences can be quite substantial, often between 10 and 20 percentage points of the at-risk-of-poverty threshold.

One might expect that countries which have low guaranteed income amounts for older people might also have a large(r) proportion of older people below the poverty line. Figure 3.10 presents the guaranteed minimum income amounts (or their ranges, if they depend for instance on insurance/employment periods) as a percentage of the poverty threshold (left-hand scale), and orders the countries by the share of older people with a disposable income below the poverty threshold (right-hand scale). No clear pattern emerges: countries with relatively low guaranteed income amounts can also have low at-risk-of-poverty rates, and relatively high minimum income amounts do not automatically imply that few older people have to live with income below the poverty threshold.

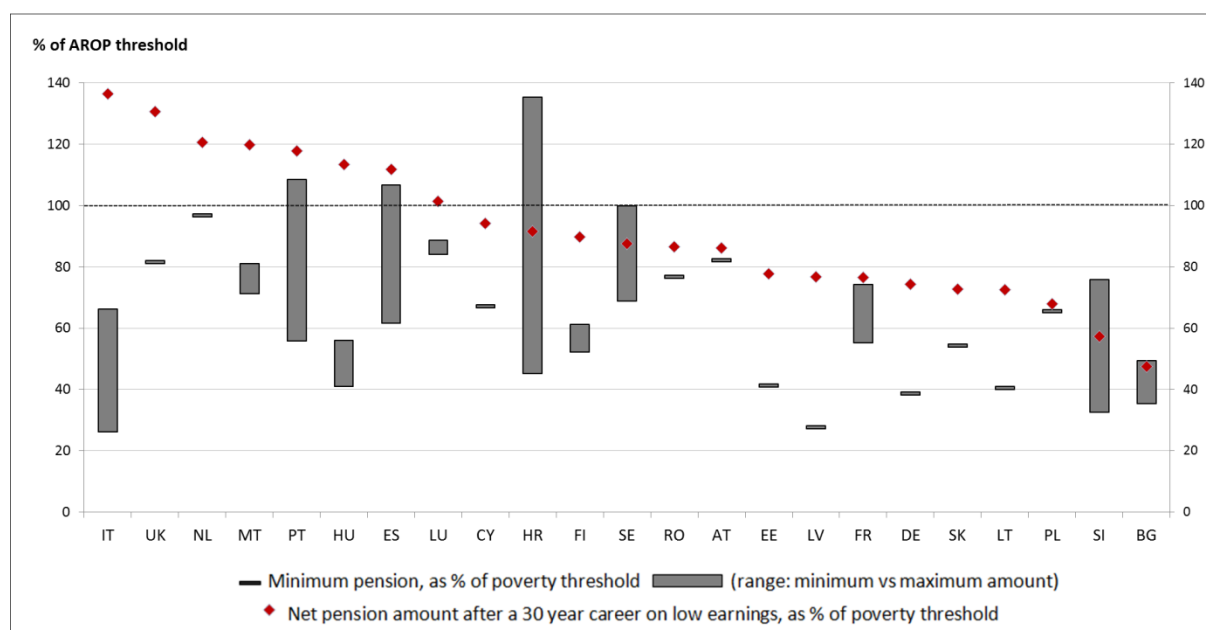
Figure 3. 10: Minimum income provision for older people and share of people aged 65+ with income below the at-risk-of-poverty threshold



Data source: information from Member States and from Eurostat (2013 EU-SILC data)

Clearly, whether many older people are living with incomes below the at-risk-of-poverty threshold depends on many other factors, such as their employment records and other redistributive features in pension systems. For instance, the degree to which older people with a short career have to rely on minimum income provisions varies considerably across Member States. Figure 3.11 compares the guaranteed minimum income amounts to the net entitlements of someone with a short career on low earnings (expressed as a percentage of the poverty threshold). In some Member States, the pension entitlement from a 30-year career on two-thirds average earnings clearly exceeds the minimum income provision for older people, whereas in other Member States the pension earned after a 30-year career is found rather close to the guaranteed minimum.

Figure 3. 11: Minimum income provision for older people and net pension entitlement after a 30 year career at low earnings, as share of the at-risk-of-poverty threshold



Data source: information from Member States. Sorted by the net TRR after a 30-year career on low earnings. No data on current net TRR for a short career available for EL, IE, BE, DK and CZ.

3.2.4. Trends and challenges

Minimum income provisions for older people either take the form of redistributive elements within pension schemes or social-assistance type supplements with often very stringent means tests. An increased need for means-tested supplements would be a worrying trend. The income guarantees provided by social assistance tend to be well below the at-risk-of-poverty threshold and would therefore not lift people who have to rely on such support out of poverty. Moreover, heavily means-tested benefits have strong disincentive effects and can trap people in poverty. Saving for one's retirement, earning income, or cohabiting with a partner with a higher income can all be discouraged by stringent means tests. It is therefore important that Member State's employment and social protection policies, and their endeavours to promote equal opportunities for women and men, enable a maximum of people to earn pension entitlements that keep them clearly above the most basic safety nets of general or specific social assistance.

Member States generally reported that the reliance on minimum income provisions has not increased over the past decade, and indeed it has often declined. They also do not expect the number of beneficiaries and the level of spending (as a share of GDP) to increase over the coming decade. One explanation for this seems to be that women will less often have to rely on minimum income provision, reflecting the stronger labour force participation of more recent cohorts of women retiring from the labour market. Women will, however, continue to depend on minimum income provision much more than men.

While the increased labour force participation of women and, in some countries, reforms of the pension system will tend to lower the dependency on basic safety nets in old age, other factors may have the opposite effects. The economic crisis and high unemployment, particularly among younger people, will leave many people with major gaps in their contribution history, and these will only translate into claims for minimum income provisions

in several decades from now. It also remains to be seen how many people will not be able to work up to the rising statutory retirement age and will therefore have to leave the labour market before they can earn sufficient pension rights. Clearly, there is a need to monitor the need for minimum income provisions in old age and their capacity to alleviate poverty over the coming decades.

3.3. Pension credits and pension accrual during periods out of labour market

The accrual of pension rights in earnings-related public pension schemes is normally linked to an individual's contributory record when working. However, pension rights can also be granted for periods when people are not working and contributing in the normal way because they have responsibilities, or are undertaking activities, outside the labour market which are recognised by the scheme as counting towards a pension.

Accrual of pension rights when people are not working and contributing normally is through:

- pension credits
- contributions deducted from benefits received during career breaks
- the purchase of pension rights through voluntary contributions.

Many Member States grant **pension credits** for periods spent outside the labour market for reasons that are deemed 'deserving'. The most frequently credited periods are those linked to maternity (or paternity), care duties, education, military service, incapacity for work, or unemployment.

Depending on the entitlement conditions in the respective pension system, credits may be granted in the form of

- assumed career years
- pension points
- social security contributions credited to the individual.

These compensation mechanisms can be combined in practice. In Sweden, for example, an individual taking a career break pays a contribution and the state then credits a top-up up to 18.5 percent of the reference income. For insurance-based pension schemes, a career break during which contributions are paid or credited generally counts towards the length of the career record.

This chapter describes compensation mechanisms present in the Member States' statutory pension schemes. Similar protections may exist in occupational schemes but would probably not be present in third pillar pension savings schemes. In public pension schemes where entitlement is based on residence, such as Denmark and the Netherlands, periods outside the labour market are automatically covered.

The vast majority of individuals who take career breaks linked to childbirth, child-rearing and care for dependent adults are women. Pension crediting of these periods is therefore of particular importance in terms of the pension adequacy of women and can help mitigate the negative effects of shorter or interrupted careers on retirement incomes and their ability to meet minimum contributory year requirements.

Although pension credits are widespread, in earnings-related schemes such contributions tend to be at a low level - equivalent to the minimum wage or part of the last individual wage, resulting in smaller pension accruals during such periods.

The TRR estimates that are used in this section to reflect the effects of career breaks due to child care or unemployment, provide an illustration of the extent to which pension systems are successful in amortising the impact of non-contributory periods on pension adequacy. The data that enables more comprehensive quantitative assessment of the way pension crediting impacts on pension entitlements across the EU is not available. Nevertheless, given the widespread application of pension credits and their importance for pension adequacy, it is important to present the main features of pension crediting in the EU.

3.3.1. Maternity, paternity and child care

Maternity, paternity and parenthood are typically seen to be ‘highly deserving’ social roles, which merit continued accrual of pension rights during a break from professional activity and normal contributions. To this end Member States use policy tools such as pension credits or deductions of pension contributions from benefits, or they simply equate maternity leave with active employment. In practice, pension credits are the most widespread instrument, being granted in the majority of Member States⁵⁸, while several Member States deduct contributions from maternity/paternity benefits⁵⁹.

Pension crediting of maternity may cover either the actual time spent outside the labour market, or a standard period irrespective of the length of absence. For instance, France grants a ‘maternity credit’ of one year per child to socially insured mothers. Another way in which pension systems credit maternity is by applying lower pensionable ages to women depending on the number of children they bear and raise. However, while such arrangements still exist in some Member States⁶⁰ they are gradually being phased out.

When it comes to career interruptions for **childcare**, all Member States recognise caring duties through pension entitlements in their public schemes. Most Member States⁶¹ award pension credits for childcare. However, the age limit for which the credit can be granted varies considerably – from Latvia, where only care periods for a child of less than one and a half years are credited, to Cyprus, Ireland and the United Kingdom, where the age limit is 12 years.

Career breaks to take care of one’s children can nevertheless have a negative impact on future pension entitlements. Figure 3.12 shows the differences in net TRRs between a woman with a career break due to childcare (up to three years) and a women without children and a full career (reference: uninterrupted career from age 25 to standard pensionable age).

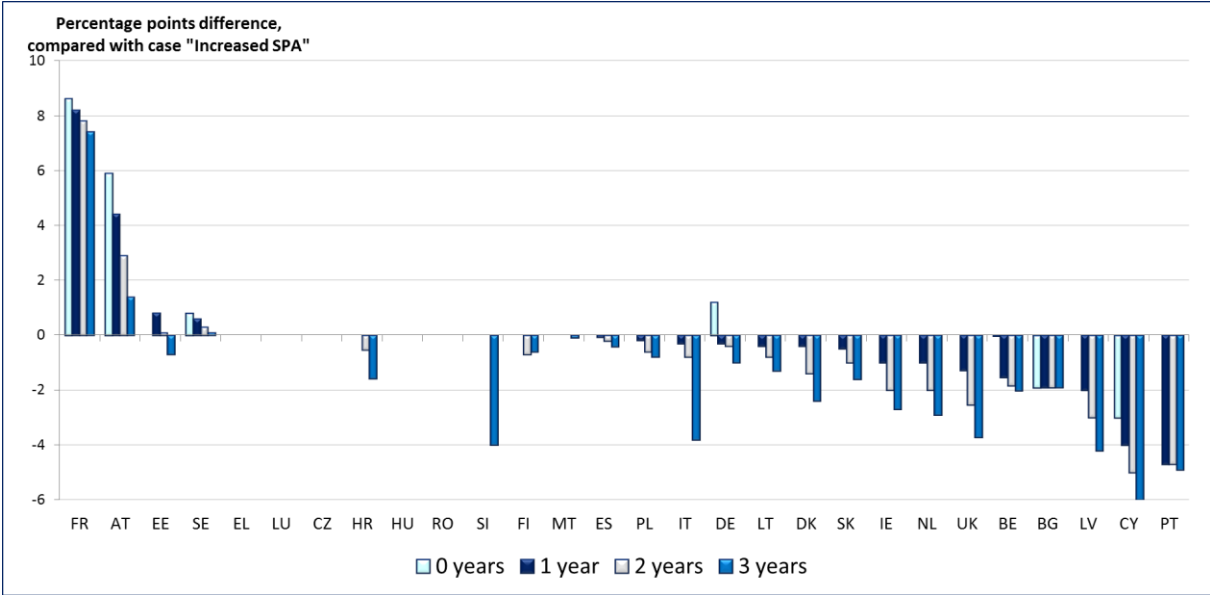
⁵⁸ AT, BE, BG, CY, EE, FI, FR, HU, IE, IT, LV, LT, PT, SK, ES, UK (Source: MISSOC comparative tables, status 1 July 2014)

⁵⁹ FR, LU, PL, RO, SI, ES, NL, UK (Source: MISSOC comparative tables, status 1 July 2014)

⁶⁰ CZ, SK

⁶¹ AT, BG, CY, CZ, EE, FI, FR, DE, HU, IE, LV, LU, MT, PL, PT, SK, ES, SE, UK (Source: MISSOC comparative tables, status 1 July 2014)

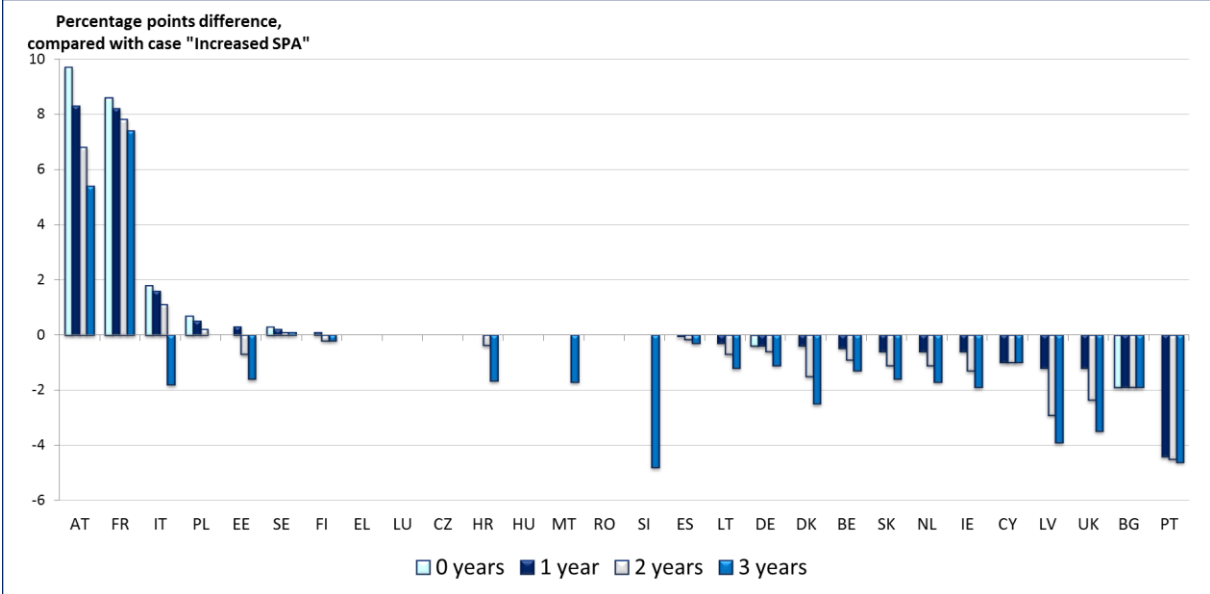
Figure 3. 12: Percentage point differences in prospective (2053) net TRRs comparing an average wage earner with a 0, 1, 2 or 3 years of childcare break to one without children and a full career



Data source: Member States and the OECD. Note: A positive difference indicates a higher net TRR for a woman with career breaks due to child care. Sorted by 1 year of childcare.

For average earners, three years of child care result in lower replacement rates in 19 Member States, with a drop in the net TRR of more than five percentage points in Portugal, Cyprus and Latvia. In contrast, relatively generous credits for children have a positive impact on future pension levels in France and Austria and, to a lesser extent, in Sweden and Germany, even if the career is interrupted for up to three years.

Figure 3. 13: Percentage point differences in prospective (2053) net TRRs comparing a low wage earner with a 0, 1, 2 or 3 years of childcare break to one without children and a full career



Data source: Member States and the OECD. Note: A positive difference indicates a higher net TRR for a woman with career breaks due to child care. Sorted by 1 year of childcare.

The impact of child care years on prospective TRRs for low wage earners is shown in Figure 3.13, which reveals largely similar results compared to an average wage earner in the majority of Member States. However, some pension systems compensate low wage earners better for childcare breaks than they do for average wage earners, although the downward effects on replacement rates are somewhat smaller for low income earners in several Member States.

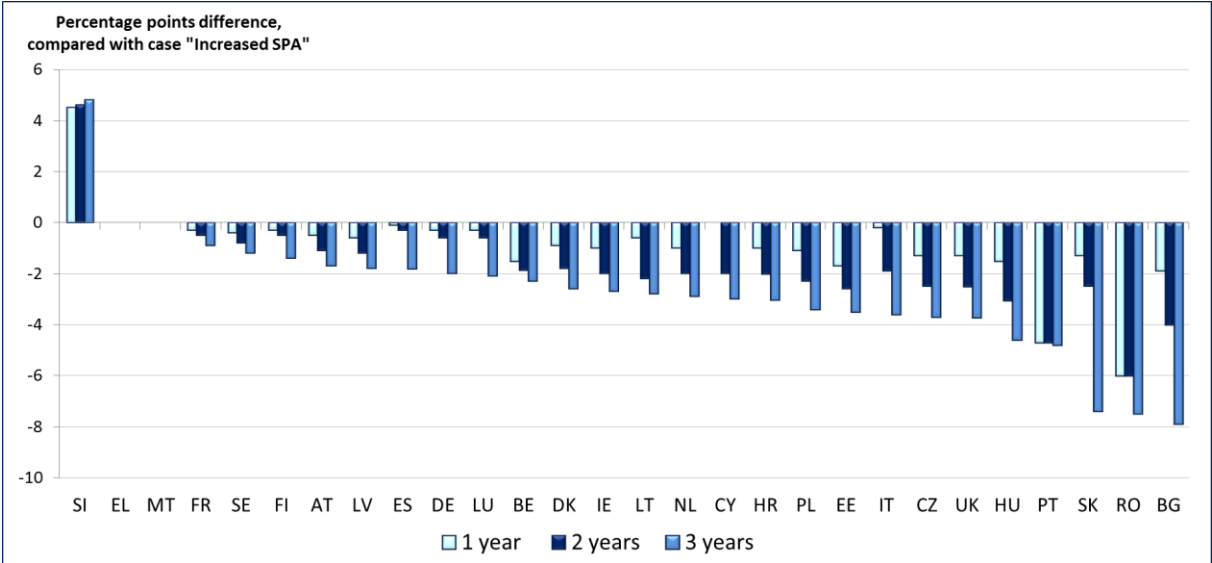
3.3.2. Unemployment

Most Member States offer protection of pension accruals in their main statutory schemes in cases of loss of employment, either through contributions based on unemployment benefit (and paid by the unemployment scheme) or through the attribution of pension credits. In most cases, this protection is linked to receipt of an unemployment benefit and is thus subject to time limits and/or other conditionality conditions such as participation in training and activation.

In Belgium, only involuntary unemployment and unemployment with company supplement are credited. In France, unemployment without benefit can be credited for a period of up to a year (five years for some categories). In Spain, unemployed workers after the age of 55 who are entitled to the non-contributory unemployment benefit continue to receive pension credits after the expiry of the contributory unemployment benefit. Latvia credits periods spent performing paid temporary public works.

In Spain, the entitlement to pension credits during unemployment is linked to the family situation of the unemployed. In the case an expectant parent or a parent of a young child becomes unemployed or their unemployment benefit terminates, a certain period of interrupted contribution will be considered completed. In effect, this measure combines the elements of unemployment and family credits.

Figure 3. 14: Percentage point differences in prospective (2053) net TRRs comparing an average earner with 1, 2, 3 years of unemployment to one with a full career ('increase in SPA')

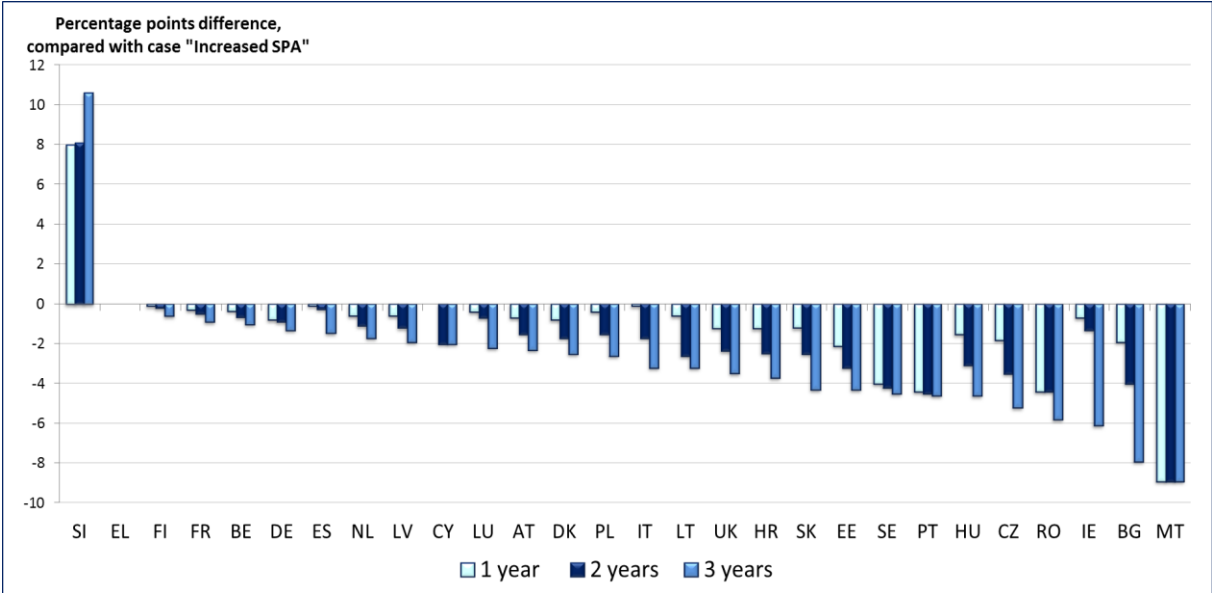


Data source: Member States and the OECD. Note: A positive difference indicates a higher net TRR for a worker with spells of unemployment. Sorted by 3 years of unemployment. If gender differences exist, results for women are reported in this figure.

Figure 3.14 illustrates the impact of short periods of unemployment (up to three years) on net replacement rates in the future. In general, unemployment protection of pension systems continues to be comprehensive in most Member States into the future. The protection of pension rights for up to three years of absence from the labour market is strong in 24 Member States, with a drop in net TRRs of less than five percentage points.

Compared to average earners, the replacement rates for low wage earners tend to be more affected by short periods of unemployment (Figure 3.15). In four Member States (Malta, Bulgaria, Ireland, Romania, Czech Republic), the net TRR of low wage earners appears to drop by more than five percentage points due to short periods (defined as up to 3 years) of unemployment.

Figure 3. 15: Percentage point differences in prospective (2053) net TRRs comparing a low wage earner with 1, 2, 3 years of unemployment to one with a full career ('increase in SPA')



Data source: Member States and the OECD. Note: A positive difference indicates a higher net TRR for a worker with spells of unemployment. Sorted by 3 years of unemployment. If gender differences exist, results for women are reported in this figure.

3.3.3. Other types of career breaks

Around half of the Member States award **care** credits to individuals taking a career break in order to provide long-term care⁶². The duration and scope of these credits varies significantly, however. In some cases care credits are limited to parents caring for a disabled child; in others the entitlement extends to care for other relatives or dependants, or even any disabled person.

Application of care credits is linked to the recognition of the role of informal or family carers in long-term care provision but, in Member States with highly developed formal care systems such as the Nordic countries, this means that credits for informal care are not provided.

Military service (or civilian service where applicable) is typically covered by pension credits⁶³. Nine Member States⁶⁴ credit periods of **higher education** in career records although

⁶² BG, IE, CZ, UK, EE, FR, HU, LV, LU, PL, MT, SK, ES (Source: MISSOC comparative tables, status 1 July 2014)

⁶³ AT, BG, CY, CZ, FR, HU, IT, PT, RO, SE

the crediting of study periods may be subject to conditions such as age limits, full-time studies, or successful graduation. At the same time, both military/civilian service and higher education pension credit appear to be in decline, with several Member States no longer awarding pension credits in current cases⁶⁵.

Most Member States offer pension accrual during periods of **incapacity for work**, though the conditions may vary depending on the length and severity of the incapacity. Pension accrual during short-term incapacity (sickness) can be ensured through continued payment (and taxation) of salaries, pension credits and/or deduction of contributions from the sickness benefit. In cases of long-term incapacity (disability), pension credits are the most widespread method.

The conditionality may be linked to the severity. In the Czech Republic, persons with partially reduced working capacity are granted pension credits if they participate in employment training, while some countries may provide for special treatment of cases when the incapacity is linked to occupational illness or work accidents. Bulgaria awards pension credits for the period during which an individual awaits a re-assignment to a different job on medical grounds.

Some Member States may grant pension credits for other specific non-contributory periods or situations. Malta credits the whole period of widowhood of non-working widows of socially insured spouses towards their contribution record. Croatia and Romania award pension credits to former prisoners of war or political prisoners, while Greece and Portugal have special pension credits for participants of past resistance movements. Pension credits may also be granted for recognised strikes (Belgium), pre-trial detention (Belgium, France) or periods of receipt of retirement pension before reaching pensionable age (France).

3.4. Derived pension rights

This section discusses the role of derived pension rights in ensuring adequate old-age income. Derived pension rights exist in two forms. In the first case, the pension entitlement of non-contributing spouses derives from the pension contributions of their spouse. Mechanisms that allowed wives to earn pension entitlements through the pension insurance contributions of their husbands were quite widespread in the past. With rising rates of female employment over the last 40 years, however, their importance has waned and some have been dropped altogether. Nevertheless, they are still important for the oldest cohorts in countries where they still exist. In Belgium, for example, old-age pension beneficiaries whose spouses do not have their own pension entitlement receive a spouse supplement to their pension.

In the second case, surviving spouses may receive a survivors' pension by inheriting part, or all, of their partner's pension entitlements. While widow's (widower's) pensions also trace their roots back to the single breadwinner household model, they remain widespread in European pension systems, although their design has evolved with changing labour markets and social structures. Today, almost all Member States offer, under certain conditions, some form of compensatory income support measure for the lost income of a deceased spouse.

⁶⁴ BE, CY, EE, DE, FI, LU, PL, RO, SE (Source: MISSOC comparative tables, status 1 July 2014)

⁶⁵ In some cases, this may be primarily linked to the reform of the military system rather than the pension system.

Survivor pensions for spouses can fulfil various functions, which are reflected in their entitlement conditions. These could cover:

- Support to a surviving parent caring for children
- Temporary income support until the survivor can become financially independent or entitled to an old-age pension;
- Permanent income support for the rest of their life.

Entitlement to a survivor's pension can be subject to additional conditions, such as contribution record of the deceased spouse, duration of marriage, children, residence, not remarrying or cohabiting and income level. The variety of arrangements reflects the diverse needs for survivor's pensions across the Union, which in turn results from different employment patterns and cultural habits. Those might become self-reinforcing patterns, as the expectation of receiving a high survivor's pension can make women stay at home.

Also surviving children may be entitled to a survivors' benefit until they reach maturity or finish their education. Permanent survivors' pensions that are paid to surviving spouses for the rest of their lives (subject to qualifying conditions) exist in the majority of Member States⁶⁶. In most cases⁶⁷ entitlement to such a pension is conditional on reaching a certain minimum age, which varies between 35 (in Portugal) and the full pensionable age. A surviving spouse who is incapable of working is usually entitled to a survivors' pension, irrespective of age.

While most Member States have introduced equal benefits for surviving spouses, irrespective of sex, gender-specific entitlement for men and women still exists in some Member States (Cyprus, Greece), with men only entitled to a benefit when they are disabled and dependant on their spouse.

Many occupational pension schemes provide for survivors' benefits, although these may vary both between and within Member States. In the calculations presented in Figure 3.5, it is assumed that occupational pension schemes provide survivors' pensions in Belgium, Ireland, France and the United Kingdom.

By contrast, in some Member States survivors' pensions for spouses do not exist (Latvia), or the survivors are transferred to a regular old-age pension on reaching the qualifying age. In the Netherlands and Sweden, survivors' pensions are only paid until the pensionable age is reached. When a pensioner loses their spouse after both have taken up a pension, the survivor suffers the full consequences in terms of a lower income. In the Danish occupational pension pillar, survivor pensions have been replaced with a lump-sum payment.

Assessing the potential value of a survivor pension

A theoretical replacement rate case can be used to give an assessment of the potential value of a survivor pension, based on the assumption that both partners enter the labour market at 25 and retire at the country-specific standard pensionable age. The exercise presumes that the man received average earnings throughout his career, while the woman had low earnings. In the model it is assumed that the man dies immediately after reaching pensionable age.

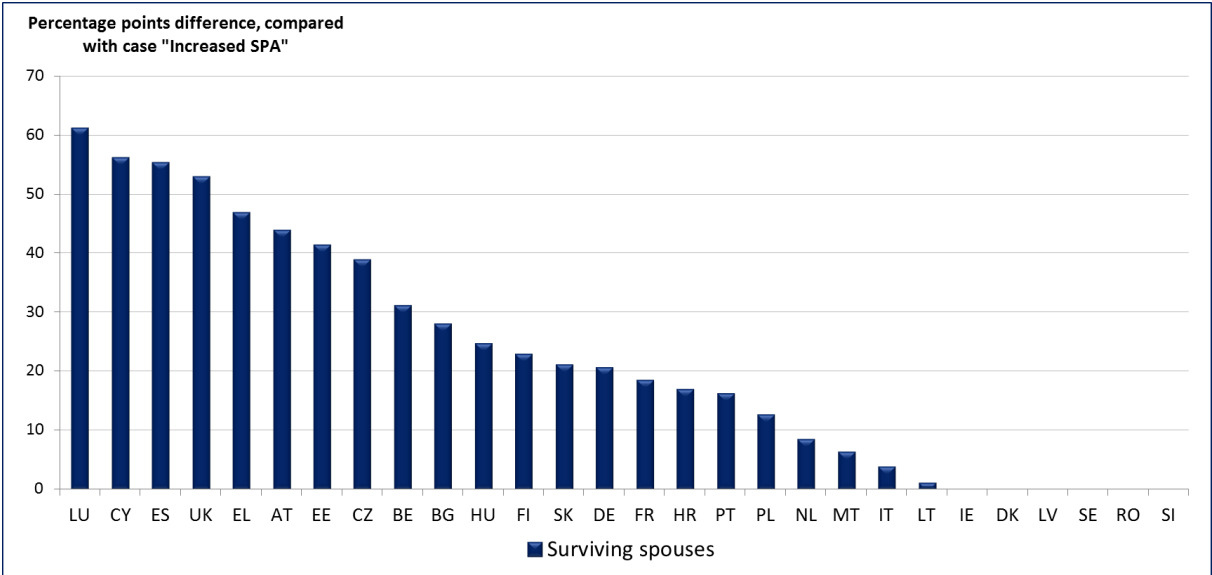
⁶⁶ AT, BE, BG, HR, CY, CZ, EE, FI, FR, DE, EL, HU, IE, IT, LT, LU, MT, PL, PT, RO, SK, SI, ES

⁶⁷ BE, BG, HR, CZ, FI, FR, DE, LT, PL, PT, RO, SK, SI

Figure 3.16 illustrates the difference between the net replacement rate of the surviving spouse in this scenario and the net replacement rate of a (female) low wage earner with a full career ('increase in SPA' case). Hence the difference measures the extra pension income given to the surviving spouse through the survivor pension. In 14 Member States this results in an increase of more than 20 percentage points in the net prospective TRR of a female low income earner.

In 22 Member States, the pension granted to surviving spouses is more generous than the entitlement based on their own (low) income, even at full career, with the difference exceeding 50 percent in four Member States (Cyprus, Luxembourg, Spain, and the United Kingdom). In France and the United Kingdom the occupational pillar accounts for the entire difference, since the public pension system provides the same replacement rate. Under the specific assumptions of this case, survivor pensions in the remaining Member States would not generate additional rights.

Figure 3. 16: Percentage point differences in prospective (2053) net TRRs for a surviving spouse compared with a low income earner ('increase in SPA' case)



Data source: Member States and the OECD. Note: A positive difference indicates a higher net TRR for the surviving spouse as compared to the 'increase in SPA' reference.

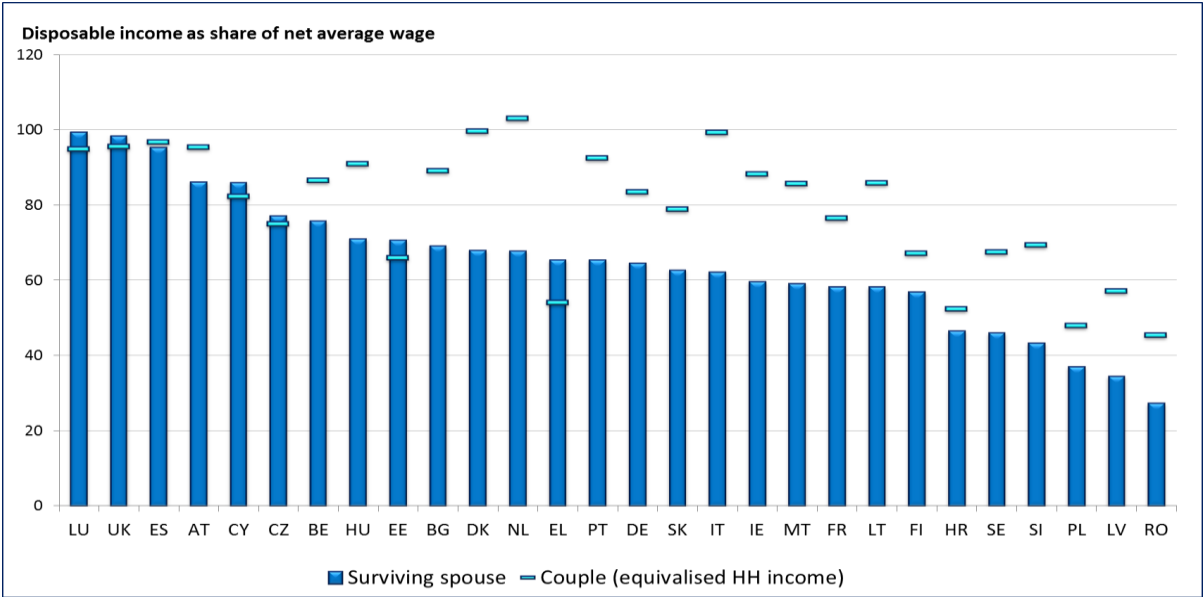
Overall, the projections clearly demonstrate that in the majority of Member States a survivor's pensions are expected to continue playing an important role in providing adequate retirement incomes for the spouse that outlives the other. For surviving spouses with short or interrupted own careers, the difference between derived rights and own entitlement is likely to be even more pronounced. In cases where survivor's pensions are not provided or expire upon reaching pensionable age, the death of a breadwinning or pensioned spouse can lead to a substantial deterioration of the income situation in old age.

This can be illustrated by comparing the pension income that the couple would have received jointly had the man not deceased, to the income situation of the surviving spouse. For this purpose, the income of the couple needs to be adjusted to make it comparable to the income of a single-person household. As some of the cost of living can be shared within a household and hence do not increase proportionally with household size (e.g., housing space, electricity),

a standard scale⁶⁸ is used to *equivalise* disposable household incomes. For a two-person household, a correction factor of 1.5 is applied, which reflects the underlying assumption that a couple with a disposable household income of, say, 1.500 Euro would have a similar standard of living as a single person with a disposable income of 1.000 Euro.

Figure 3.17 shows the disposable income of the surviving spouse, expressed as a share of average net earnings in a given country (blue bars). The income situation of the surviving spouse is thereby projected to vary considerably across Member States, dependent on both her own pension entitlement from a full career at low earnings and the additional survivor's benefits she is entitled to.

Figure 3. 17: Disposable income of the surviving spouse and equalised disposable household income of the couple had the man not died, relative to net average wage (2053)



Data source: Member States and the OECD; EC calculations. Note: Sorted by the disposable income of the surviving spouse.

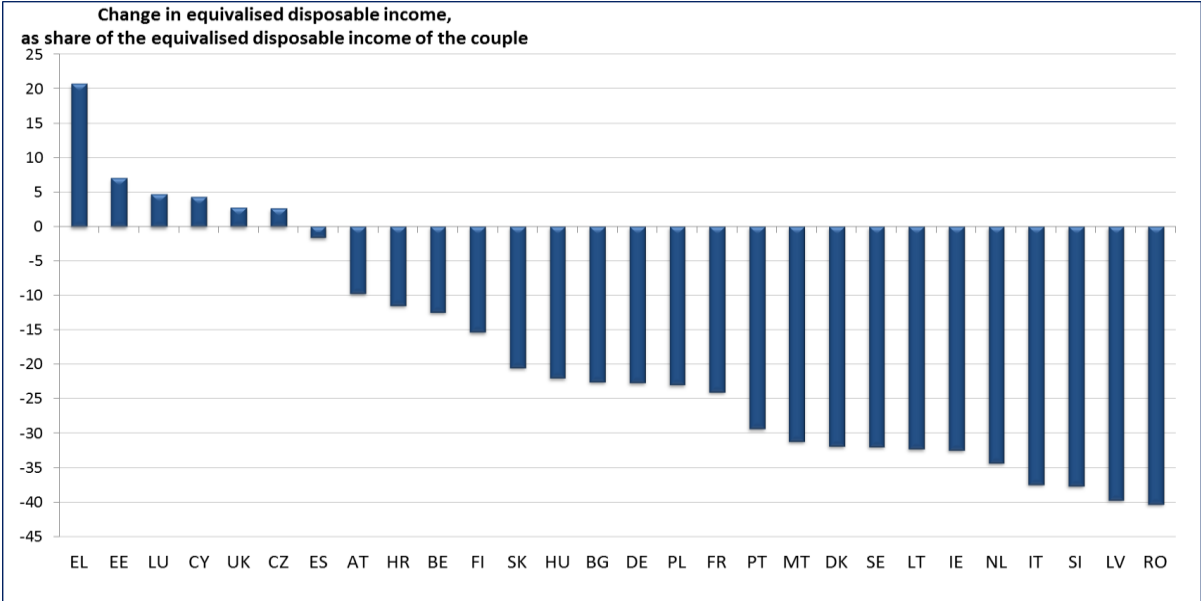
For comparison, the horizontal bars in Figure 3.17 depict the equalised disposable income that the couple would have achieved jointly from both partner’s individual pensions had the husband not deceased. The difference between the equalised household income of the couple at pension take up and the income of the surviving spouse hence gives an indication of the income shock caused by the death of the husband. Figure 3.18 illustrates this change in disposable incomes, expressed as a share of the equalised disposable income of the couple. The equalised disposable income of the widow is thereby projected to decrease by more than 30 percent in 10 Member States, compared to what the couple would have had expected.

When interpreting these estimates, it should be kept in mind that the impact of the death of the partner on the material well-being of the surviving spouse will depend on various factors other than pension income, including the availability of assets and the housing situation. For example if the couple was living in a rented dwelling the drop in income may in some countries be partly compensated by an increase in an income-tested housing allowance. Moreover, the concept of equalised household incomes can only provide an approximation of the cost advantage of sharing a household, which is considerably driven by individual

⁶⁸ The OECD-modified scale assigns a value of 1 to the household head, of 0.5 to each additional adult member and of 0.3 to each child.

circumstances as well. Notwithstanding these caveats, the snapshot that is provided based on the TRR variant case helps illustrate the potentially substantial deterioration of the economic situation caused by the death of the partner.

Figure 3. 18: Change in the equivalised disposable income of the surviving spouse relative to the equalised disposable income of the couple had the man not died (2053)



Data source: Member States and the OECD; EC calculations. Note: Sorted by the disposable income of the surviving spouse

3.5. The gender pension gap

This subchapter investigates, and charts, the patterns of gender differences in pension outcomes across EU-28 in a number of respects, such as: income distribution; education; and marital status. This is done by developing and applying some key indicators of the Gender Pension Gap. It reveals that while women in all EU Member States receive, on average, lower monthly and annual pensions than men, there is nothing ‘natural’ or ‘inevitable’ about the Gender Pension Gap since it varies between countries from just under 5 percent to almost 50 percent. The Gender Pension Gap reflects a combination of the triple gender gap in formal employment (i.e. in pay, working hours and career length) and variations in pension systems, with these factors differing markedly between Member States. Women tend to take up pensions at an earlier age and to live 3-5 years longer than men. But the extent to which they have longer periods of retirement and to which the aggregate value of their benefits (i.e. their pension wealth) differs from that of men, varies widely across the Union.

3.5.1. The gender pension gap indicator

The Gender Gap in Pensions is computed, in the simplest possible way, by comparing average male and female pensions in the manner defined in Box 3.4. There are two additional indicators, that are relevant to the issues of ‘who gets a pension’ and ‘what is the difference between men and women’:

- **The coverage gap** – the extent to which women have less access to the pension system than men (e.g. zero pension income – as defined in EU-SILC).

- **The pensioners’ pension gap** – or ‘*the*’ pension gap, the difference in pensions *excluding* non-pensioners. This measures how the pension system treats ‘its own beneficiaries’ (excluding those with no active links to pensions).

By including individuals with zero income in the average pension calculation (i.e. basing the calculation on the total population including non-pensioners), we are combining both indicators to create an alternative indicator, we call the ‘elderly pension gap’ that includes all people over 65 in one indicator.

For the purposes of this chapter, while considering all over 65s, we will look in greater detail into what is considered to be the ‘inner group’ of older people, namely those between 65 and 79. Thus we may distinguish between the ‘*overall gender pension gap*’ (referring to the over-65 groups) and the ‘*central gender pension gap*’ (referring to the more homogeneous group of people aged between 65 and 79). The central gap has the further advantage of being less sensitive to impacts from the death of spouses and survivors’ pensions.

Box 3. 4: The (mean) Gender Gap in Pensions

The mean Gender Gap in Pensions is defined as:

$$\left(1 - \frac{\text{women's average pension income}}{\text{men's average pension income}} \right) \times 100$$

The definition of *women’s* and *men’s average pension income* rests on the following choices and assumptions:

1. We consider the individuals in the EU-SILC UDB p-file who are 65-79 or 65+ years old at the beginning of the income reference period (t-1) of the EU-SILC wave concerned (t).
2. From the subsample of individuals in (1) we select those with “at least” one positive income value of: old-age benefit (PY100G); regular private pension (PY080G) or; survivors’ benefit (PY110G).
3. By denoting “F” as the women in subsample (2), and “M” as the men in subsample (2), the Gender Gap in Pension can be written as:

$$\left(1 - \frac{\frac{\sum_{i \in F} (PY080G_i + PY100G_i + PY110G_i) w_i}{\sum_{i \in F} w_i}}{\frac{\sum_{j \in M} (PY080G_j + PY100G_j + PY110G_j) w_j}{\sum_{j \in M} w_j}} \right) \times 100$$

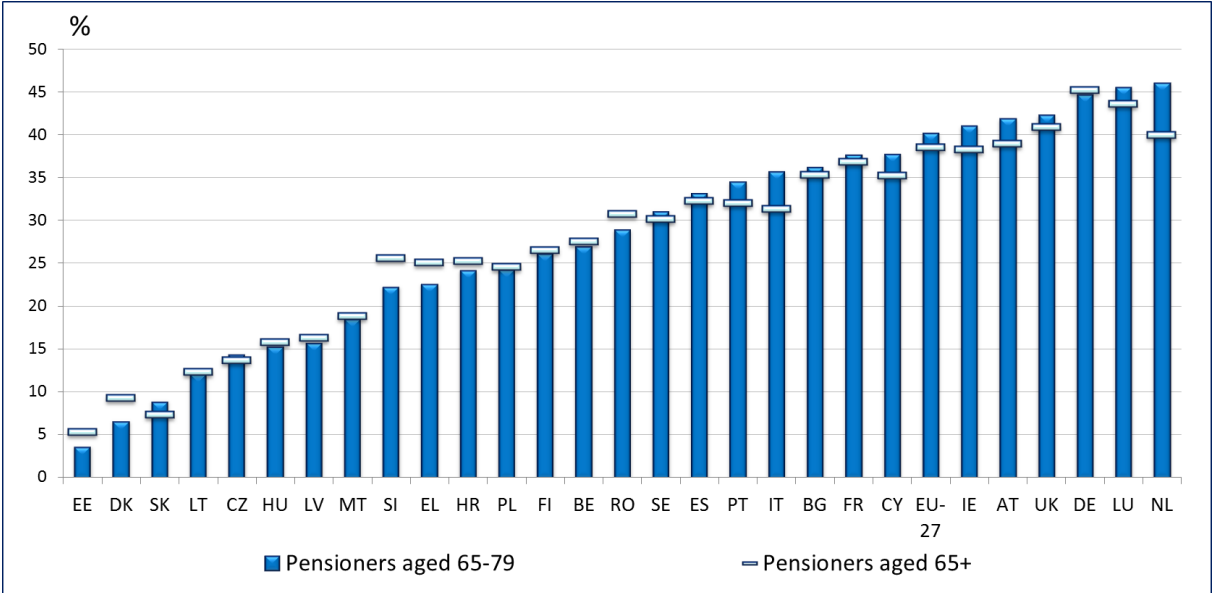
Where w_i is the personal cross-sectional weight of female i (SILC variable PB040), and w_j is the corresponding weight for male j .

3.5.2. The central pension gender gap across EU-28 in 2012

Using EU SILC data for 2011 incomes (as collected in the 2012 wave), Figure 3.19 plots the *central gender pension gap* across the EU, indicating how far women’s pensions lag behind those of men in the central age group. For comparison purposes, it includes the pension gap for the entire over-65 pensioner population.

For the EU as a whole, women are entitled, on average, to pensions that are forty percent lower than those of men.⁶⁹ This EU average is calculated on a population-weighted basis and is thus heavily influenced by results from the more populous countries – notably Germany, the United Kingdom, France, Italy and Spain. The greatest difference between men and women with pension income (46 percent) is observed in the Netherlands and Luxembourg, followed by Germany, the UK, Austria and Ireland. In a relatively large group of countries (Cyprus, France, Bulgaria, Italy, Portugal, Spain) the gap exceeds a third, while others (Sweden, Romania, Belgium, Finland) are around or below 30 percent. Gaps in Poland, Croatia, Greece and Slovenia are around a quarter with lower, though still sizeable, gaps in Malta (19 percent), Latvia (16 percent), Hungary (15 percent) and the Czech Republic (14 percent). Only in three countries is the gap less than 10 percent, namely Estonia (4 percent), Denmark (seven percent) and Slovakia (nine percent).

Figure 3. 19: Gender Gaps in Pensions (in %), 2012, pensioners aged 65+ and 65-79



Source: EU-SILC 2012, ENEGE. In BE and IE figures are based on 2011 data.

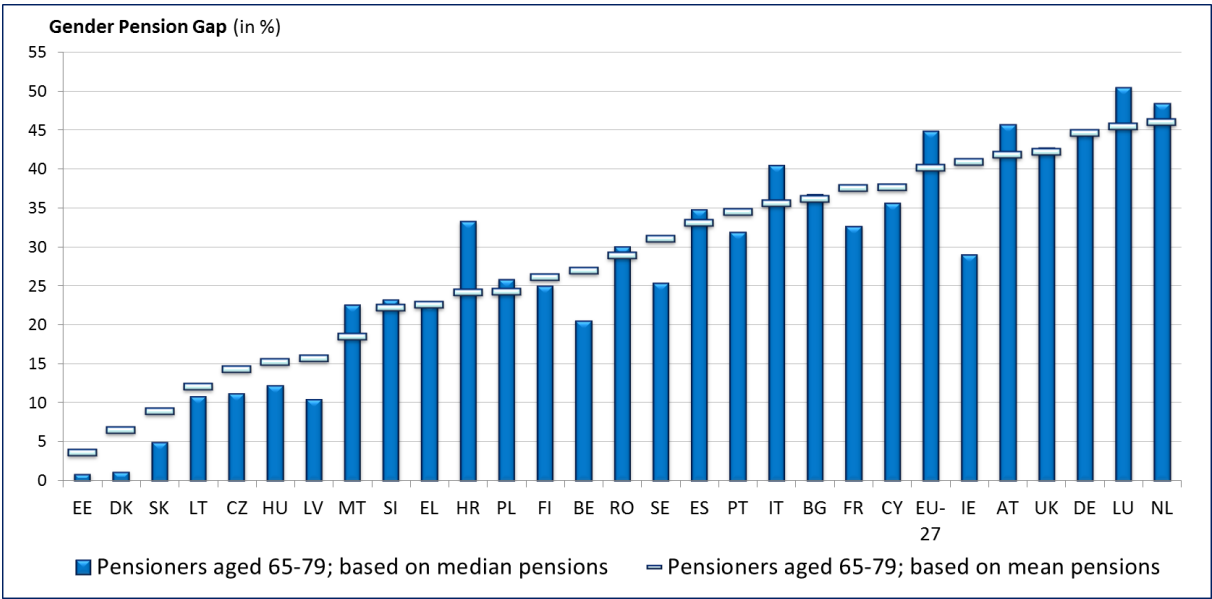
The overall pension gap (that pertaining to the entire population of people over 65) is slightly lower – with the EU-27 average being 38 rather than 40 percent. This small difference arises from larger divergences in a few countries. The Netherlands and Italy show the largest discrepancies, with their respective overall gaps being six and five percentage points lower. In two cases the central gap is notably lower than the overall gap: Greece (25 vs 23 percent), Slovenia (26 vs 22 percent).

The gender gap in pensions, as defined here, essentially compares each person to the societal average. If rich men’s wives have not worked or made few years of contributions, the difference between the two average pensions will magnify the gender gap (i.e. the gender gap figure is affected by extreme values). One way of limiting the effect of large extreme values is to use median rather than mean data. Figure 3.20 reports the central pension gap based on median pensions, together with those based on the mean. In order to facilitate comparisons

⁶⁹ To aid comparisons and to limit confusion when comparing data from previous years when Croatia did not participate in EU-SILC, we use EU-27 throughout. Given population weighting, however, the EU-28 average is little different from the EU-27.

with the headline (average), the sequence of countries based on Figure 3.20 is preserved for all subsequent analysis.

Figure 3. 20: Gender Gap in Pensions (%) based on median and mean pension income, 2012, pensioners aged 65-79



Source: EU-SILC 2012, ENEGE. In BE and IE figures are based on 2011 data.

The estimate for EU-27, based on the median is larger than the mean (45 as opposed to 40 percent)⁷⁰. But the classification of countries into four groups is largely preserved: in 16 countries the gap based on median pension income does not deviate by more than 4 percentage points from the mean. However, there are some notable divergences, with Ireland showing the largest difference - 29 percent against 41 percent. In Belgium, Sweden, France, Latvia and Slovakia, the gap based on medians is lower while in Croatia, Luxembourg, Austria, the Netherlands and Malta it is higher.

Women’s pensions are certainly lower than men’s pensions. At the same time, pensions across Europe may vary in absolute terms but also relative to the productive capacity of a country. In other words, it is important to have an idea of the absolute magnitudes which lie behind relative figures. Table 3.10 sets out the values (in Euros) of average monthly pensions by gender for the age group 65-79, as well as the percentage of GDP per head and of the at-risk-of-poverty threshold.⁷¹

If pension systems were designed to prioritise greater needs, countries with higher *absolute* pensions would tend to have higher gender imbalances. This hypothesis is tested by relating a measure of pension generosity (average pension income of individuals 65+ as a percentage of GDP *per capita*) with the pension gap as described in Figure 3.19.

⁷⁰ The EU27 median treats all observations as belonging to a single population and reports pensions for the middle man and the middle woman. The alternative of computing a ‘mean of median values’ yields a lower value – at 39.9 percent that is identical to the EU27 mean.

⁷¹ Defined as 60 percent of the median equivalised household income for each country.

Table 3. 10: Mean value of annual pension income of pensioners aged 65-79

Country	Mean monthly value of pension income (€)		Mean pension income as % of 2011 GDP per capita		Mean pension income as % of 2011 National Poverty line	
	Men	Women	Men	Women	Men	Women
EU-27	1,530	915	73	43	187	112
BE	1,527	1,116	56	41	153	112
BG	176	112	41	26	123	78
CZ	500	429	41	35	128	110
DK	2,120	1,982	59	55	160	149
DE	1,846	1,022	69	38	188	104
EE	329	317	33	31	110	106
IE	1,945	1,147	67	40	197	116
EL	954	738	61	47	201	155
ES	1,269	848	67	45	212	142
FR	1,981	1,236	77	48	192	120
HR	409	310	48	36	151	115
IT	1,654	1,064	76	49	206	133
CY	1,424	887	81	51	168	105
LV	296	250	36	31	134	113
LT	269	237	32	28	124	109
LU	3,970	2,164	59	32	242	132
HU	368	312	45	38	155	131
MT	786	641	59	48	137	112
NL	2,383	1,286	80	43	232	125
AT	2,540	1,477	85	50	233	135
PL	465	353	58	44	184	139
PT	908	595	68	44	218	143
RO	213	151	39	28	201	143
SI	874	679	60	46	144	112
SK	422	384	40	36	122	111
FI	1,885	1,392	65	48	166	123
SE	2,283	1,574	67	46	185	127
UK	1,696	979	72	42	178	103

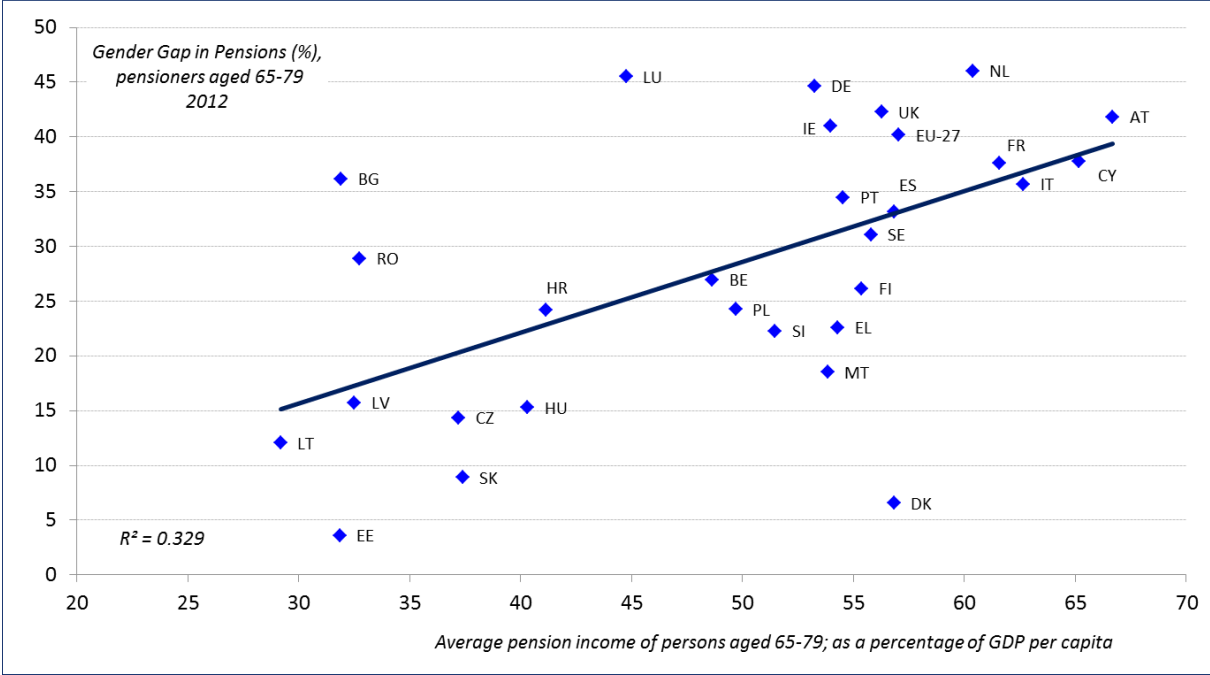
Source: EU-SILC 2012, ENEGE. In BE and IE figures are based on 2011 data.

The results presented in Figure 3.21 confirm what we have seen above, with richer countries like Austria, the Netherlands and Germany having higher gender gaps. However the relationship is rather weak and shows much dispersion around the trend line.

In comparing gender pension gaps to gaps in annual earnings it is important to recognise that today's gap in earnings and today's pension gaps refer to different groups (i.e. cohorts) of people.⁷² Nevertheless, in order to establish orders of magnitude it is important to compare the two gaps and Figure 3.22 juxtaposes the headline pension gap with the latest available Gender Gap in Annual Earnings, based on the European Structure of Earnings Survey for 2010.

⁷² In the study of ageing a key distinction is between *age* groups and *cohorts* (i.e. people born at a particular time period): Today's 60-year olds (born around 1950) may behave differently than the 60 year-olds of 1990 (who had been born around 1930). At any one time, however, the two concepts coincide. One should always be careful of making generalisations based solely on age, as these may be due to a cohort effect and hence not hold in the future.

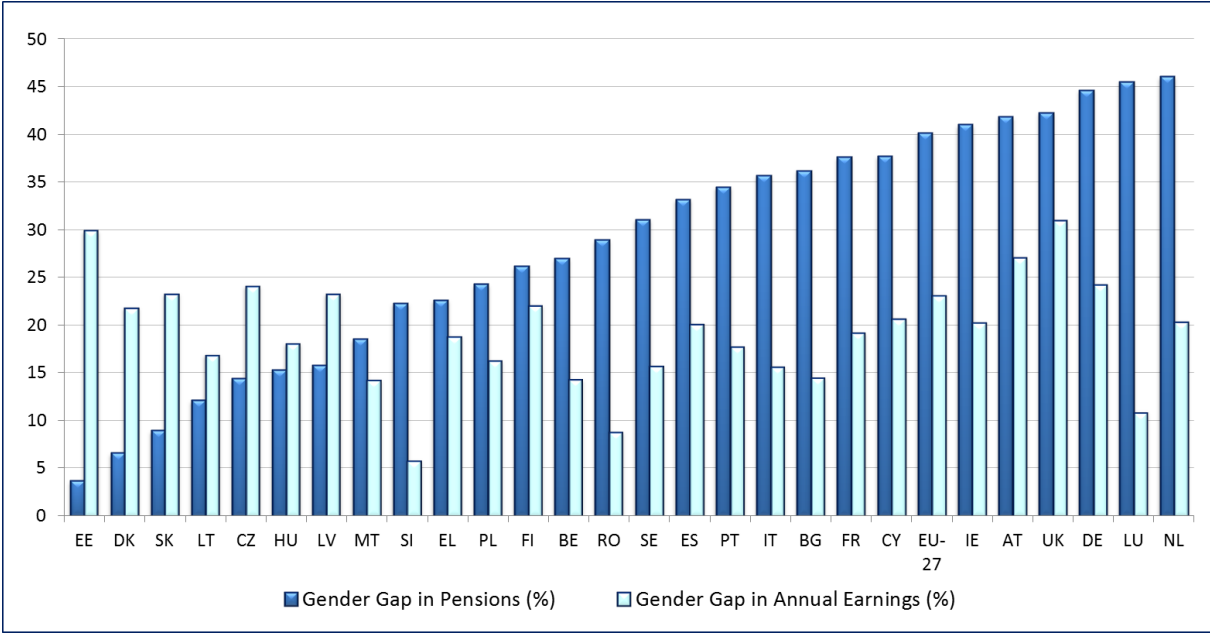
Figure 3. 21: Plotting the Gender Gap in Pensions against Pension Generosity, 65-79, 2012



Source: EU-SILC 2012, ENEGE. In BE and IE figures are based on 2011 data.

The average gender gap in earnings for the EU-27 is 23 percent, two fifths lower than the pension gap (40 percent). Given that women work fewer years we would anticipate an even wider career earnings gap but no such simple relationship seems to exist. Estonia has the lowest pension gap, but it has the second widest gender gap in earnings. This kind of coincidence is not infrequent in Eastern Europe where the relatively low pension income reduces inequality between men and women, but it is also found in two Nordic countries (Denmark and Finland), albeit to a lesser extent. Overall, the dispersion in earnings gaps appears to be lower than the dispersion in pension gaps.

Figure 3. 22: Gender Gap in Pensions compared to Gender Gap in mean Annual Earnings

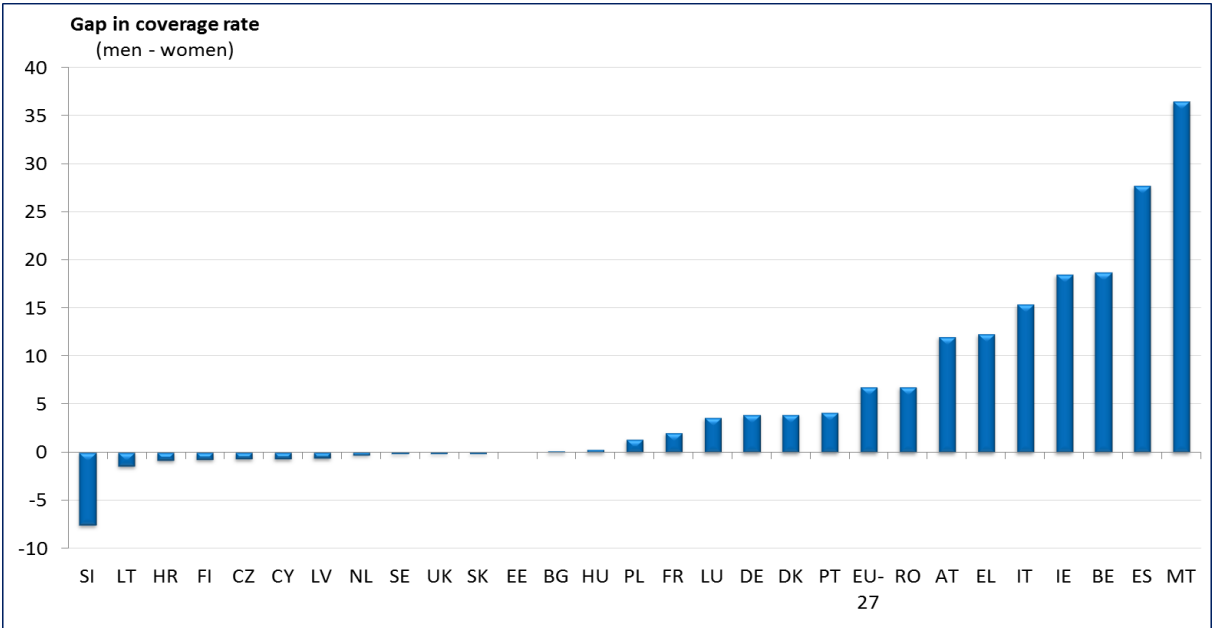


Source: ENEGE. Note: Both the Gender Gap in Pensions and the Earnings Gap are based on SILC 2012; the GGP refers to pensioners aged 65-79. Mean Earnings from the Structure of Earnings survey 2010.

A key characteristic of a pension system is its coverage: Indeed, some people are not entitled to a pension at all. In systems where an old-age pension is paid to all citizens over a certain age (e.g. the Dutch and the Danish public pension), the gender gap in coverage will be small or zero. In contrast, systems where the right to an old age pension is dependent on a minimum number of years of contributions might lead to coverage gaps in social insurance. In some such systems - in a distinct echo of the ‘male breadwinner model’ - when a married woman has insufficient years of contributions for her own pension, the husband’s pension is augmented by a married couple allowance. In this case, we might expect a large coverage gap to be associated with a larger pension gap.

In the majority of Member States the access of men and women to pensions is equal, and coverage gaps are negligible (Figure 3.23). However, in countries relying on the social insurance approach (i.e. with contributions based on earnings from formal work) coverage gaps can be very wide, as particularly demonstrated in Malta where 37 percent fewer women have access to a pension than men. Other countries where a fifth or more of the female population is without pension access are Spain (28 percent), Belgium (19 percent) and Ireland (19 percent), while Italy, Austria and Greece have coverage gaps above ten percent. In some of these systems married women are typically not entitled to their own pension, or do not meet the criteria for a social pension. A common alternative in such cases is for men to receive a married person’s pension supplement instead.

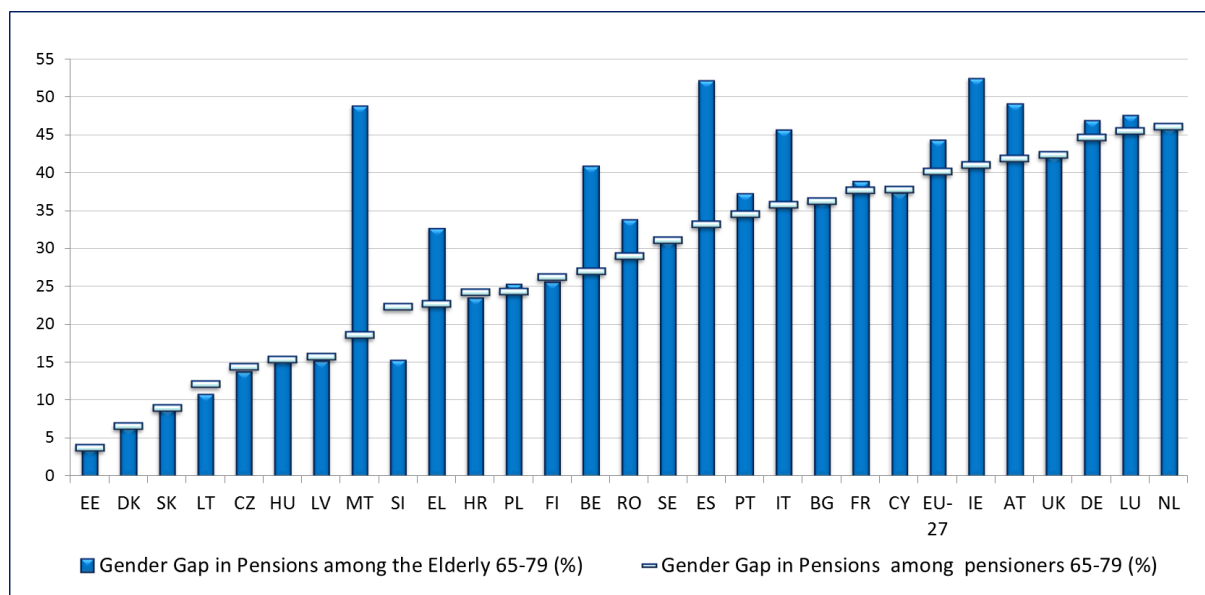
Figure 3. 23: Gender Gap in pension coverage rate, persons aged 65-79, 2012



Source: EU-SILC 2012, ENEGE. In BE and IE figures are based on 2011 data.

Computing pension gender gaps for the total population of people 65-79, rather than focussing on pensioners, alters the picture in countries with large coverage gaps considerably. Figure 3.24 looks at the elderly pension gender gap. It includes all individuals, not only pensioners, in calculating the gap denominator. The widest pension gaps (52 percent) are now found in Ireland and Spain which combine large pension and coverage gaps. Malta follows closely with the largest discrepancy between the two notions of pension gender gaps. Less divergence is found in countries where the gaps are caused by women receiving low rather than no pensions at all (Luxembourg, Germany, the United Kingdom and the Netherlands).

Figure 3. 24: Gender Gap in Pensions among the elderly (%), 65-79



Source: EU-SILC 2012, ENEGE. In BE and IE figures are based on 2011 data.

Coverage gaps in some systems are affected by rules regarding survivors' pensions. If a woman is not entitled to her own pension, she will usually be eligible for a survivor's pension. Survivor's pensions can thus have an important gender equalising effect: computed gender pension gaps rise if survivors are left out. The EU average increases by six percentage points from 40 to 46 percent. The largest impact occurs in the countries with the largest pension gaps (Luxemburg, Germany, Austria) and those with considerable coverage gaps.

3.5.3. The pension gender gap: mapping diversity according to individual characteristics

This section examines how gender pension gaps vary according to individual characteristics such as education, income and marital status. The main object of interest is the way the pension gender gap results from, and reflects, these key characteristics of the population and their histories.

Impact of education

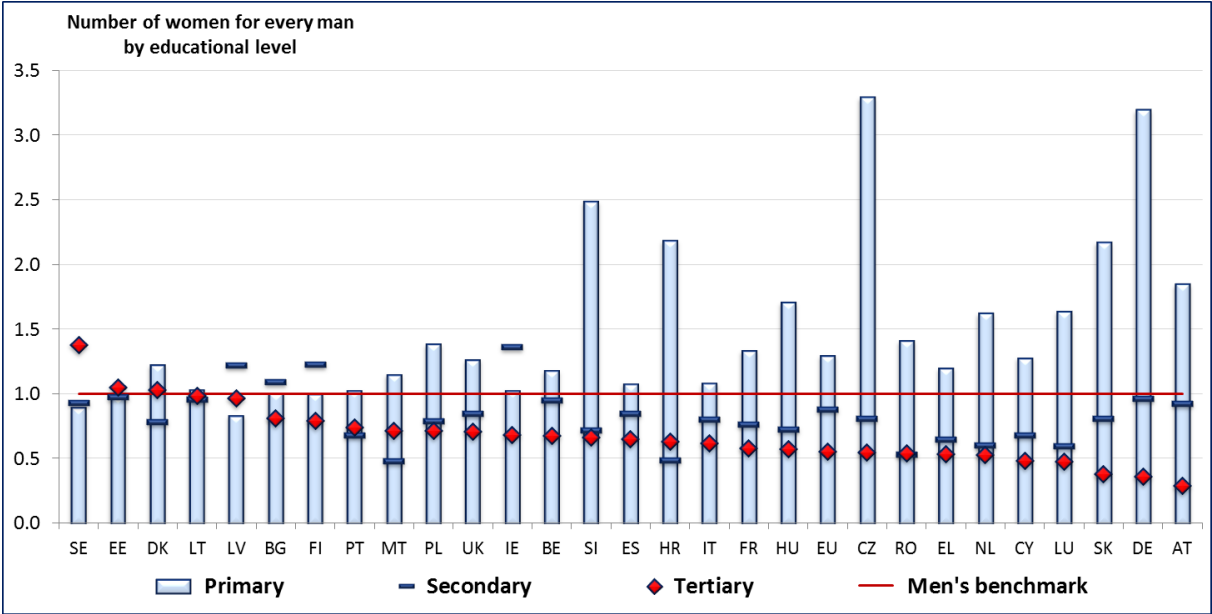
In many public pension systems pension entitlements are linked to contributions based on earnings from employment, while earnings surveys show that the variable most closely associated with long-term earning potentials is education. Thus, by looking at the how education correlates with gender pension inequality, we can address the idea that differences in pensions may reflect differences in the earning potential of men and women.

Men, for example, may have higher pensions in earnings-related schemes if they have more educational qualifications, i.e. more 'human capital'. To address this, Figure 3.25 computes the extent to which women aged 65-79 are over-represented at lower education levels and under-represented in higher levels. It reports the number of women compared to men (that is, a value of 3.2 for primary education means there are 3.2 women with only primary education for each man at this educational level). Conversely figures less than zero for higher education imply the existence of more graduates among men than among women.

Figure 3.25 shows that relative gender differences in education among this older group of Europeans are considerable, with older men having progressed further along the educational

system almost everywhere in Europe. In most Member States, women aged 65-79 are more likely than men to only be primary-educated. Gender differences in education thereby tend to be smallest in the Northern and Eastern European countries.

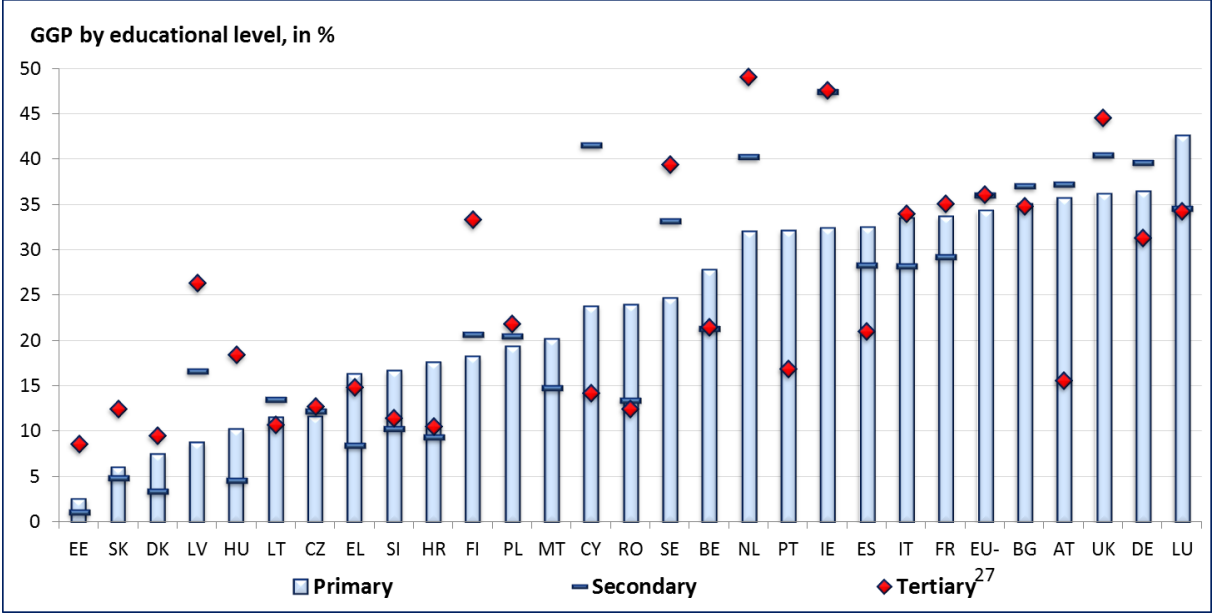
Figure 3. 25: Distribution of educational level, by gender (persons aged 65-79)



Source: EU-SILC 2012, ENEGE. BE and IE figures are based on 2011 data. Sorted by the gender ratio for tertiary education

Figure 3.26 shows the separate Gender Gap in Pensions (GGP) according to educational attainment. The latter is divided into primary (or less), secondary and tertiary. For the EU-27, the gap does not vary greatly with educational attainment and is a little lower than the gap for the entire population. In some cases those with lower education exhibit lower gender gaps. In terms of countries, this applies to the United Kingdom, the Netherlands, Ireland, Sweden, Finland, Latvia and Slovakia.

Figure 3. 26: Gender Gap in Pensions by educational level, 65-79



Source: EU-SILC 2012, ENEGE. In BE and IE figures are based on 2011 data. Sorted by the GGP for primary education.

However there are also cases where people with tertiary education exhibit lower gaps than those with primary education, such as in Austria, Spain, and Malta.⁷³ This could be due to a greater concentration of women graduates in particular occupations – most notably the public sector which could be acting as a gender leveller. Higher education carries a wider gap in the Netherlands, Sweden, Finland, Poland, Iceland, Hungary, Czech Republic, Lithuania and Denmark, possibly on account of the second pillar magnifying underlying earnings differences.

The above exercise looked at differences *within* educational classes. We know that future generations of pensioners will be more evenly balanced in terms of educational achievement – the educational attainment gap will shrink and greater parts of the population will be in higher educational categories. However, Figure 3.25 suggests that, if current trends persist, a shift towards more educated women pensioners in the future could actually lead to a widening of gaps in some countries and narrowing in others.

The distribution of pension income

The above analysis was focused on the centre of the distribution, i.e. comparing the average woman pensioner with the average man pensioner. The gender inequalities are, however, reflected by the distribution of pensions around that average. One way of doing this is to ask whether there are more or fewer women among individuals who receive a pension within certain bracket.

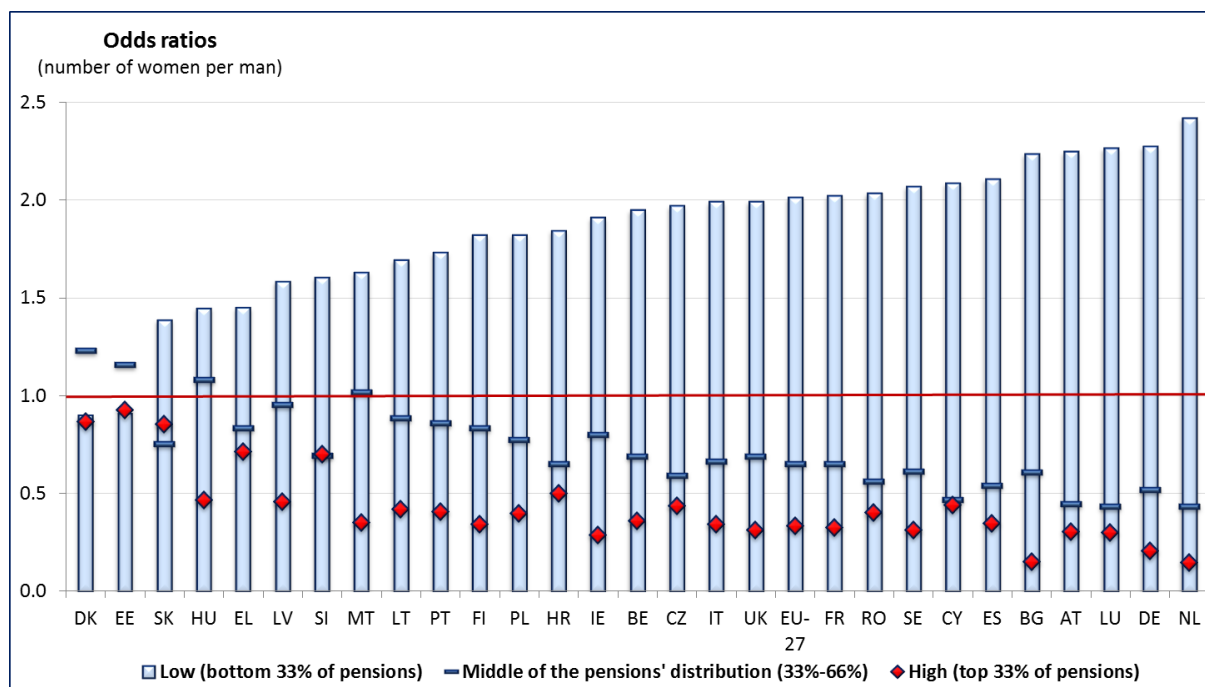
This is done by taking the distribution of *men's* pensions for each country and classifying pensioners into three groups: those with low pensions (bottom 33 percent); middle pensions (between 33 percent and 66 percent); and high pensions (top 33 percent). The distribution of pension incomes among men is then matched to the women's distribution, as to answer the question of *how many women with a low pension are there for every man in the same category?* Equivalently, *how many "rich" female pensioners are there for every "rich" male pensioner?* The results – so-called odds ratios – are presented in Figure 3.27.

The result shows over-representation of women at the bottom and under-representation at the top of the pension income ladder. For the EU-27 on average, there are twice as many women with a relatively low pension as men (defined as the bottom 33 percent of the men's pension distribution). Among pensioners with a relatively high income, women are correspondingly underrepresented (there are about three times more men than women in the 'high' pension category⁷⁴). It is only in Denmark and Estonia that the distribution of pension incomes of women is found similar to that of men. At the other extreme – high incidence of lower pensions among women – are the Netherlands, Germany, Luxembourg, Austria, Bulgaria, Spain, Cyprus and Sweden (with a ratio of above 2 for the bottom third); the same group of countries tend to do badly at the top end – less than 10 percent of women attain the pension of the top 33 percent of men. A third group of countries, whilst over-representing women at the low end, come closer to parity in the middle.

⁷³ In tertiary education we must be mindful of small sample sizes implying unstable and unreliable estimates.

⁷⁴ Note that 'high pension' is defined here according to the distribution of men's pension incomes, with the pension income of the 66 percent richest man used as threshold. The results therefore depend crucially on the shape of the men's pension distribution.

Figure 3. 27: Distribution of pension income (2012): three linked odds ratios

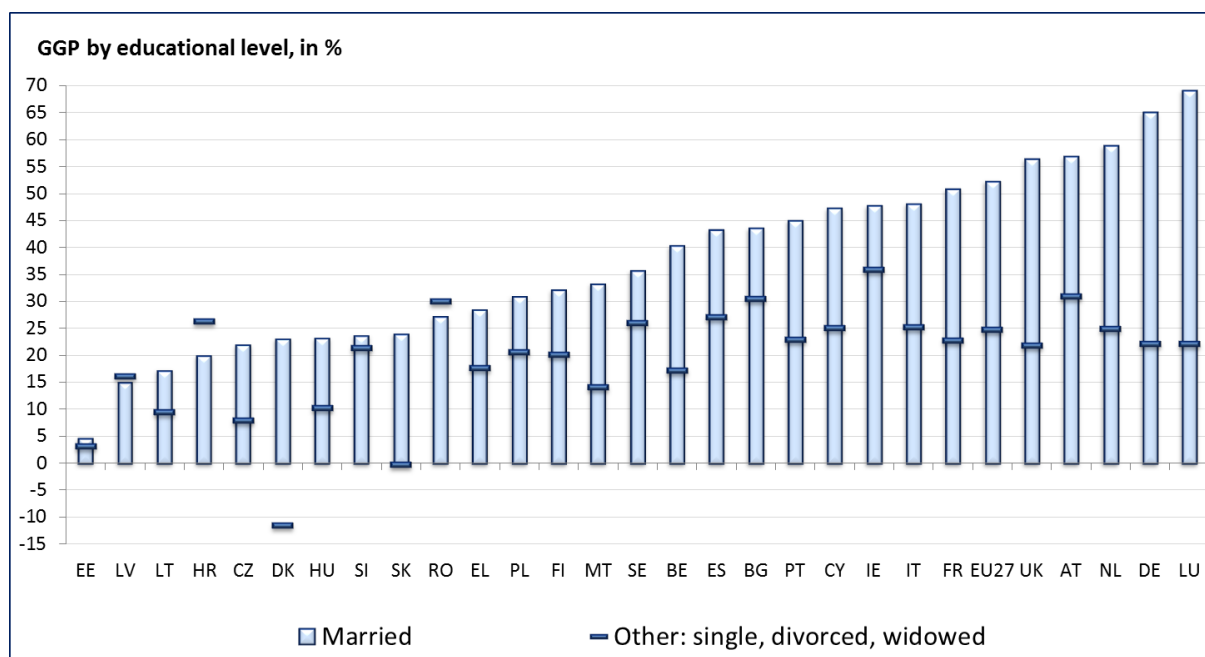


Source: EU-SILC 2012, ENEGE. Estimates for BE and IE are based on 2011 data. Sorted by the number of women in the low pension category for every man in the same category.

Family status

Women's pension and labour force involvement are closely related to family status. Figure 3.28 shows the effect on pension gaps of women's *current* marital status. For reasons of sample size in the central age group of people (65-79) it was only possible to separate out couples. The remainder i.e. single (never married), divorced and widowed are necessarily included in a single category.

Figure 3. 28: Gender Gap in Pensions (65-79) by marital status, 2012



Source: EU-SILC 2012, ENEGE. Note: in BE and IE figures are based on 2011 data. Sorted by the GPP for married women.

Average pensions for each category of women are compared to the overall mean for men to avoid the problem of low sample sizes. Gender pension gaps are wider in all countries among married women (52.3 percent), which is more than double that of the residual category. In most countries being married imparts a large disadvantage as regards *individual* pension income. Assessing the material well-being of married pensioners, however, also needs to take account of the household perspective (see also section 3.4 on derived pension rights).

3.5.4. Career breaks

An important hypothesis explaining Gender Gaps in Pensions is that they reflect women’s low and intermittent involvement with paid labour. In order to gauge the effect of short or ‘broken careers’ using EU-SILC data, four groups in ascending order of employment attachment are defined as women with: (1) between 0-10 years of employment; (2) between 11-15 years of employment; (3) between 15 and the national median (of working years of women); (4) greater than the national median.

Many (perhaps most) women with less than 15 years’ work would have worked after leaving school and during the early stages of building a family; thus at the age of 65 their involvement in employment may only be a distant memory. Given that many pension systems have minimum contribution requirements, a woman who may have worked in the 1970s for 4-5 years could, for social insurance purposes, be treated in the same way as someone who has never worked. Women in this situation would only receive a means-tested social pension. This is the reason for aggregating the ‘never worked’ group with those with few years of contributions.

Figure 3. 29: Classification of women aged 65-79 according to broken career status and median value of working years (2012)



Source: EU-SILC 2012, own calculations (ENEGE). In BE and IE figures are based on 2011 data. No data for DK, FI, FR, LT and SE. Sorted by the share of older women with career lengths of less than 15 years. Note: The concentration of large numbers of individuals on the median value in BG and PL leads to the values above the median being less than 40 percent. Data for FR and LT – not available.

Figure 3.29 shows a breakdown of women with working career lengths below the national median. Median career duration of women ranges from just six years in Malta to 45 years in

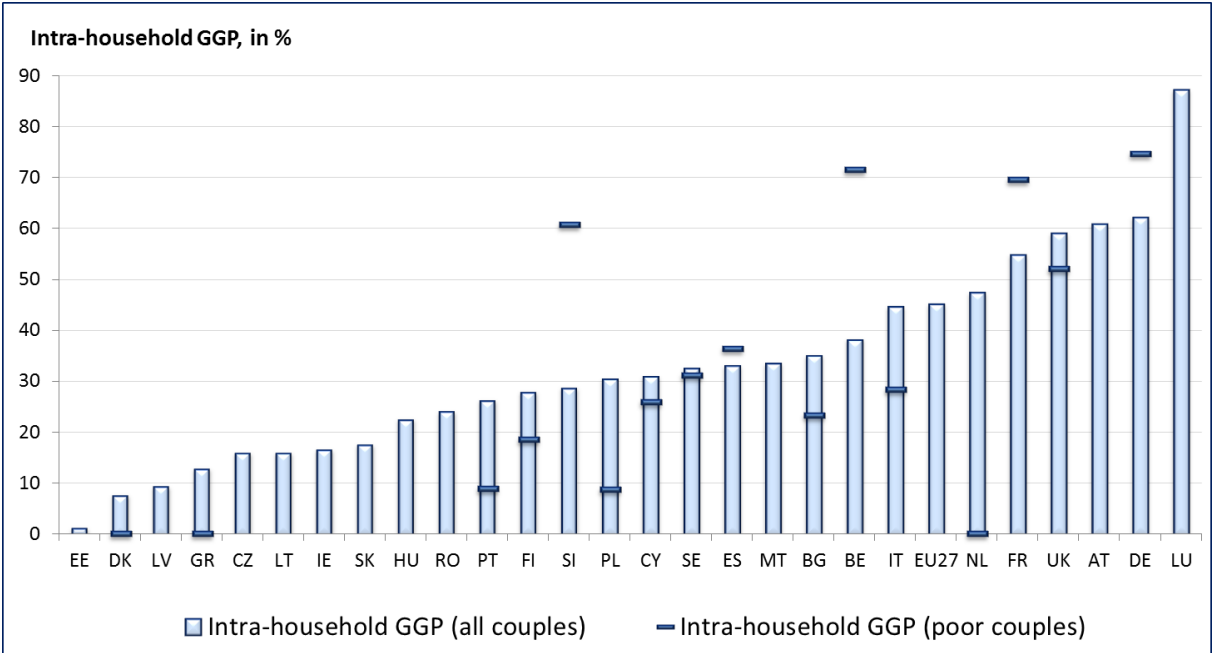
Portugal. For the cohorts of older women (born before 1945), short or broken careers appear to be a major issue in eleven countries where more than 20 percent of women were in employment for *less* than 15 years: Germany, Greece, Croatia, Italy, Belgium, Cyprus, Spain, Ireland, Luxemburg, the Netherlands and Malta. In Eastern Europe (and Portugal), such short careers of women were less common. Comparably high median career lengths and a share of less than ten percent of today's older women with career lengths of less than 15 years are observed for Estonia, Latvia, Czech Republic, Slovakia, Bulgaria, Portugal, Hungary and Poland.

3.5.5. The intra-household gender gap in pensions

The intra-household Gender Gap in Pension (GGP-H) assesses the inequality in pension incomes in a given household by taking the difference between ‘his’ and ‘her’ pension (as a percentage of his pension). For each couple household where both are pensioners a ratio is computed and the median of these ratios is used as the national figure (Figure 3.30). Based on the 2011 EU-SILC data, it can be said that the European median GGP-H is higher than the GGP equivalent (45.1 percent in the EU-27 compared to 42 percent).

With the exception of Estonia, Greece, Ireland, Latvia, Romania and Slovenia the intra-household median gap in pensions dominates the overall gender gap in median pension in all the Member States. A six country exception, however, is large enough to indicate that a correlation between the two gaps is not a foregone conclusion. Secondly, in the majority of European countries, the most unequal couples in terms of pension income are not poor couples. This should cause little surprise given that we know from research on earnings and wealth disparities that large gender gaps often occur at the top end of the distribution. Using the same data as Betti et al. (2015), we take another look at this finding by comparing the GGP-H for all elderly couples of pensioners with that of poor elderly couples.

Figure 3. 30: Intra-household Gender Gap in Pensions for all and poor households



Source: EU-SILC 2011, own calculations (ENECE). Intra-household GGP for poor couples not reported for EE, LV, CZ, LT, IE, SK, HU, RO, MT, AT and LU due to small sample size (less than 30 observations).

Figure 3.30 sets out the GGP-H figures for all couples and poor couples, respectively.⁷⁵ In the majority of countries for which data is available, poor households are *more* gender equal in pension income. Lower pension gaps for poor households *now* could be an echo of *large(r)* income disparities among affluent working couples *in the past*. It is still common to find larger gender income disparities in the upper echelons of the earnings pyramid.⁷⁶ Women have only been making major inroads into top paid professions and occupations in the last twenty to thirty years and even now parity is far away at the top end of the earnings distribution.

3.5.6. An overview of the results

There are *five* conclusions which can be repeated with confidence and can serve as ‘stylised facts’ for policy discussion or may serve to orient future work:

First, and most importantly, gender gaps in pensions in the EU are very wide. On average women lag behind men in their pensions by around 40 percent. This figure is almost twice the gender gap in earnings. Whereas results can differ across alternative measurements, the overall message of a gap of this order of magnitude is *not* sensitive to choice of definitions, methodologies or age groups covered.

Second, pension gender gaps in Europe exhibit very wide dispersion. Computed gender gaps range from 4 percent to 46 percent, what is far wider than earnings gaps. In fact some of the best performers in pensions (i.e. countries with lowest gender gaps) are amongst the worst performers in earnings.

Third, one of the most important sources of differentiation between Member States is the extent to which there are gender gaps in coverage, i.e. the extent to which women have their own independent access to pension system benefits. In some countries coverage gaps of the order of a third remain and are therefore a key driver.

Fourth, there is considerable diversity in experience between and within Member States. This is revealed in all three dimensions examined (i.e. education, pension size, and career experience). Hardly any of the observed patterns can be said to hold across all Member States. Similarly, there is little or no relationship with poverty status at country level. However, a clearer relationship is observed at household level, with a tendency for the most gender unequal households *not* to be poor. These observations can be used to support the contention that gender imbalance introduces a policy issue, economic independence, which is largely distinct and independent of existent objectives such as social inclusion.

Fifth, trends over time are hard to generalise and merit greater investigation. The investigation was based on a short run of years of comparable data and there does not appear to be an overall trend. Trends seen in individual countries may be due to history, institutions and policy responses. In some cases though, statistical issues probably played a role in shaping the

⁷⁵ This latter statistic, however, is reported only for the 16 countries where the number of poor households in the SILC sample is sufficiently large to afford critical statistical reliability. The population subsample obtained by selecting couples where both have a pension is bound to exhibit much lower prevalence of poverty than the rest of the elderly population. As poverty is measured at the household level, households where each member has an income are much less likely to be poor. The rough rule of thumb we have adopted is more than 30 observations (couples) per country.

⁷⁶ A larger-gap-at-top-earnings effect might also be enhanced by statistical selection: the likelihood of both partners surviving past 65 years could be higher among affluent households where health conditions are generally better.

observed response. As a result, as far as time trends are concerned, it is best to remain very cautious.

Finally, Box 3.5 provides an introduction to the concept of pension wealth and offers an indication of the current gender differences in pension wealth.

Box 3.5: Taking the length of retirement into account – gender differences in pension wealth

The gender pension gap (GPG) illustrates the difference in average pension entitlements accrued by older men and women. For a complete assessment of gender differences in pension outcomes, however, the time period over which pension benefits are received can also be taken into account. Today, women tend to retire earlier and live longer. As discussed in section 2.5, the age at which people first drew a pension in 2012 was lower for women than men in all but eight Member States, with women retiring on average seven months earlier than men in the EU-28 (Figure 2.30). More importantly, the life expectancy of women at age 65 is currently 3.4 years higher than that of men in the EU-28 (17.9 vs. 21.3 years). Thus while women on average receive lower pension benefits than men they receive them over a longer period of time.

The concept of *pension wealth*⁷⁷ accounts for both dimensions - pension entitlement and length of retirement - by measuring the value of the lifetime flow of pension benefits. Typically assessed at pension take-up, future pension payments are discounted to reflect the depreciation of the real value pension benefits due to the effects of indexation and the uncertainty of benefit payments that are due in the (far) future.

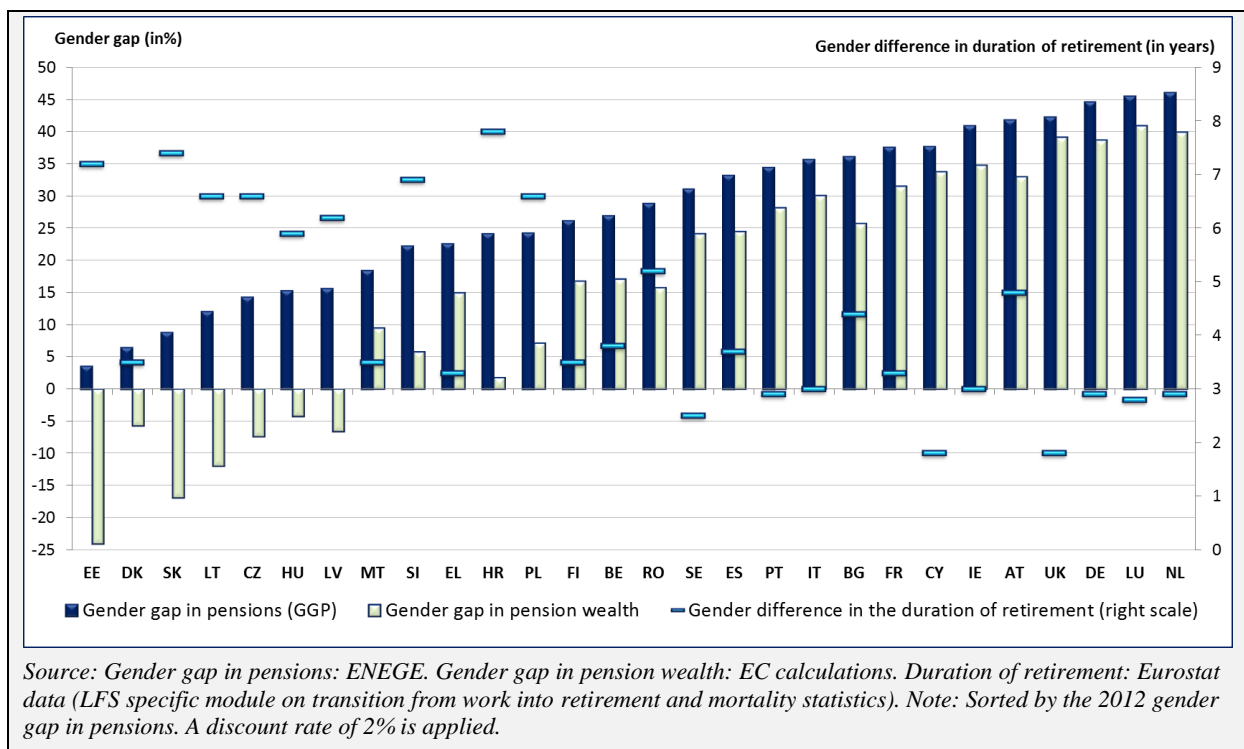
Figure 3.31 provides a rough indication of gender differences in pension wealth in the EU Member States in the year 2012. Based on the gender gap in pensions and an estimate of the average duration of retirement, the gender gap in pension wealth is estimated. The average length of retirement is thereby calculated as the difference between the average age of first pension take up and life expectancy at age 65. Pension payments are discounted using a uniform rate of 2 percent, thereby following the approach applied by the OECD in 'Pensions at a glance 2013'. All relevant indicators used for this illustration are summarised in Table A3-4 in Annex 6.

The estimated length of retirement is longer for women than for men in all Member States. Consequently, the estimates of the gender gap in pension wealth are lower than the gender gap in monthly/annual pension benefits. The higher the gender difference in the duration of retirement, the lower the gender gap in pension wealth will be in comparison to the GPG indicator. A negative gender gap in pension wealth is even estimated for countries with a relatively small GPG and a high difference in the average length of retirement.

It is important to note, however, that the results are heavily dependent on the chosen discount rate. The higher the assumed depreciation of pension payments in the future, the smaller the "advantage" of a higher life expectancy for women. Table A3-4 in Annex 6 provides estimates for alternative discount rates. Moreover, a more precise assessment of pension wealth would require taking national indexation rules into account.

⁷⁷ Section 5.3.3 offers a more detailed introduction to the concept.

Figure 3. 31: Gender gaps in pension entitlements and pension wealth, and gender differences in the duration of retirement (2012)



Source: Gender gap in pensions: ENEGE. Gender gap in pension wealth: EC calculations. Duration of retirement: Eurostat data (LFS specific module on transition from work into retirement and mortality statistics). Note: Sorted by the 2012 gender gap in pensions. A discount rate of 2% is applied.

3.5.7. The drivers of gender differences

Pension systems cumulate gender differences that occur over a people’s lifetime and translate them into pension outcomes. Typical gender differences in formal employment affect contributory records, including pay per hour, working hours and number of years worked. Pay differences may be rooted in education and skills levels, as well as various forms of gender segregation and discrimination. Household and caring duties relating to children and frail older relatives explain why women experience more career interruptions and part-time work than men. Lower pensionable ages for women may lead to shorter contributory periods and thus to lower benefits. But contributory pension schemes may also mitigate the employment handicaps of women through care-crediting, minimum and guaranteed pensions and derived rights such as spouse-supplements and survivor’s pensions. Similarly, gender differences in formal employment and contributory records have no impact on the level of basic pensions in countries with residence-based entitlement to universal non-contributory flat-rate pensions.

The ‘traditional’ view of pensions is that there is no reason for the state or the pension system to look inside the household. Household members, acting collectively, take it on themselves to ensure the best possible distribution of cash income. Such an approach places unrealistically large emphasis on benevolence and altruism inside the family but is still embedded in many pension systems and is referred to as ‘the male breadwinner model’. In some systems, for instance, pay of married men is supplemented by a married person’s or family bonus to account for family responsibilities (and then again when calculating pension benefits). This practice inflates gender pension gaps: when the husband receives the supplement, the pension gap will be wider than if the wife receives the same amount as a citizen’s pension. If the supplement is a percentage of the pension, this gap will be larger for the richer part of the population.

Our data and analysis were not precise or detailed enough to isolate and identify the independent effects of particular issues or pension design features. However, explanations of the observed pattern of gender inequality must look at a number of issues, which can act as the drivers which determine the extent and incidence of gender inequalities in pension outcomes:

- The impact and treatment of *widowhood*. The fact that women live longer and, in most countries, tend to be younger than their partners implies that the impact of bereavement rises with age. In countries where bereavement generates an entitlement to a survivor's pension this should operate as a powerful equalising factor. Even when the over 80 group is excluded from the analysis, as in this chapter, pension gender gaps are uniformly larger if survivors pensions are ignored. Interestingly, this also applies to countries with no explicit survivor's pension, suggesting that widowhood gives rise to complex effects, which are only partly due to survivors' pensions.
- The existence of *universal flat-rate pensions*, which are usually drawn automatically at a particular age, exert a powerful impact on the statistical picture. Such pensions all but eliminate coverage gaps which are more common in countries relying on the social insurance approach. Pensions remove coverage gaps but the existence of a large number of women with low pensions can increase pension gaps. In the same way as gender imbalance in the labour market is analysed as an earnings gap and a participation gap, in retirement we need to consider the pension gap and the participation gap as separate issues.
- *Multi-pillar systems* raise an issue akin to coverage. Equality of access to pension pillars can be presumed to play an increasingly important role as multi-pillar systems gain momentum with time. The feature most likely to drive inequality is the unequal access enjoyed by women to 2nd and 3rd pillar parts of the overall pension package. Whereas social policy typically ensures more or less equal access to first pillar public pensions this might not hold for non-state pillars. These are likely to be affected by occupational segregation and may favour workers characteristics that make it more difficult for women to participate. Interestingly, the countries with relatively mature multi-pillar systems (NL, UK and DK) are found all through the spectrum of gender pension gaps in Europe.⁷⁸ So, there must certainly be impacts from differential coverage but they are not unsurmountable.
- The *closer linking of contributions to entitlements* can be a powerful instrument in the strengthening of system sustainability. However, it can have the negative effect of reproducing or magnifying existing gender differences in the labour market. Broken careers are the most obvious case but inequality in earnings and greater female frequency of flexible working arrangements have similar effects, systematically resulting in lower pensions for women than for men. At a very simple level, pension gaps tend to be larger for women who have worked for few years. If this relationship is visible in our case study, focussing on today's pensioners aged 65-79, then we can expect it to be an increasing threat to female pensioners in the future.

⁷⁸ The requirement of unisex occupational pension in Europe is a powerful equalizing force in preventing systematically lower pensions for women; however, coverage and other effects will continue operating.

- Social structures and individuals habits may take *a long time to adapt*. So, pension reforms which rely on changing incentives to alter behaviour need to be given time for their full impact to be felt. In the meantime, the stock of pensioners will inevitably comprise three groups: First, those with insufficient time to have adapted, who have lived most of their lives in previous systems. Second, the intermediate group who faced the new incentives but have not yet fully adapted. Finally, those whose response to the incentives compensated for the original problem fully. Even if the last group may ultimately dominate, the other disadvantaged groups will still be very numerous, if not dominant, in the short to medium terms. This necessitates consideration of arrangements for the very long term at the same time as short to medium term corrective measures. We find in pension systems many devices, such as credits for time spent out of the labour market, which are designed to correct for broken careers. But these measures were often introduced too recently to have an impact on the average pension gaps of today's population aged 65-79. Other measures introduced to help older women reconcile family and caring with work responsibilities could conceivably produce visible impacts sooner.

3.5.8. The pension gender gap and policy regimes

Caring credits and benefits linked to widowhood could prevent disadvantages *ex ante* or reduce these *ex post*. A similar impact can be achieved by boosting lower pensions by devices such as pension minima.

The root of the problem is that present pension entitlements among the 65-79 year olds and those aged 65+ reflect the gender division of responsibilities that was prevalent within households when pension schemes were designed – in some cases more than a generation ago. Pension systems are well suited for long and linear careers generating a steady income stream. Households and individual gender roles within them were attuned to such patterns – whether in the context of lifecycle saving or contributing to a state-run social protection pension. These arrangements generated a stream of total entitlements to the household and public policy has mostly not concerned itself with the distribution of entitlements between spouses.

Some pension arrangements still largely correspond to the male breadwinner model. This is certainly the case where the social insurance systems that augment the main breadwinner's entitlements in view of his family responsibilities (spouse supplement). However we also find remnants of the model in pension systems that tend to penalise the behaviour, which are more common among women than men, such as interrupted careers and flexible working. Reforms that promote system sustainability by linking pensions closer to individual contribution records will tend to create new vulnerabilities for women.

The pension needs of women may be met in three broad ways:⁷⁹

The most conservative strategy is to prioritise social inclusion without recognising economic independence as a separate objective. This is essentially the approach where public policy is not concerned with how total household resources are shared among household members. Pension systems of this sort aim to protect husband and wife on the basis of a single set of

⁷⁹ T. Jefferson, 2009, 'Women and Retirement Pensions: A Research Review', *Journal of Feminist Economics*, 15(4) pp 115-145.

contributions and benefits, administered within a set of social criteria pertaining to the *household*. . It is equivalent to a statement that the household is better able to handle its own matters than the state and that it can be trusted to operate in a benevolent manner. Such systems tend to institutionalise female dependence in old age and require special solutions in case of divorce and widowhood.

The second route (of particular relevance for contributory system with a strong element of defined contribution) is to encourage women to adopt the same employment behaviour as men and thereby reduce gender differences in working careers. Thus inequality is corrected, in the long term, by preventing differences in the labour market and in saving behaviour *ex ante* - that is before pensions are issued. This similarity in working patterns implies that no correction needs be sought for pensions outside what happens in employment. For instance, encouraging women to make full use of good child care facilities may correct one of the key sources of disadvantage by preventing breaks in careers, as would incentives for fathers to shoulder more of the child bearing responsibilities.

The third route is to compensate for broken careers and lower pension rights, i.e. to intervene *ex post*. This could be achieved by compensating for *specific* disadvantages and could be considered as a corrective strategy for pre-existing inequalities, such as: caring credits; tax breaks for child rearing; or other equivalent devices.⁸⁰ However, compensation may be provided by adapting the *state* system to compensate for women's disadvantage. For instance reduced reference periods for a full pension and/or calculating pension rights over shorter periods would benefit women. Minimum pensions would similarly provide some correction where women have systematically lower contribution histories⁸¹. These measures could be limited to the flow of new cases experiencing disadvantage, or could be extended retrospectively to older cases of disadvantage. The latter would correct cases with greater speed but would necessitate a larger fiscal outlay. If these measures were implemented to the stock of pensioners, i.e. to the population group studied in this chapter, the fiscal cost would be considerably higher.

3.5.9. Transition issues: what to do with current gender gaps?

The most potent instrument for correcting for past gender differences in employment are universal pensions. These pensions are given as a right to individuals of both genders who reach a certain age. Women of older ages may have few years of contributions, leading to a very small pension or in some cases no pension at all. In those cases, entitlement to a small non-contributory pension is an important factor in personal independence. Many public systems throughout Europe have a two-tier structure, with the lower or basic tier accruing to all pensioners which is an important corrective to gender imbalance.

Other devices could correct pensions by raising the smaller pensions. Chief amongst these is a minimum pension which can have a powerful equalising force. However, its size can have very negative side effects. A high minimum means that people with different contribution histories will be entitled to the same amount, possibly encouraging contribution evasion, especially for the self-employed and carers, while encouraging early retirement. An important

⁸⁰ Including initiatives to limit the impact of administrative and other fixed costs on smaller pensions.

⁸¹ Minimum pensions can address the issue of gender imbalance; however, by flattening reciprocity and incentives they operate as an incentive to evade contributions.

distinction is whether pension minima (and the top-up between the actuarially fair pension and the one received) is unconditional or is dependent on other social inclusion considerations, which could include family income. Devices such as minimum pensions can be expensive in public finance terms since they will most likely need some source of finance in addition to contributions.

The fiscal implications of mitigating interventions, such as minimum pensions to correct for low pensions could introduce a direct trade-off between pension adequacy and sustainability. As long as the intervention is limited to low pensions and is justified in terms of social inclusion it may not imply any major additional burdens on public finances, which have not already been factored in.

In pension systems that rely on multiple pillars, the separate pillars supplement each other and fill in any gaps. In particular, the third (personal) pillar should, in principle, provide a solution for individuals who are less well served by the occupational pillars. If this was indeed the case, one could expect to see a greater prevalence of third pillar personal pensions where second pillar pensions are not as developed. However, the picture we see in almost all multi-pillar systems is that the personal pension industry concentrates on higher income individuals who are already well covered by occupational pensions and other savings products. There is little evidence that women who have limited access to occupational pensions can turn to personal pensions to make up the gap.

4. PENSION REFORMS AND THEIR LIKELY IMPACTS

Pension reforms enacted over the last 20 years have brought and will continue to bring major changes in conditions for pensioners. It is therefore important to map trends in pension reforms and discuss their likely impact on retirement patterns and on income for present and future generations of retirees. The analysis covers reforms adopted by the end of 2014.

This is done in the four subsections of this chapter. The first provides an overview of structural changes to pension systems in Europe during the initial wave of pension reforms from the early 1990s to 2008, many of which are still unfolding.

The following three parts examine different dimensions of the pension reforms adopted since the start of the financial and economic crisis.

Thus, the second assesses the *short-term impact on adequacy* of reforms resulting from the need for short-term budget consolidation.

The third deals with the medium to *longer-term changes* to pension systems that aim to stimulate progress towards longer and fuller working lives.

The fourth briefly considers *how national reforms have been influenced by the EU's Country Specific Recommendations* issued in the framework of the European Semester⁸².

4.1. Two waves of pension reforms

The 1990s marked a turning point in the evolution of pensions. Until then, the generosity of pensions were rising both in terms of benefit amounts and the time workers could expect to spend in retirement with a pension. In most EU countries this trend has since been halted, even reversed, by two waves of pension reforms that are intended to ensure the long-term financial sustainability of pension systems in the face of major demographic and economic changes.

The first period - from the mid-1990s to the mid-2000s - was characterised by a greater emphasis on defined contribution designs and prefunding. By contrast the second period - which began in 2008 and is ongoing - has been marked by actions to raise the pensionable age and – in some countries - reduce the role of prefunded schemes. Stricter access to early retirement and efforts to raise the employment rates and the effective exit ages of older workers have figured in both waves.

European policy coordination in relation to adequate and sustainable pensions⁸³ was launched and developed during the first wave and gave rise to a number of EU reports on how the demographic challenges could be addressed by Member States. However, it is primarily since the onset of the financial crisis that the EU has come to influence national pension reforms.

⁸² http://ec.europa.eu/europe2020/making-it-happen/index_en.htm

⁸³ At the Laeken Summit in December 2001 the European Union launched a process of policy coordination on adequate and sustainable pensions and a year later in Barcelona Member States agreed a new target for the Lisbon process to raise the age at which people stop working by 5 years on average by 2010.

4.2. Changes to national pension systems from the early 1990s to the mid-2000s

The pre-crisis pension reforms of the 1990s and 2000s began the long process of adjusting pensions to population ageing, i.e. to the higher expected dependency ratios evolving as result of continuing increases in life expectancy and persistently low fertility rates. Reforms also sought to adapt pension provision to social and technological changes in labour markets, ensure greater transparency and instil stronger incentives to work and contribute.

From the mid-1990s to the mid-2000s, countries like Italy, Sweden, Poland and Latvia completely transformed their public pension schemes by moving to Notionally Defined Contribution designs that, while remaining pay-as-you-go schemes, emulated the principles of pre-funded defined contribution schemes, with individual accounts and benefits reflecting the value of contributions made over a working life.

Members States such as Finland and Portugal adopted major overhauls of their public pension schemes while retaining elements of a defined benefit design. Countries like Germany, France, Spain and Belgium pursued a sequence of more gradual reforms of their public pension schemes that nevertheless added up to major qualitative changes.

Notwithstanding such differences, some common elements in the wave of pension reforms across Europe from the mid-1990's until the onset of the crisis in 2008 included: tying individual entitlements closer to contributory records; raising the number of qualifying years for a full pension; equalising pension ages of men and women and; restricting access to early retirement; expansion of pre-funding as financing method; introduction of automatic balancing mechanisms.

Important changes occurred in the way in which earnings were measured when calculating benefits. Prior to the reforms, relatively short periods with the highest earnings were commonly used to assess the amount of pension. Such changes included the extension of assessment periods to include earnings over more years, or even entire working careers, implying a reduction in final pension entitlements. The financial impact of this type of reform was proportionate to earlier real wage dynamics. Individuals, who experienced the greatest increase in earnings over their careers, were particularly affected and countries, where real wages had grown most, could make the greatest savings.

Countries could further reduce the costs of their pension systems by changing the rules for valorisation of past earnings. Originally, valorisation were based on the dynamics of wages, which exceeded inflation in the second half of the 20th century, but the inclusion of price development lowered the base amounts. The social effects of this change were the opposite of those arising from the extension of assessment periods. People with steeper age-earnings profiles lost less from the shift towards inclusion of price development than those with relatively constant real earnings.

To some extent the indexing of pensions in payment was affected by a similar move from wages towards prices, with several countries following the Swiss example of using an index that took account of both prices and wages growth.

Several countries (e.g. Denmark, Germany, Estonia, Finland, France, Latvia and Sweden) began to promote higher retirement ages and longer working lives by strengthening the

penalties for early retirement and the rewards for working beyond standard pensionable age. Others (e.g. Spain, France, Italy, Portugal) increased the minimum number of contributory years for a full pension, as an intermediate solution before raising the pensionable age.

Another trend was the equalisation of pensionable ages for men and women (e.g. Belgium, Malta, United Kingdom). While this measure brought future savings, it also had adequacy implications, since the shorter contributory periods of women magnified the gender gap in pension entitlements.

A number of Member States introduced mechanisms in their public pension schemes, which more or less automatically maintain a financial balance in relation to changing demographics or economic fortunes. These included a benefit formula that lowers benefits in line with the growth in average life expectancy (e.g. Finland, Italy, Poland, Portugal and Sweden). In Germany the adjustment mechanism established allows for simultaneous adjustments in contribution rates, the valorisation of accruing entitlements and the indexation of benefits in payment. Whereas in Sweden contribution rates remained fixed the mechanism established also included adjustments in valorisation and indexing.

An important element in this wave of reforms was the greater emphasis on pre-funding, through reserve funds in public schemes, the promotion of occupational and third pillar pensions or the introduction of mandatory private schemes.

While the traditional ‘Beveridge scheme’ countries either maintained (Ireland and the Netherlands), or reinforced (Denmark and the United Kingdom), their reliance on occupational schemes for income maintenance, a number of countries (Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Sweden) added a supplementary scheme of fully funded, mandatory private pensions to their public pension systems.

These latter countries had become convinced that structurally increasing the long-term financial sustainability of pension systems should involve some form of pre-funding⁸⁴, preferably by replacing part of a hitherto pay-as-you-go defined benefit (DB) scheme with a prefunded defined contribution (DC) scheme, as recommended by the World Bank.

Such messages concerning the merits of pre-funding received particular attention in Central and Eastern European countries. With their savings largely destroyed by the brief but very high rates of inflation in the early 1990s, most of the elderly population in the region depended on public pension benefits, which were relatively flat, reflecting both the fiscal constraints on governments and limited wage differentials in the past.

The income replacement function of the mandatory private pension schemes emerging from a wave reforms in the region (Latvia 1995, Hungary 1998, Croatia 1999, Poland 1999, Bulgaria 2000, Estonia 2002, Slovakia 2004, Romania 2005) was supposed to: reflect the arrival of a new, more differentiated, wage structure; be based on individual responsibility; and operate according to the principles of a market economy. Privately owned individual pension accounts were also seen to be desirable given that citizens in these countries had developed a deep distrust of governments.

⁸⁴ Pre-funded pension schemes were perceived as much less sensitive to changes in fertility rates and cohort sizes because as every cohort saved for its own pension, assets available would always correspond to the cohort size and challenges to the sustainability of pay-go designs such as those stemming from the transition from baby-boomers to baby-busters could be avoided.

Shifting part of the PAYG public scheme to prefunding carries significant transition costs because of the so-called double payment problem: active generations pay for current pensions while saving for their own. While part of the social security contribution revenues is immediately redirected to new individual accounts, the pensions of those who have already retired has to be paid for many years on the basis of earlier rules.

The scale of ambition regarding the shift of social security pension contributions to individual savings accounts ranged from 2.5 percent of wages in Sweden to 7.3 percent in Poland, as did the corresponding requirements for fiscal discipline. To finance the shift of social security revenue into private savings accounts, governments would have to lower expenditure and/or raise revenues by similar amounts, or run deficits.

When these schemes were introduced this challenge was not seen as insurmountable. Central and Eastern European countries foresaw higher growth rates resulting from joining the European Union and one-off revenues from the sale of state-owned enterprises were expected to help cover the transition costs.

Moreover, as it was envisaged that pension reforms would help improve the competitiveness of CEE economies and thus raise the levels of future wages, on which pension contributions would be based, the change was seen to be beneficial for future retirees. Thus, it was tacitly accepted that in the future public pensions would deliver significantly lower replacement rates, since these benefits would be complemented by benefits from the mandatory private pension schemes.

Of the eleven transition countries that joined the EU, only two - Slovenia and the Czech Republic⁸⁵ - did not attempt to establish a prefunded tier. Besides, these nine new Member States were not alone in planning a greater role for pre-funded schemes in the future.

After a sequence of changes to the public pillar even Germany with the 2003 reform, which promoted occupational schemes and introduced the third pillar 'Riester' scheme with incentives for inclusion of low-income groups, moved towards a multi-pillar system of pension provision.

Moreover, when the Social Protection Committee published its first report on the contribution of private funded pensions to the provision of adequate and sustainable pensions⁸⁶, in April 2008, most Member States were rather optimistic about the future role of prefunded pension schemes.

Less than half a year later these expectations were severely questioned when the collapse of Lehman Brothers triggered a near collapse of financial markets and severely reduced the book value of pension fund assets across Europe. While asset values quickly recovered, the financial crisis turned into an economic and sovereign debt crisis. And soon many countries that had planned to place more emphasis on pre-funded designs, including mandatory private pensions, felt compelled to review this policy choice.

⁸⁵ It was not until 2011 that the Czech Republic legislated for the creation of a similar scheme of mandatory funded pensions, and the system never became fully operational.

⁸⁶ <http://ec.europa.eu/social/BlobServlet?docId=744&langId=en>

4.3. Changes to European pension systems since the start of the crisis

The financial, economic and sovereign debt crisis ended the first wave of pension reforms and created the economic and fiscal foundations for the second wave.

Most of the pension reforms introduced in the first wave were for the medium to long-term and their implementation was set to unfold over decades. Yet, the effects of the recession and subsequent public finance crisis spurred governments to introduce a second wave of reforms with harsher short-term effects and greater medium to long-term changes in pension provision.

The pension reforms enacted since the start of the crisis continued several trends already set in motion during the earlier period and entailed many similar elements. But the second wave of reforms did not just bring more of the same in a stronger way.

On four points it differed markedly from what had happened before, as it

- halted and to some extent reversed the expansion of prefunding,
- involved cuts to pensions in payment,
- raised pensionable ages and introduced the idea of linking them to developments in life expectancy and
- gave the EU a much larger and more direct role in national pension reforms.

Cost-containment has been among the primary goals of 2nd wave pension reforms, but the measures taken have varied.

The most extra-ordinary aspect of reforms enacted during the crisis has been the introduction of cost-cutting measures affecting current pensioners. Whereas past reforms were characterised by long phase-in periods aimed to safeguard the ‘acquired rights’ of pensioners and older workers, recent reforms have affected both pensioners and workers close to retirement.

Fiscal constraints also forced Member States to review the cost of public support for private pensions. Some of the 'Beveridge' countries reacted by reducing the tax exemptions allowed. Most Member States with mandatory private pensions lowered the share of social security taxes allocated to individual pension savings. A few followed by abolishing the mandatory contributions and returning most of the savings to the public scheme or budget.

Even before the crisis began, it was clear that the scale of demographic ageing at some point would oblige most Member States to raise the minimum pension ages. Even so, the extent to which reforms have focussed on raising the pensionable age in public schemes and aligning it with developments in life expectancy is remarkable.

Table 4.1 gives an overview of changes to pensions in EU Member States since 2008.

In the following we first focus on the more immediate changes to pensions, which helped countries cope with their public budget constraints during the worst phases of the crisis. These changes are primarily recorded in the first three columns of Table 4.1, which cover reductions in pensions in payment, changes to indexation and the phasing out of special schemes.

Table 4. 1: Changes to pensions in EU-28 since the start of the crisis

MS	Reduction of pension benefits in payment	Change of indexation rules	Phasing out of special provisions	Change in rules for early retirement	More stringent eligibility conditions	Extended assessment periods	Pensionable ages raised
BE			✓	✓	✓	✓	
BG		✓		✓			
CZ		✓					✓
DK				✓	✓		✓
DE				✓			✓
EE							✓
IE	✓ ⁸⁷		✓		✓		✓
EL	✓	✓	✓	✓	✓	✓	✓
ES		✓	✓	✓	✓	✓	✓
FR		✓			✓	✓	✓
HR	✓	✓		✓			✓
IT		✓		✓	✓	✓	✓
CY	✓	✓	✓	✓	✓		✓
LV	(✓)	✓		✓	✓		✓
LT	(✓)			✓			✓
LU							
HU	✓	✓	✓	✓			✓
MT						✓	✓
NL						✓	✓
AT		✓		✓		✓	
PL		✓	✓				✓
PT	✓	(✓)		✓			✓
RO	(✓)	✓	✓		✓		✓
SI		✓		✓		✓	✓
SK		✓		✓	✓		✓
FI				✓			
SE	✓						
UK					✓		✓

Source: European Commission. Notes: in Lithuania and Romania the reductions were judged illegal by Constitutional Courts and had to be repaid. Based on legislation adopted by the end of 2014. In Portugal, the indexation rules were not revised. The usual automatic updating scheme of pensions and other social benefits granted under the social security system is suspended since 2010.

Thereafter we map the medium to longer-term reforms that are seeking to improve both the sustainability and adequacy of pensions by raising the pensionable age. Reforms with this aim are reported in the 4 last columns of table 4 covering changes in early retirement rules, tighter eligibility rules, extended assessment periods and increases in pensionable ages.

Finally, we briefly discuss how EU processes of policy coordination have influenced pension reforms in Member States.

4.3.1. Short-term changes to pensions in response to the public finance crisis

The recession from 2009 onwards put a strain on national budgets and forced governments to seek immediate financial savings, including through lower current pension expenditure. Ambitious longer-term reforms were also triggered and facilitated by the crisis, and short-term changes were sometimes integrated in the legislative packages for longer-term reforms.

⁸⁷ Civil Service pensions reduced. Reductions in pension benefits in Ireland relate to the pensions of former public service workers whilst Ireland's State first pillar pension was protected.

4.3.1.1. Reductions of pension benefits in payment

Reductions in pension benefit payments occurred in a number of ways: direct cuts (i.e. by a percentage or an amount, in one go or as a sequence of reductions); temporary freezes and/or permanent reduction of the indexation of benefits; extra or higher taxes and contributions for pensioners.

Pension reforms usually address conditions for future pensioners. Because of acquired rights, they normally allow for considerable transition periods before taking full effect. Yet, the depth of the fiscal crisis forced policy makers into uncharted waters. Under pressure to consolidate public finances as fast as possible several Member States felt compelled to enact sudden changes to pensions. Often legislation with significantly negative effects on existing pension payments took effect almost immediately after the adoption.

This occurred in the countries most affected by the crisis, namely: Southern European countries, some Central and Eastern European countries, the Baltics and in Ireland where pension benefits to former public service workers were reduced. In some of them pension benefits in payment were reduced both for normal old age pensioners and former civil servants. A few countries implemented immediate rises in the pensionable age for certain groups and cancelled access to certain types of early retirement overnight.

Reforms with significant short-term effects led to major showdowns with pensioners, who often asked national high courts to rule on the constitutional legitimacy of reductions in their pension payments.

Direct cuts happened in in a number of countries (e.g. Cyprus, Greece, Hungary, Ireland, Lithuania, Latvia, Portugal, Romania and Slovenia). In Latvia a 10 percent cut in pensions was introduced in 2009. In Lithuania, social insurance pensions were cut by 4.5 percent on average, while the supplementary state pensions were reduced by between 5 percent and 20 percent. In Romania the government decided to cut pensions by 15 percent. In Portugal measures passed in the period 2008-2012 caused the ratio between average old age pensions and wages to decrease by about 45 percent⁸⁸. Civil service pensions were also cut. In Ireland, austerity measures adopted in 2010 resulted in a cut in public service pensions of between 6 and 12 percent.

Some countries combined cuts to higher benefits, with some protection for pensioners with lower incomes. In Lithuania, the cuts were applied only to social insurance pension benefits above 650 LTL (188 EUR), thus about 25 percent of old age pensioners were protected from the reductions. In Portugal, while low pensions in payment also have suffered cuts, these were minor compared to the retrenchment of higher pension benefits. In Cyprus cuts in public sector pensions ranged from 0.8 percent to 14.5 percent, depending on the size of benefits. In Romania, governments set more favourable conditions for minimum benefits. In Greece, the cuts imposed on pensions of less than 1000 euros were confined to the abolition of pension bonuses (see Box 4.1).

⁸⁸ Coelho, Miguel (2013), *Balanced Conditions of a Pay as You Go Public System with Defined Benefit An Analysis to the Portuguese Public System*, Working Papers in Economics, Aveiro, Universidade de Aveiro, pp.20

A large group of countries have reduced the real value of pensions through *changes to the indexation*. As many as 15 Member States (e.g. Bulgaria, Czech Republic, Greece, Finland, France, Hungary, Italy, Latvia, Portugal, Romania, Sweden) have temporarily halted and/or permanently reduced the indexing of pension benefits. Thus reduced indexation has by far been the most widespread measure affecting pensions in payment. Several countries reacted by initially halting the indexation of benefits temporarily and then followed up by permanently weakening the indexing mechanism.

Box 4.1: The case of Greece

One of the more extreme examples of cuts occurred in Greece. In 2010 and 2011, the main earnings-related pensions exceeding 1000 euros per month were reduced by ≤ 40 percent, while the so-called 'auxiliary' pensions were reduced by ≤ 30 percent and pension bonuses (i.e. extra pension benefits paid at Christmas) were dropped for pensions above 1000 euros and reduced to a fixed amount of 800 euros for lower pensions. Measures adopted in 2011 also implied a 40 percent reduction in the benefits of pensioners under 55 with pension-incomes over 1000 euros. In 2012, pensions over 1000 euros were further cut by ≤ 12 percent, auxiliary pensions were reduced by 10 percent to 20 percent and pension bonuses were abolished. Extra taxes in the form of a sequence of so-called solidarity contributions ranging from 3 percent to 14 percent have also been levied on main pension benefits over 1000 euros. Moreover, the indexation of all pension benefits has been suspended since 2010.

In general, the total cuts to pensions in payment (including the abolition of bonuses, i.e. the 13th and 14th pension benefits) for private sector pensioners ranged from 14.3 percent to 44.2 percent in real terms.

As regards civil service pensions in payment, the cuts imposed (including the abolition of bonuses, i.e. the 13th and 14th pension benefits) range from 19.9 percent to 48 percent in real terms.

While reduced indexation in low inflation periods brings fewer savings than in other periods, this instrument was chosen because it impacts less on acquired rights and continued to bring savings. Still, it was rather contested and often challenged in constitutional courts.

A general temporary freeze of indexation occurred in Bulgaria (2012), Greece (2010 to 2015), Croatia (2010 and 2011), Cyprus (2013 to 2016), Latvia (2009 to 2012) Romania (2011 to 2013) and Slovenia (2012, following reduced indexation in 2010 and 2011). Austria reduced the indexation in 2013 and 2014.

Some countries exempted the lower pensions from the freeze on indexation. In Italy the temporary freeze of indexation only applied to pensions above €1,400 per month. In 2015, indexation is 95 percent of what it should be for pensions between € 1,500 and € 2,000 and only 40 percent for pensions above € 3,000 per month. France decided not to index in 2014.

Spain abolished compulsory indexation in line with the price index – pensions will now be indexed according to a mathematical formula that takes into account the income and expenses of the system, trying to reach equilibrium in the medium and long term. Also Greece, the Czech Republic and Hungary decided to introduce new indexation rules.

In Sweden, where the pension system features automatic mechanisms for indexation to safeguard its financial sustainability in the context of negative economic and labour market trends, pension benefits were to be reduced by 3.5 percent. But the government lowered taxes for pensioners to partially offset the negative effects of the automatic balancing.

In some countries (e.g. Cyprus, Denmark, Greece, Ireland, Portugal, Romania), cutbacks were also implemented through the introduction of *special taxes, contributions and pension levies*. These measures aimed to increase public budget revenues and/or reduce tax expenditure/spending.

Denmark introduced a temporary tax ("*udligningsskatten*") on very high pension incomes. Greece passed a special solidarity levy on pensions over 1000 euros. Italy followed the same path, while Romania introduced a health contribution for higher pension benefits. In some countries, such as Austria and Croatia, increased taxation was gradually implemented, with more taxes on higher benefits. In Ireland a temporary levy of 0.6 percent on private pension assets was applied from 2011 to 2013 increasing to 0.75 percent in 2014 and reducing to 0.15 percent in 2015 after which it will be discontinued

In several countries, the crisis and austerity related changes to pensions appear to have generated a climate of uncertainty and doubts regarding public pension systems (notably in Greece, but also in Portugal, Cyprus, Ireland, Italy, Latvia, Lithuania, Hungary and Slovenia).

Yet, even in the countries where pensioners were most affected by reductions in the nominal or real value of pension benefits, the relative position of older people did not deteriorate, since social protection for children and adults usually suffered more (e.g. in Bulgaria, Cyprus, Spain, Czech Republic, Romania and the United Kingdom). In the majority of countries, the measures introduced during the period of crisis and austerity affected the younger part of the population more than pensioners.

4.3.1.2. The role of the Constitutional Courts

Beyond the urgent need for immediate intervention to contain public pension spending, the hitherto unprecedented reforms affecting pensions in payment were often advocated and justified as part of a policy to spread the burden equally between different cohorts of citizens and generations (both active and retired). Yet, this argument rarely found general acceptance.

The main issue in national debates tended to be whether there were legal boundaries to how much reforms could infringe on the 'acquired rights' of pensioners and Constitutional Courts have been requested to rule on the matter. In quite a number of Member States (e.g. Bulgaria, Czech Republic, France, Italy, Latvia, Lithuania, Poland, Portugal, Romania and Slovenia) the legitimacy of immediate reductions in benefits through cuts and lack of indexation has thus been contested before the national high courts. What is more, often these courts have decided in favour of the plaintiffs.

In Latvia the Constitutional Court abolished the government's 2009 decision to cut all pensions by 10 percent, but did support the government's decision to reduce early retirement benefits from 80 percent to 50 percent of the normal pension. In Romania the Constitutional Court rejected the government's decision in 2010 to cut pensions by 15 percent. Furthermore, when in 2011 the government introduced a 5.5 percent health insurance contribution on pensions the Court declared this measure to be partially unconstitutional and forced the government to reimburse part of the revenues collected. In 2014 the Portuguese government adopted a reform introducing a permanent sustainability contribution on pensions and reducing the benefits from the specific insurance schemes, but the Court found these measures unconstitutional and overruled them. When the Czech government raised taxes on working pensioners the Constitutional Court in a similar way ruled against this measure. In Slovenia

the Constitutional Court rejected the reduction in pensions for a number of special categories of pensioners (e.g. war veterans and refugees). In Italy the Constitutional Court in May 2015 declared illegitimate the freeze of indexation for pensions above 3 times the minimum, which had been legislated as part of the Dec. 2011 pension reform, and asked for pensioners to be reimbursed.

Across Member States there were also examples of rulings in favour of pension reforms with an immediate effect on pensions in payment. In Lithuania the Court declared that the government's cuts to pension benefits for 2010-12 did not infringe on constitutional rights, as long as they were only temporary and would later be reimbursed. In Italy the Constitutional Court found in favour of the government's position that a referendum on repealing the 2011 pension reform could not take place.

All these examples show that interventions concerning pensions in payment and reduction of pensioners' rights have been highly controversial and raised fundamental legal issues.

4.3.1.3. The expansion of prefunded schemes halted and partly reversed

Reforms responding to the *difficulty of expanding prefunded schemes* as envisaged are the second defining novelty of pension reforms since the start of the crisis.

The crisis has had both direct and indirect impacts on pre-funded pension schemes. The financial sector crisis resulted in a sudden, major drop in the book-value of assets of pre-funded schemes. Though asset values tended to recover over the next couple of years, further stress came from the adverse economic conditions: economic recession with high unemployment followed by stagnation and low average interest rates.

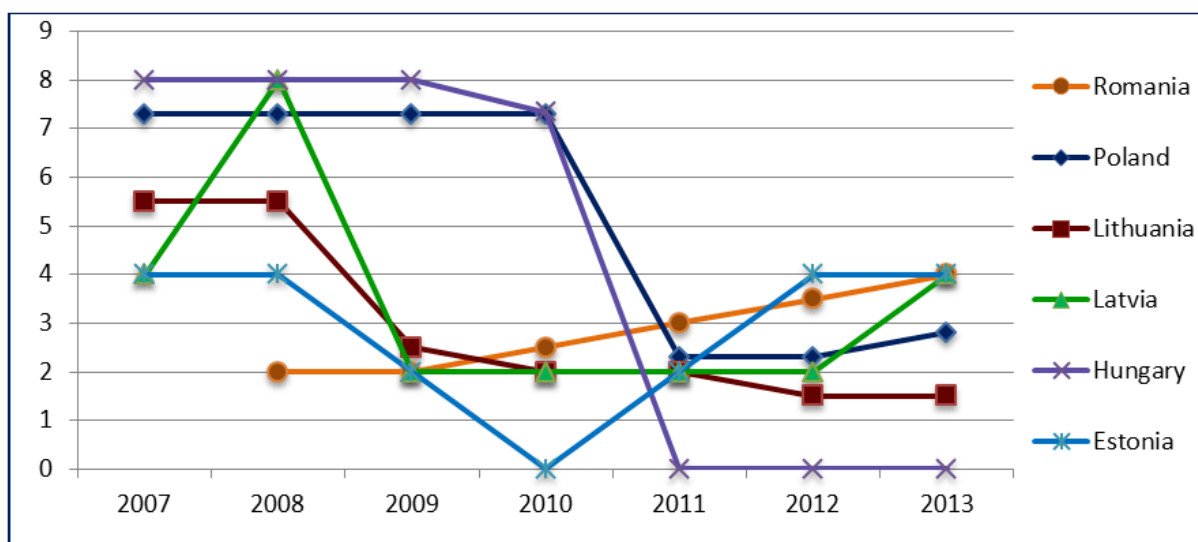
Meanwhile, rapid erosion of public budgets made it far harder to sustain tax-exemptions and the direct subsidy through the re-allocation of social security taxes into individual funds. As tax revenues dropped and social protection expenditures rose, covering the significant transition costs of structural reforms towards funded pension pillars became increasingly difficult for public budgets. This placed public policies supporting prefunding under constant stress.

The Central and Eastern European countries that had introduced mandatory private pension schemes, as part of their first pillar arrangements, responded by temporarily reducing the share of social insurance contributions transferred to privately managed pension funds (Figure 4.1).

The main problem with a number of these mandatory private pension arrangements was not the principle of prefunding but the method of financing and the ambitious levels of savings that had been chosen.

In countries such as Poland and Hungary contributions to individual pension accounts, administered by private insurance companies, were financed by the reallocation of a sizeable part of the social security taxes raised to finance pensions in payment. Since these contributions weren't replaced by equivalent taxes or the proceeds from the privatisation of public enterprises, as had been envisaged, contributions often ended up being financed primarily by the issuing of public debt.

Figure 4. 1: Changes in contributions (% of gross yearly salary) channelled to mandatory private pension schemes, in selected CEE countries, 2007-2013



Source: European Commission

Thus the double payment problem (i.e. having to finance savings for future pensions at the same time as pensions for current pensioners) involved in prefunding was never tackled and little actual saving took place. Instead this element of the pension system contributed significantly to the growth of public deficits and debt.

Moreover, in some countries, pension funds placed a substantial part of their assets in the public bonds (i.e. bought into part of the growing public debt), which had been issued to finance the contributions in the first place. This arrangement made little financial and macro-economic sense, except to the insurance companies who thrived on their charges for administering the savings.

In Poland the government estimated that about 18 p.p. of the public debt of 56 percent of GDP was due to financing of the prefunded pillar. Consequently the continuation of mandatory pensions made it particularly difficult for Poland to abide by the limits on aggregate public debt in its constitution and the Maastricht criteria.

Under pressure from the crisis six countries (Bulgaria, Czech Republic, Lithuania, Hungary, Poland and Slovakia) decided to partially reverse earlier reforms aimed at the diversification of retirement savings and pension provision.

The main change has been the abolition of mandatory participation in privately managed DC funds, and allowing people to opt back into public schemes.

In Hungary (2011), mandatory contributions were first suspended and then abolished definitively; all assets were channelled back to the public PAYG scheme. The former mandatory private schemes became voluntary, supplementary savings schemes

Poland (2014) applied a default transfer of all assets invested in government bonds to the public NDC scheme and introduced an option to continue making voluntary contributions to the open pension funds. About 2.52 million people (± 15 percent of the workforce) chose this option.

The Bulgarian government similarly decided to reduce the public deficit by shifting some of the assets from the mandatory pension funds to the public pay-as-you-go scheme. Private pension fund members were offered the opportunity to move their individual account balances to the public pension fund and employees, who failed to join a privately managed pension fund within a year of starting employment, would be automatically transferred to the public pension fund.

Slovakia allowed for opt-outs from second pillar schemes in 2008, 2009, 2012-13 and 2015 (with a total "transfer period" of 21.5 months) and transformed these schemes to voluntary arrangements.

In Lithuania, where joining the funded scheme had been voluntary from the beginning but joining was non-reversible, a temporary option to return contributions to the public PAYG was introduced in 2013.

By contrast some Central and Eastern European countries – Croatia, Estonia, Latvia and Romania – have largely confirmed the multi-pillar model introduced in the past. In these countries, the mandatory private funds have not been transformed into voluntary schemes.

In Estonia the temporary reduction of mandatory contributions to pre-funded pension schemes was dropped after the crisis eased. Latvia initially dropped the contribution rates from 8 percent to 2 percent then having overcome the worst crisis years started raising them again, but now with the goal of maintaining them at 6 percent from 2016 instead of the earlier envisaged level of 10 percent.

While in Romania the increase of contributions to the mandatory pillar was postponed in 2009, the transfer from the pay-as-you-go pillar was subsequently restored in accordance with the scheduled plan. In Croatia the second pillar funds continued as before, though for some categories of insured people it is possible to opt out of the second pillar funds and be covered exclusively by the pay-as-you-go first pillar.

Simultaneously with the scaling back of mandatory private pension schemes, the development of voluntary retirement savings has subsided in several countries, where they had begun to develop.

The coverage of voluntary pension funds increased slightly in Italy and Spain but at a much slower pace than in the past. In Portugal and Cyprus supplementary pension funds stagnated. Elsewhere, voluntary pension funds experienced a drop in contributions due to increased unemployment. In Austria the number of workers covered by individual pension schemes has declined while the number of firm-based pension funds has increased.

In response to the financial crisis Member States with significant pre-funded schemes (e.g. Denmark, Germany, Ireland, the Netherlands, Sweden, the United Kingdom) initially took steps to reinforce risk mitigation and shock absorption in their prefunded schemes through better regulation. Then after some lowering of subventions and/or raising of taxes in response to public budget constraints (i.e. in Denmark, Ireland and the United Kingdom), these countries continued to support and promote occupational and 3rd pillar schemes.

The United Kingdom has sought to boost occupational pension coverage through auto-enrolment, while Ireland has taken particular measures to support second pillar defined benefit arrangements, many of which moved to negative funding positions during the

financial crisis. The Netherlands meanwhile engaged in an advanced public debate about how to balance cost and risks and secure intergenerational equity in its maturing system of second pillar occupational schemes.

Having helped the industry overcome some of the initial threats to their solvency, Denmark, Germany and Sweden largely continued public financial support for their pre-funded second and third pillar arrangements as before.

However, the prospect of the current low interest rates being maintained over a long period represents a major challenge to all prefunded schemes.

4.3.1.4. Phasing out special retirement schemes

Several Member States *abolished separate schemes for public servants* (e.g. Greece, Spain, Romania) but, with the exception of Greece, this applied only to new entrants to the scheme.

The Romanian reform of 2010 unified the pension system by absorbing military, police, diplomats and navigation personnel into the general scheme. Belgium abolished special early retirement options and more beneficial benefit calculations for various professional categories.

In Spain, the civil service scheme will be slowly phased out. Ireland introduced a single ‘career average’ pension for new public servants with the same pensionable age as in the general pension scheme and benefits indexed to consumer prices the rather than earnings.

Poland, which maintains separate pension arrangements for uniformed services, raised the contribution period requirements and the pensionable age, while dropping the final pay arrangement. In Portugal raising the pension contributions of public sector workers was one of the austerity measures. Cyprus increased the contribution rates of public sector employees and closed the supplementary scheme to new public sector appointees.

Bulgaria, meanwhile, decided to continue various special schemes with possibilities for early retirement for certain categories of employees.

4.4. Impact of pension reforms that aim to extend working lives - by restricting access to early retirement and raising pensionable ages

Since longer working lives may help achieve both financial sustainability and retirement income adequacy, many governments have put great efforts and huge amounts of political capital into raising the pensionable ages: linking these to life expectancy; closing down or restricting access to early retirement schemes; tightening job-search requirements for older workers; reducing the scope of pension advantages for people in arduous jobs; restricting disability benefits to those ‘genuinely’ sick and unable to work; and so on.

Table 4.2 records the national pension reform elements implemented to create savings and extra tax revenues by extending working lives, in the EU between 2008 and 2014. In the following subchapters we examine each of these elements in turn.

Table 4. 2: Pension reform elements aiming to extend working lives, recent years until end of 2014

MS	Year	Access to Early retirement (incl. disability) restricted	Age for early retirement raised	Pensionable age increased	Women Pensionable age brought up to men's	Length of contribution period increased	Automatic indexation to life expectancy	Limit to combine work and pension eased
BE	2012/2014	✓	✓					✓
BG								
CZ	2011			✓	✓	✓		
DK	2011	✓	✓	✓			✓	✓
DE	2014			✓				
EE	2010			✓	✓			
IE	2012-2014			✓		✓		✓
EL	2010/2012	✓	✓	✓	✓	✓	✓	
ES	2013	✓	✓	✓		✓		✓
FR	2010-2011	✓		✓		✓		
HR	2013		✓	✓	✓			✓
IT	2011	✓	✓	✓	✓	✓	✓	
CY	2012	✓		✓		✓	✓	
LV	2011			✓		✓		
LT	2011			✓	✓			
LU	2012	✓						
HU	2010/2012	✓		✓				
MT	2008-2013	✓		✓	✓	✓		
NL	2012	✓		✓			✓	
AT	2013	✓	✓		✓			
PL	2008-2010	✓		✓	✓	✓		
PT	2012-2014	✓		✓			✓	
RO	2011			✓				
SI	2012	✓		✓	✓	✓		
SK	2011-2012			✓	✓		✓	
FI	2010-2014	✓	✓					✓
SE								
UK	2011-2014			✓	✓			

Source: Information provided by the Member States (for details see Volume II of the Report)

4.4.1. Restricting access to early retirement

Many countries have decided to phase out (e.g. Denmark, Greece, Hungary, Italy, Poland) or seriously tighten access (e.g. Austria, Belgium, Spain, France, the Netherlands, Portugal) to early retirement.

The required contributory period for early retirement has increased in a few Member States (e.g. Belgium, Austria, Slovenia). Several Member States raised the minimum age for early retirement by a couple of years (e.g. Austria, Belgium, Cyprus, Denmark, Greece, Spain, Croatia) and linked it to developments in life expectancy (e.g. Denmark, Cyprus, Italy).

However, in order to reduce opposition to increases in the standard pensionable age and provide more equitable solutions for those, who had started work at a young age, the early

retirement window for certain categories of workers (such as those in arduous or hazardous work) has also been extended in a number of countries (e.g. Bulgaria, Germany, France, Croatia, Portugal).

4.4.2. Increasing increments for late and decrements for early retirement

Some countries have introduced or enhanced increments to benefits for late retirement (e.g. Belgium, Denmark, Spain, the United Kingdom), others have increased/introduced decrements for early retirement (e.g. Cyprus, Greece, Spain, Croatia, Latvia), while some have done both. The reductions and increments can be flat-rate over a particular period or may change over time. The rationale of staggered reductions/decrements is to make the prospect of late retirement more desirable and early retirement less attractive.

Several countries (e.g. Austria, France, Germany, Italy, Portugal) have changed the benefit reductions and increments for early and late retirement, respectively. In the United Kingdom, the public pension system now offers increases for workers, who stay in work beyond the standard retirement age. Thus, many EU countries now have mechanisms to reduce or increase benefits for early or late retirement, respectively (Table 4.3).

Unfortunately these mechanisms are not always balanced. The TRRs for retiring two years after and two years before the standard pensionable age (see chapter 5.2) illustrate that in some Member States there is still a need to ensure that retirement behaviour is not unduly influenced by early retirement being too little/too much penalised and late retirement under or over-compensated. In earnings-related pension systems it should, in principle, be possible to devise a mechanism, which is broadly “actuarially neutral”, where the extra costs of early retirement and savings incurred through late retirement are reflected in the level of pension paid at different retirement ages.

Table 4. 3: Long-term rules of pension benefit decrements/increments for early/late retirement

Country	Scheme	Reduction (%)	Increase (%)	Country	Scheme	Reduction (%)	Increase (%)
Austria	DB	5.1	4.2	Italy	NDC	–	–
Belgium	DB	0	0	Luxembourg	DB	0	n.a.
Czech Republic	DB	3.6-5.6	6.0	Netherlands	Basic		n.a.
Denmark	Basic/T		5.8	Poland	NDC/DC		–
Estonia	Points	4.8	10.8	Portugal	DB	6.0	4.0-12.0
Finland	Min	4.8	7.2	Slovakia	Points	6.5	6.0
France	DB	5.0	5.0		DC	–	–
Germany	Points	3.6	6.0	Slovenia	DB	3.6	4.0
Greece	DB	0/6.0	0	Spain	DB	6.0-8.0	2.0-4.0
Hungary	DB		6.0	Sweden	Min		
Ireland	Basic/T		n.a.	United Kingdom	Basic/ DB		10.4

Source: partly based on indicators reported in OECD Pensions at a Glance (2013).

4.4.3. Increasing the pensionable ages

As a result of recent reforms, most EU countries are increasing the pensionable ages of both men and women (Table 4.4).

Table 4. 4: Development in pensionable ages as effect of reforms, different years

MS	2009		2013		2020		After 2020	
	Men	Women	Men	Women	Men	Women	Men	Women
BE ⁸⁹	65		65		65		65	
BG	63	60	63y8m	60y8m	65	63		
CZ	62	56y8m-60y8m ¹	62y6m	57y8m-61y8m ¹	63y10m	60y6m-63y10m ²	67+ (by 2044) ³	
DK	65		65		66		67 (in 2022) ⁴	
DE	65		65y2m		65y9m		65y10m-67 (by 2029)	
EE	63	60y6m	63	62	63 (by 2016)		65 (by 2026)	
IE	65		65		66		67 (from 2021), 68 (from 2028)	
EL	65	60	67	62	67		67+ ⁵	
ES	65		65-65y1m ⁶		65-65y10m ⁶		65-67 (by 2027) ⁶	
FR	60-65 ⁶		61y2m		62-67 ⁶			
HR	65	60	65	60y9m	65	62y6m ⁷	65 (by 2030), 67 (by 2038), 67+ ⁵	
IT	65y4m	60y4m	66y3m	62y3m ¹⁸	67y		67+ ⁵	
CY	65		65		65+ ⁸			
LV	62		62		63y9m		65 (by 2025) ⁹	
LT	62y6m	60	62y10m	60y8m	64	63	65 (by 2026) ¹⁰	
LU	65		65		65		65	
HU	62		62		64y6m		65 (by 2022)	
MT	61	60	62		63		65 (by 2027)	
NL	65		65y1m		66y8m		67+ (by 2023) ¹¹	
AT	65	60	65	60	65	60	65 (2024-2033)	
PL	65	60	65y1m ⁽¹²⁾	60y1m	66y10m-67	61y10m-62	67 (by 2020)	67 (by 2040)
PT	65		65		66 (since 2014 and 2015) ¹³		67 (by 2029)	
RO	63y4m	58y4m	64y8m	59y8m	65 (by 2015)	61	65	63 (by 2030)
SI	63	61	65	63y6m ¹⁷	65		65	
SK	62	55y3m-59y3m ¹	62	57y6m-61y6m ¹	62+ ¹⁴		62+	
FI	63-68 ¹⁵		63-68 ¹⁵		63-68 ¹⁵		63-68 ¹⁹	
SE	61 ¹⁵		61 ¹⁵		61 ¹⁵		61 ¹⁵	
UK	65	60	65	61y4m-61y10m	66		68 (by 2046) + ¹⁶	

Source: Based on information provided by countries. Based on legislation adopted by the end of 2014. Notes: (1) Depending on the number of children raised. (2) Depending on the number of children raised. The retirement age for women is increased by 4 months each year (6 months from 2018) until it equals that of men. After that, the increase for women will also be 2 months per year. (3) Increased by 2 months annually until further amendments. (4) Adjusted to life expectancy gains every 5 years, starting 2030. (5) Linked to life expectancy. (6) If qualifying period completed - and if not completed. (7) The pensionable age for women is being gradually increased by 3 months per calendar year from 1 January 2011 onwards, to reach 65 in 2030. (8) Adjusted to life expectancy gains as of 2018. (9) The legal retirement age is gradually increased by 3 months per year. (10) From 2012 onwards, the retirement age is annually increasing by 4 months for women and by 2 months for men until it reaches 65 for both women and men in 2026. (11) Adjusted to life expectancy gains every year, starting 2024. (12) Since 1 January 2013 the retirement age gradually increases by 1 month per three months. (13) After 2014, the standard retirement age will vary according to the average life expectancy at the age of 65. (14) Adjusted to life expectancy gains as of 2017. (15) Flexible retirement age linked to benefit level. There is no upper limit when pensions can be withdrawn. There is only a lower age-limit. From the age of 65 it is possible to get guarantee pension. (16) Intention to adjust after Government review every 5 years indicated, but exact linking mechanism not yet adopted. (17) It holds true only for women in the period 2013-2015; later 65 years (ZPIZ-2 27/1). Provided that his/her pensionable age is at least 15 years. (18) For female self-employed, the SPA is temporarily higher (63 years and 9 months in 2013). After 2020 SPA is linked to life expectancy. (19) In Finland the proposed pension reform for 2017 the pensionable ages will rise according to the increase in life expectancy for those born in 1965 and after. For the cohorts born between 1955 and 1964 the earliest pensionable age rises gradually from 63 to 65 in the earnings-related pension system.

⁸⁹ Belgium: as of end 2014, reforms adopted thereafter are not reflected.

Social conventions of working and retirement ages are importantly influenced by the standard pensionable age in the main public pension scheme. People tend to measure and plan their lives around this marker. Changes to the pensionable age have major repercussions for the organisation of people's lives and are therefore usually quite contentious.

Most pension reforms of the first wave avoided raising the pensionable age and the few that did used very long lead in times. It is therefore remarkable how much reforms in the 2nd wave have focussed on raising the pensionable age and aligning it with life expectancy and often within a relatively short span of years.

Developments in the pensionable ages for old age and early retirement pensions are reported in Table 4.5, which also indicates if reforms established bonuses for working beyond the pensionable age or penalties for retiring early.

Table 4. 5: Statutory retirement ages, early retirement (in brackets) and incentives to postpone retirement

MS	Men				Women				Incentives	
	2013	2020	2040	2060	2013	2020	2040	2060	Penalty	Bonus
BE ⁹⁰	65 (60.5)	65 (62)	65 (62)	65 (62)	65 (60.5)	65 (62)	65 (62)	65 (62)		✓
BG	63.8 (63.8)	65 (65)	65 (65)	65 (65)	60.8 (60.8)	62.8 (62.8)	65 (63)	63 (63)		✓
CZ*	62.7 (59.7)	63.7 (60)	66.5 (61.5)	69.3 (64.3)	59.7 (56.7)	61.7 (58.7)	66.5 (61.5)	69.3 (64.3)	✓	✓
DK*	65 (60)	66 (63)	70 (67)	72.5 (69.5)	65 (60)	66 (63)	70 (67)	72.5 (69.5)		
DE	65.3 (63)	65.8 (63)	67 (63)	67 (63)	65.3 (63)	65.8 (63)	67 (63)	67 (63)	✓	✓
EE	63 (60)	63.8 (60.8)	65 (62)	65 (62)	62 (59)	63.8 (60.8)	65 (62)	65 (62)	✓	✓
IE	65 (65)	66 (66)	68 (68)	68 (68)	65 (65)	66 (66)	68 (68)	68 (68)		
EL*	67 (62)	67 (62)	69.9 (64.9)	71.9 (66.9)	67 (62)	67 (62)	69.9 (64.9)	71.9 (66.9)	✓	
ES	65 (61)	65.8 (61.8) **	67 (63)	67 (63)	65 (61)	65.8 (61.8) **	67 (63)	67 (63)	✓	✓
FR	65.8 (60.8)	67 (62)	67 (62)	67 (62)	65.8 (60.8)	67 (62)	67 (62)	67 (62)	✓	✓
HR	65 (60)	65 (60)	67 (62)	67 (62)	60.8 (55.8)	62.5 (57.5)	67 (62)	67 (62)	✓	✓
IT*	66.3	66.8	68.4 (65.4)	70 (67)	62.3	66.8	68.4 (65.4)	70 (67)		
CY ^{*91}	65 (63.5)	65 (65)	67 (67)	69 (69)	65 (63.5)	65 (65)	67 (67)	69 (69)	✓	
LV	62 (60)	63.8 (61.8)	65 (63)	65 (63)	62 (60)	63.8 (61.8)	65 (63)	65 (63)		
LT	62.8 (57.8)	64 (59)	65 (60)	65 (60)	60.7 (55.7)	63 (58)	65 (60)	65 (60)	✓	✓
LU	65 (57)	65 (57)	65 (57)	65 (57)	65 (57)	65 (57)	65 (57)	65 (57)		
HU***	62 (62)	64.5 (64.5)	65 (65)	65 (65)	62 (62)	64.5 (64.5)	65 (65)	65 (65)		✓
MT	62 (61)	63 (61)	65 (61)	65 (61)	62 (61)	63 (61)	65 (61)	65 (61)		
NL*	65.1 (65.1)	66.3 (66.3)	69.3 (69.3)	71.5 (71.5)	65.1 (65.1)	66.3 (66.3)	69.3 (69.3)	71.5 (71.5)		
AT	65 (62)	65 (62)	65 (62)	65 (62)	60 (58.8)	60 (60)	65 (62)	65 (62)	✓	✓
PL	65.3 (65.3)	67 (67)	67 (67)	67 (67)	60.3 (60.3)	62 (62)	67 (67)	67 (67)		
PT*	65 (55)	66.4 (55)	67.7 (55)	68.8 (55)	65 (55)	66.4 (55)	67.7 (55)	68.8 (55)	✓	✓
RO	64.7 (59.7)	65 (60)	65 (60)	65 (60)	59.7 (54.7)	61.4 (56.4)	63 (58)	63 (58)		
SI	65 (58.3)	65 (60)	65 (60)	65 (60)	61.5 (58)	65 (60)	65 (60)	65 (60)	✓	✓
SK*	62 (60)	62.8 (60.8)	65.4 (63.4)	67.8 (65.8)	58.3 (56.3)	62.8 (60.8)	65.4 (63.4)	67.8 (65.8)	✓	✓
FI	65 (62)	65 (63)	65 (63)	65 (63)	65 (62)	65 (63)	65 (63)	65 (63)	✓	✓
SE	65 (61)	65 (61)	65 (61)	65 (61)	65 (61)	65 (61)	65 (61)	65 (61)		
UK	65 (65)	66 (66)	67 (67)	68 (68)	61 (61)	66 (66)	66.7 (66.7)	68 (68)		✓

Source: *The 2015 Ageing Report, Commission services, EPC; revised by Member States. Notes: Reforms legislated by the end of 2014. * - Countries where statutory retirement age is legislated to increase in line with increase in life expectancy. Reported retirement ages calculated according to life expectancy increases as from EUROPOP 2013 demographic projections. Actuarial equivalence is not considered as a penalty / bonus. *** In Hungary, a special programme for women introduced in 2011, so-called 'programme for women of 40 years' made possible for some women to choose pension below this age. ** In Spain, early pensionable age in 2020 is for the case of involuntary unemployment.*

⁹⁰ Belgium: as of end 2014, reforms adopted thereafter are not reflected.

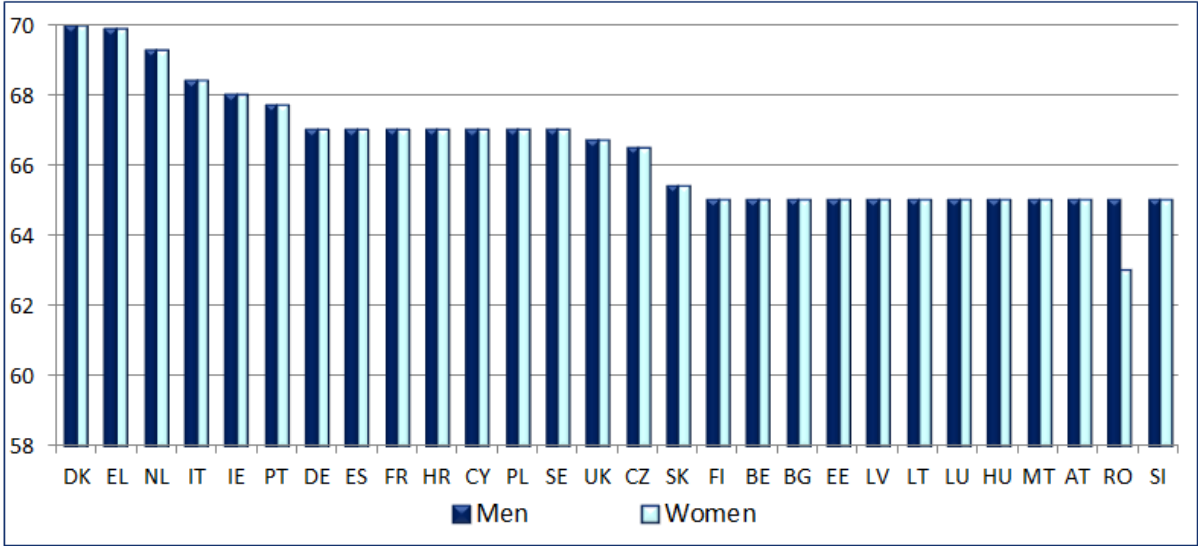
⁹¹ For Cyprus, the ages shown in brackets refer to the earliest age at which an insured person is entitled to a social insurance old-age pension without any exit penalty (or actuarial reduction).

By March 2015: 24 Member States had increased or were in the process of raising the pensionable age; 6 (Denmark, Cyprus, Italy, the Netherlands, Portugal, Slovakia) had introduced a mechanism linking them to life expectancy; another was on the verge of doing so (Finland); and two (Czech Republic and France) had established mechanisms with some similar effects.

While the immediate aim has been to ensure the sustainability of public pensions, the wider aim was to extend working life in line with increasing life expectancy. Provided that effective retirement ages rise in line with the statutory pensionable age this would bolster financial sustainability while also allowing the adequacy of pensions to be preserved.

Under current legislation, 65 will be the most common age at which people in EU Member States will be able to claim their full pension, although 67 or more could become the new norm by 2040 (Figure 4.2).

Figure 4. 2: Statutory retirement ages in the long-term, 2040



Source: The 2015 Ageing Report. Note: Belgium: as of end 2014, reforms adopted thereafter are not reflected.

Almost all the countries that had different pensionable ages for men and women have pursued a gender equalisation towards the standard eligibility age of men. Presently, Romania and Bulgaria are the only EU countries that have not legislated⁹² to equalise the pensionable ages. In Romania the government’s proposal to equalise pension ages for women and men from the mid-2030’s has been presented to parliament.

In most of these countries (e.g. Czech Republic, Lithuania, Malta, Slovakia, the United Kingdom) the process of equalisation is sufficiently gradual that it should allow labour markets to develop late career employment opportunities for women in line with the rise in the pensionable age. In Italy the pension age for women in the private sector jumped two years overnight and will rise a further three years within the next 5 years, which leaves little time for labour markets and older workers to adapt, while in countries such as Austria, Poland the process may be found to be too gradual.

Reforms that increase retirement ages nevertheless remain contentious with survey data showing that six out of ten Europeans reject the idea that retirement age needs to increase by

⁹² By the end of 2013. The law was adopted on 27/08/2015 and shall be entered into force as of 01/01/2016.

2030 (European Commission, Eurobarometer 78.1, 2012). In countries such as Denmark, Ireland and the Netherlands, however, a majority of the respondents already acknowledge the need for pensionable age increases.

Rather than considering an increase in the pensionable age, some countries have initially increased contributory periods. Yet, lately Member States, who priorily only increased the contributory period, are now also raising the pensionable age (e.g. Germany, France, Spain etc.).

4.4.4. Changing the marginal returns to work - by tightening the link between contributions and benefits

Many Member States have not only restricted access to early retirement schemes or increased retirement ages, they have also changed their public pension schemes to encourage working longer by lowering the entitlements per contributory year.

Most obviously, countries have tightened or are in the process of tightening the link between earnings-related contributions and pension benefits. This has been done in various ways. One has been the move from calculating benefits on the basis of a few years (e.g. 5, 10 or 15) of 'best' or 'final' earnings towards lifetime earnings.

Several Member States extended the period over which earnings are measured already before the crisis. Finland, Italy, Latvia, Poland, Portugal, Croatia and Sweden have all moved to a life-time average earnings measure. But such changes have also figured prominently in recent national reforms. Spain, for example, is moving from the last 15 years to the last 25 years. France is moving from the best 10 years to the best 25 years. Austria, the contribution base to be taken into account was expanded from the "best" 15 years to lifetime earnings. The largest and most sudden change occurred in Greece where the earnings measure used to be the best five in the final 10 years of earnings and is now life-time average earnings.

Some Member States (e.g. Belgium and Slovenia) have made other changes to formulas for linking pension benefits to earnings during working life. In Belgium the "equalised periods", when some forms of involuntary or recognised career breaks led to no contributions being paid by the insured, count for less than they used to before 2012. In Slovenia extension of the base period for pension assessment from 18 to 24 years is part of a complex reform of the PAYG system, which also includes raising standard and early pensionable ages for both sexes, simplification of valorisation coefficients and reducing accrual rates.

Extending the period over which earnings are measured tend to reduce pension benefits. The average of the best earning or final years is usually higher than the average over the lifetime, because the latter also takes years with lower earnings into account, including career breaks due to unemployment, sickness or caring duties. Such changes have different effects on different groups of workers, depending on how earnings vary over their working careers. Those most affected are white-collar employees with seniority pay where earnings rise with age. As workers with productivity pay typically have flatter earnings-profiles they tend to be less affected. But people with long career breaks or part-time periods, typically women, may find themselves disadvantaged.

As links between contributory records and pension entitlements have been tightened, defined benefit (DB) formulas in public pension schemes have been diluted or dropped and replaced by something closer to defined contribution (DC).

Most recently Greece (auxiliary scheme) has joined those countries (i.e. Italy, Latvia, Poland and Sweden) that have gone all the way by establishing notionally defined contribution (NDC) systems. DC schemes are also implicitly designed to adjust to life-expectancy. Higher life expectancy at the time of retirement will lead to lower Annuity benefits, due to the longer projected duration of the pension payment.

Also, while most public pension schemes have formally retained their DB character they have in fact adopted hybrid formulas increasingly leaning towards the principles of defined contribution. Thus beyond the shift to career average earnings some adjustment to life expectancy has also been introduced in the benefit calculation formulas of the public DB or point systems in Finland, Germany and Portugal.

Some countries have also changed the accrual rate to either increase at older ages or remain stable across the age-range. In Finland accrual rates are tripled if people continue to work after 63.

4.4.5. Working longer and deferring pension take-up or combining earnings with pension receipts⁹³

Some countries offer workers the possibility of deferring their claim to a pension while continuing to work and a deferral of resource-tested and basic pensions is possible in many EU countries. In most cases, deferral will result in a larger pension entitlement. However, in some countries deferral after legislated pensionable age is either not possible (such as in Ireland, Luxembourg and the Netherlands) or only up to a certain age, as in Italy and Portugal until age 70. In Lithuania deferral is possible for a maximum of five years after normal retirement age, in Malta only up to age 65. If people continue working and contributing accordingly further entitlements may be built. Yet, continuing to contribute after the standard pensionable age may not be possible.

In Denmark workers can defer receipt of their basic public pension for up to ten years. The pension is then increased by the ratio of the period of deferral to average life expectancy, when the pension is claimed. In the United Kingdom, the deferral of the claim of a State pension increases the retirement income quite substantially – by 10.4 percent for a complete year of deferral. If the claim is postponed for at least 12 consecutive months, it is also possible to take a taxable lump sum, calculated as the State pension foregone during the deferral period plus interest of at least two percentage points above the Bank of England base rate, although this option will be abolished, when recently announced changes come into force in 2017.⁹⁴ Recently announced changes also mean that to defer the State Pension, you will need to do so for at least 9 weeks with the State Pension increasing by 1 percent every 9 weeks. This works out at just under 5.8 percent for every full year of deferral.⁹⁵

⁹³ OECD Review of the Pension System: Ireland (OECD, 2013)

⁹⁴ <https://www.gov.uk/deferring-state-pension/what-you-may-get>

⁹⁵ <https://www.gov.uk/new-state-pension/eligibility>

The extent to which pension deferral as effect of working longer will imply higher pension entitlements will be further examined through the TRR cases presented in chapter 5. But in principle because of the closer link between pension benefits and earnings and the increased number of contributory years/retirement ages necessary to obtain a full pension in the future, larger pension entitlements will materialise as workers have longer effective working lives and thus postpone claiming a pension and (in most schemes) continue to pay contributions.

The stronger links between entitlements and contributions based on earned income also imply that pension benefits become much more sensitive to career interruptions. Longer or frequent periods of absence from the labour market, delayed entry and, in general, shorter contribution histories due to unemployment, care of children or of elderly relatives may play a significant role in reducing pension entitlements. As demonstrated in chapter 3.4 many countries credit such events when calculating the number of contribution years completed. Yet, as the TRR calculations tend to show such crediting rarely fill the gap in contributions caused by breaks in paid employment.

While many countries have raised the number of contribution years to qualify for a full pension, some have also changed the rules about the combination of earnings with pension-receipts (e.g. Spain, Portugal, the United Kingdom).

In some cases, it is not possible to work and draw a pension at the same time although, as indicated in chapter 2.5, several countries have eased the rules under certain conditions. Still, where ever temporary cuts in pensions in payment took place (see chapter 4.3.1.1), these tended to be much larger for those who drew a pension while continuing to earn income from work (e.g. in Greece, Latvia, Lithuania).

4.4.6. Linking pension age to higher life expectancy

The recent focus in pension reforms on linking pensionable ages – as pioneered by Denmark in 2006 - and/or the number of contribution years to developments in life expectancy – as legislated by France in 2003 - have introduced the perspective of a constantly increasing pensionable age (formal or de facto) and a perpetually expanding working life.

Since the first Annual Growth Survey of 2011, the European Commission has been recommending Member States to neutralise the impact of rising longevity on pension costs by linking the standard pensionable age (SPA) to developments in life expectancy (LE).

Linking the Statutory Pensionable Age to life expectancy is the preferable way to allow pension system to neutralise the costs of structural longevity growth. It allows countries to maintain both the adequacy and sustainability of pensions by clearly signalling the need to work longer. By contrast linking benefit levels to life expectancy is far less transparent and can pose a threat to adequacy over time as people fail to react to financial incentives to delay pension take-up in line with developments in life expectancy.

So far seven Member States (Cyprus, Denmark, Greece, Italy, the Netherlands, Portugal and Slovakia) have decided to introduce such linking mechanisms in their public pension schemes, the United Kingdom has announced it intends to keep this under review, Finland is on the verge of deciding to and the country specific recommendations urge several others to consider following this trend. A brief overview of the various linking mechanisms is given in Box 4.2.

Some countries (e.g. Denmark, Greece, Italy and the Netherlands) have a direct one-to-one link between increasing life expectancy and a rise in the pension eligibility age, thus freezing the average length of retirement and taking all adjustments in working life. Other countries (e.g. Portugal) seek to maintain the proportion between years spent in work and in retirement. A mechanism with effects similar to 'linking' is in place in France, where the 2003 pension reform established that the required number of years of contributions for a full, unreduced pension would be raised in line with developments in average life-expectancy. The Czech Republic has instead decided to increase the standard pensionable age by two months per year to reflect the increase in life expectancy.

The rules differ as regards the applicable life expectancy, the start date, and the standard pension age. Moreover, while all countries seek to achieve a sound balance between years in work and years in retirement they do so differently. The formulas in most of these countries (e.g. Denmark, Greece, Italy, the Netherlands and Slovakia) seek to ensure that the average number of years spent in retirement remains constant, while Portugal seeks to keep the relationship between working and retirement years stable so that LE gains are distributed with 2/3 longer working and 1/3 longer retirement lives.

Box 4. 2: Linking Statutory Pensionable Age (SPA) to remaining Life Expectancy (LE): national rules

Cyprus: Automatic adjustment of the SPA every 5 years in line with changes in life expectancy at the SPA, the mechanism to be first applied in 2018 thereby the first SPA adjustment would cover the period 2018-2023.

Denmark: SPA in 2022 is “67 years for persons born after 30 June 1955”. Then, SPA at year t ($t=2030, 2035, 2040\dots$) is computed 15 year earlier, first time in 2015 for 2030-34, and equal to (average of $LE_{60}(t-1)$ and $LE_{60}(t-2)$), plus 0.6 years, minus 14.5 years; however, the max SPA increase is 1 year every five years.

Greece: The SPA is linked to the increase in life expectancy at age 65 from the year 2021, using the decade exactly before that as a reference period.

Italy: Age requirements for early and old age pensions and old age allowances are indexed to changes in life expectancy at 65, as measured by the National Statistical Institute over the preceding three years⁹⁶.

The Netherlands: “The increase in the Standard Pensionable Age is $V = (L - 18.26) - (P - 65)$, where: L is the life expectancy at age 65 five years earlier and P is the SPA in the previous year”⁹⁷. The SPA is computed five years in advance.

Portugal: The SPA is 66 in 2014; thereafter, the SPA is raised by 2/3 of the LE-65 increase over the 2012 value.

Slovakia: As of 2017, the retirement age is going to be automatically annually increased by the year-on-year difference of 5-year moving average of the life expectancy at the SPA.

⁹⁶ http://www.bosettiegatti.eu/info/norme/statali/2010_0122.htm

The IT government has published its own life-expectancy projections and resulting SRAs in 2053. These differ from the value below by over a year. Nevertheless, as their study argues, the changes in life expectancy will have a limited impact on income and expenditure, and this is also thanks to the linking mechanism.

⁹⁷ https://nl.wikipedia.org/wiki/Algemene_Ouderdomswet

Table 4.6 lists the Member States that have linking provisions and simulates their impact on the standard pensionable age (SPA) on the basis of Eurostat’s life-expectancy projections. In all these Member States the SPA for women and men are set to become equal by 2053 and the applicable life expectancy, used for computing the SPA, is a gender average.

Table 4. 6: The SPA in 2053 computed using the various national “linking” mechanisms

MS	Applicable life expectancy	Reference year			2053			Yearly SPA change
		year	SPA	ALE	ALE	SPA increase	SPA	
DK	LE-60	2025	67	23	25.4 ⁹⁸	5	72.0	0.16
EL	LE-65	2021	65	19.9	22.9	3	68.0	0.09
IT	LE-65	2013	66	20.5	23.6	3.1	69.1	0.08
CY	LE at SPA	2018	65	20	20.6	-	68.7	0.11
NL	LE-65	2023	67	20.4	23.3	2.9	69.6	0.10
PT	LE-65	2012	66	19.6	23.1	3.5	68.3	0.06
SK	LE at SPA	2017	62	19	24.0 ⁹⁹	-	66.9 ¹⁰⁰	0.14

Source: computations based on Eurostat life expectancy projections (code proj_13nalexp) and various sources on the linking rules.

While the final SPA in 2053 shows varying SPAs, their spread is lower than in the current decade, meaning that countries with a lower SPA will increase faster than those starting from higher levels. Overall, the increase in LE around pension age is reflected in SPA increases of around one month per year.

As regards the impact of LE increase, the most telling example comes from Slovakia which currently has a low LE (19 years at age 62), but where Eurostat’s convergence-based projections point to a catching-up process that will raise Slovakia’s currently low SPA from 62 to 67.

Among the Member States that have introduced reforms with linking provisions, some have planned fixed SPA increases to cover former increases in LE, before the linking mechanism begins to take effect. The case of Denmark illustrates this. First the pensionable age is raised from 65 to 67 then it is increased in line with developments in LE.

Denmark's approach also illustrates some of the dilemmas of linking: the pensionable age must increase in line with life expectancy, but people need ample notice before the pensionable age is raised and the increase cannot be too large. Thus while Denmark plans to maintain the average number of years spent in retirement constant at 14.5 years, it intends to determine the new SPA 15 years before it is applied, thereby providing workers with a timely warning for planning their retirement. Another country, the Netherlands, computes the SPA five years ahead and has targeted an average time in retirement of just over 18 years.

In addition, the country has limited the impact of the ‘linking’ to a maximum of one-year increase per review period (every 5 years).

⁹⁸ This is the ALE in 2033-34, used to compute the SPA in 2050-54

⁹⁹ This is life expectancy at age 62

¹⁰⁰ Approximate calculation, yielding the expected +50 days every year

Like other automatic adjustment mechanisms ‘linking’ is intended to allow for smoother changes in pensionable ages, thus avoiding the risk of repetitive political battles over ad hoc pension reforms.

However, such automatic adjustment mechanisms cannot address all the behavioural challenges relating to pension reforms. While national decisions to increase the pensionable age, in line with life expectancy, can be seen to be equivalent to the establishment of the new norm that ‘as we live longer we work longer’, the passing of such legislation does not, in itself, guarantee that people will work more or longer in order to compensate for reductions in their pension entitlements.

Moreover, some may question ‘linking’, because it treats workers with different working and career paths in the same way. Some groups of workers will be much more able to work to higher pensionable ages than others. Low-skilled workers in the manufacturing sector are likely to have much larger difficulties in adapting to rising pensionable ages than high skilled workers in the services.

4.5. EU recommendations and national reforms

A significant legacy of recent pension reforms concerns the enlarged role of the EU in national pension policy, which developed in response to the financial, economic and sovereign debt crisis. This new part evolved as the European Commission’s White Paper on Pension¹⁰¹ aligned with its 2011 Annual Growth Survey¹⁰² and became part of the macro-economic, fiscal and structural reform monitoring process¹⁰³ of the European Semester¹⁰⁴ as backed by the crucial new legislation on economic policy coordination in the so-called six- and two-packs¹⁰⁵.

The extent to which the EU has influenced developments has varied from country to country, depending on the type of instruments that were activated, the policy measures proposed and the national political context.

The EU has collaborated more closely on countries such as Greece, Ireland, Latvia, Portugal, and Cyprus, who have signed a memorandum of understanding as basis for obtaining financial support. The reform programme agreed with national governments usually involved specific measures to bring public pension spending under stricter control. The freezing of indexation, increase in the pensionable age and cutbacks in pensions for public sector employees have often formed part of the fiscal consolidation measures.

Important influence has been brought to bear through the European Semester and the Country Specific Recommendations (CSRs) on pensions¹⁰⁶, which at least once have been addressed

¹⁰¹ <http://ec.europa.eu/social/BlobServlet?docId=7341&langId=en>

¹⁰² http://ec.europa.eu/europe2020/making-it-happen/annual-growth-surveys/2011/index_en.htm

¹⁰³ European Economic Governance is explained here:

[http://europa.eu/rapid/press-release MEMO-14-2180_en.htm](http://europa.eu/rapid/press-release_MEMO-14-2180_en.htm)

¹⁰⁴ http://ec.europa.eu/europe2020/making-it-happen/index_en.htm

¹⁰⁵ The six- and two-pack are briefly explained here: [http://europa.eu/rapid/press-release MEMO-13-318_da.htm](http://europa.eu/rapid/press-release_MEMO-13-318_da.htm)

¹⁰⁶ The EU approach to pensions in the European Semester is briefly set out in:

<http://ec.europa.eu/europe2020/pdf/themes/2015/pensions.pdf>

to nearly all Member States in the context of the broad coordination of economic, social policy and structural reforms. In fact only a small group of countries outside of those that signed a memorandum of understanding have not received a CSR in this area (i.e. Estonia, Hungary, Italy, Sweden and the United Kingdom).

However, the reactions of countries to the CSRs have been mixed. Some countries (e.g. Denmark, Spain, the Netherlands, Portugal, Slovakia) have closely followed the European Council's recommendations and have adopted measures to restrict access to early retirement, raise the pensionable age and link it to developments in life expectancy with the ultimate goal of promoting a higher effective retirement age.

Some other countries have been more reserved, while still complying with parts of the CSRs (e.g. Austria, Belgium, Czech Republic, France, Luxembourg, Romania and Slovenia). In Austria, for example, national policymakers have adopted measures tightening access to early retirement in line with the EU recommendations, but have not introduced measures to harmonise the pensionable age of women and men, or to link the pensionable age to life expectancy. Along the same lines, Romania followed the prescriptions in the memorandum in terms of the balance-of-payments assistance programmes, where the budgetary consolidation measures included pension cutbacks, but the reforms proposed by the EU for more effective collection of contributions, the fight against tax fraud and an equal pensionable age for women and men have so far not been adopted.

A few countries have been quite reserved and/or precluded from complying with most of the pension CSR by national political circumstances (i.e. Bulgaria, Germany, Finland, Lithuania, Malta and Poland) – at least so far.

Occasionally Member States have pre-empted CSRs by adopting some of the key reforms they may otherwise have been recommended; such as when Italy in December 2011 decided to raise and gender equalise the pensionable age and link it to life expectancy and Poland in May 2012 passed legislation to equalise the pensionable age for women and men by 2040.

Obviously, pension reforms may also require long preparations. Finland, for example, is about to adopt a pension reform very much in line with the pension CSRs issued over a number of years.

EU influence has also varied according to the topics addressed.

The lengthening of working careers was promoted as a key strategy to address both sustainability and adequacy problems. Most countries have accepted the agenda proposed by the EU, though many have still to underpin pension reforms that increase the pensionable age by comprehensive programmes to enhance opportunities for longer working lives and thus raise the effective retirement age.

The few CSRs that focussed on the development of complementary retirement savings in second and third pillar schemes, as a supplement to public pay-as-you-go schemes, have had much less success. But this may also be a product of the difficult economic conditions for the promotion of prefunded schemes.

Pension provision remains a national responsibility, yet the direct and indirect impact on national pension reforms of the EU has been considerable. Moreover, despite contention over the specifics of some recommendations, notably the linking of pensionable ages to life expectancy, Member States have largely accepted the notion of pensions as a 'common concern' and the adjacent, enhanced role of Europe in the field of adequate and sustainable pensions.

4.6. The challenge to labour markets and the risks to pension adequacy from pension reforms aiming to extend working lives

Chapter 4 has highlighted how with reforms pension entitlements increasingly mirror the contribution records established through lifetime working careers. Overall, this implies that average earnings-related pensions are becoming more geared towards income smoothing than towards social protection in old age. They will reflect employment and earnings over working life more than defined benefit standards. In most Member States the possibility of earning a decent pension benefit on the basis of a limited period of best employment and earnings years has either disappeared or is being phased out. While in several countries poverty protections have been improved including through better minimum and guarantee pensions, a good pension income will in the future largely require that the contributory period and the pensionable age for a full pension has been complied with.

After two waves of reforms, pensions are thus less oriented towards tackling problems of replacement adequacy through their internal mechanisms. The expectation is more that pension adequacy problems, and notably those related to levels of income maintenance, will be addressed by extending the working years and working hours that form the basis of contributory records. Thus to a large extent the assumption in reformed pension systems is that it is changes in employment – i.e. more women and men working more and longer - that should ensure the adequacy of future pensions. Dimensions of pension adequacy thereby become dependent on the ability of labour markets to deliver sufficient opportunities for longer and less interrupted working lives and the ability of women and men to use these to earn sufficient pension entitlements.

The emphasis in the last wave of pension reforms on changes aimed at delaying the time of pension take-up and extending work life is perfectly logical as it allows Member States to overcome or circumvent the trade-offs between fiscal sustainability and benefit adequacy. By shortening and/or preventing increases in the average time spent in retirement it allows Member States to free up resources that can be used to improve or maintain the present adequacy of pension benefits or at least limit the extent to which they will reduce. Yet, these changes also expose pension adequacy to factors and developments beyond the control of pension policy. While bringing solutions to some of the dilemmas of pension adequacy it does so by changing the risk profile of schemes to become much more dependent on labour markets.

The evolving features of pension provision also have significant implications for long-standing labour market practises. One major legacy of pension reforms since the start of the crisis is the challenge to labour markets from the rise in pensionable ages for early retirement as well as for old age pensions. With major restrictions of access to early retirement and with

the general trend towards rising pensionable ages, pension systems no longer provide help with employment problems in late-career labour markets. In the future it will be much more difficult to off-load such problems to social protection. Instead they will largely have to be tackled in work places and labour markets by the social partners with help from employment policies. The innovative “linking” reforms mean that labour markets will have to tackle the further challenge of employing women and men beyond present pensionable ages.

In sum, some of the key future risks to pension adequacy is linked to opportunities for longer and less interrupted working careers. Moreover, the expectation is that such risks primarily should and can be addressed in the arenas of employment. To the extent this turns out not to be the case, i.e. that effective exit ages fail to rise in line with restrictions in early retirement and rising pensionable ages, this would not just lead to less adequate pensions. Problems would also spill over onto other social protection schemes. Unemployment, sickness, disability or social assistance benefit schemes would be used as functional alternatives and overall savings from pension reforms would be much smaller than envisaged.

For pension reforms to fully succeed they must therefore be underpinned through changes in work places and labour markets that enable and encourage women and men to work to higher ages before they claim a pension.

5. ADEQUATE PENSIONS IN A LONG-TERM PERSPECTIVE

The main objective of this chapter is to assess how the recent pension reforms may affect pension adequacy in the future in the light of foreseeable demographic, economic and labour market developments.

Section 5.1 provides an overview of the demographic transition ahead and discusses how changes in the age structure and the socio-economic composition of populations may be expected to impact pension outcomes.

In section 5.2 prospective theoretical replacement rates are used to analyse the degree to which people entering the labour market today can expect an adequate pension upon retirement. The projections for different career scenarios reveal the degree to which the adequacy of earnings-related pensions will increasingly depend on longer and less interrupted employment careers.

Section 5.3 discusses alternative measures and additional analysis to assess risks to pension adequacy in the future, providing projections of the level of future pension entitlements and microsimulation approaches to old-age poverty projections, and addressing the concept of pension wealth.

In section 5.4, the prospective TRR calculations are compared with the pension adequacy and fiscal sustainability projections from the 2015 Ageing Report. Following a review of the labour market projections that underlie the Ageing Report results, the factors that help contain expenditure in the future are assessed against recent pension reform trends.

Sections 5.5 and 5.6 conclude with a review of the major risks to future pension adequacy and the various ways in which these risks can be addressed and their effects mitigated. Particular attention is given to ways in which Member States can pursue labour market changes that can provide late-career employment opportunities to match the rise in pensionable ages.

5.1. Impact of population changes on pension adequacy

This section considers the demographic developments that will impact pension adequacy in the next 40 years, with a focus on areas that can be addressed with policies aimed at delivering adequate pensions. Ageing is the main driver of pension reforms as Member States prepare to face an increasing number of retirees and the risk of further strains on public budgets. The same changes that drive up dependency also alter the age composition of the active and the retired population, and influence factors such as the character of labour supply, average productivity, the relative health status of the retired, as well as the degree of inequality and poverty among the retired.

The crucial factor for pension adequacy will be the economic dependency ratios that the EU is able to achieve. Though demographic factors - notably the relative size of the working age population, and its age composition - will condition and constrain possibilities, the extent to which European societies are able to productively employ their populations will ultimately determine the outcome. This section examines how demographic changes have evolved over the past 40 years across Member States. Though not all impacts can be quantified, and the analysis below is not a complete assessment of the impact of demographic changes on

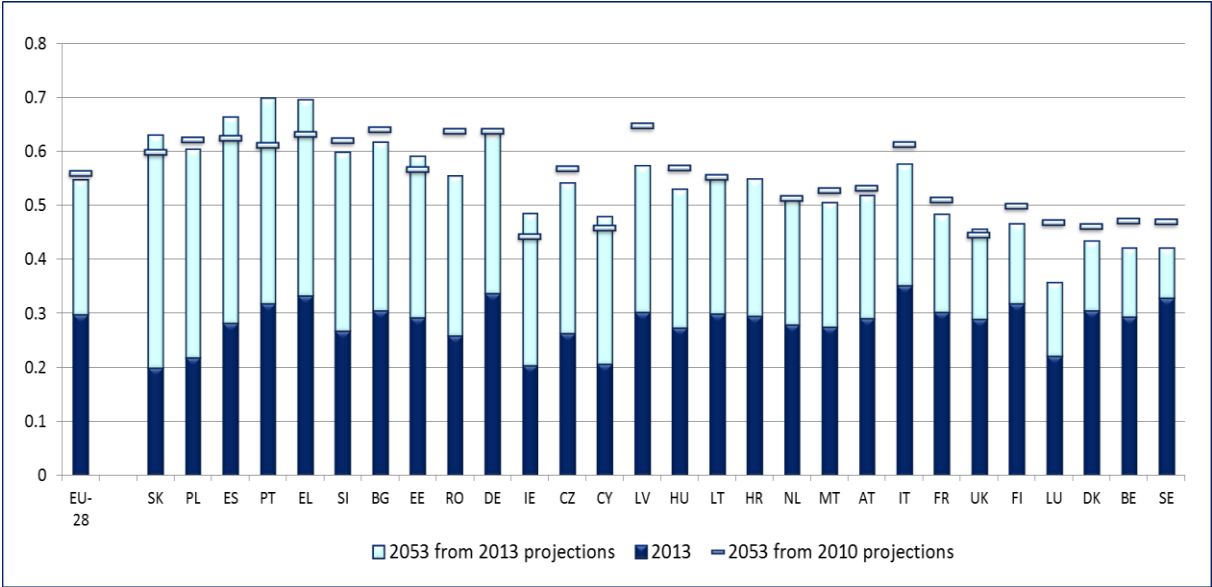
pension adequacy, it is possible to discuss the impact of some of the main projected population changes, and to indicate how other projected changes are likely to play a role.

The EU population continues to age. Eurostat’s population projections are carried out once every three years and are part of the Ageing Report (AR) assumptions.¹⁰⁷ The standard scenario assumes, i.a., a broad convergence between Member States in terms of fertility, life expectancy and migration, based on observed trends. Across the EU as a whole, the basic demographic outlook has not changed over the past three years: more people of pensionable age will have to be provided for by smaller cohorts of working age. However, in a few individual Member States the outlook has changed perceptibly, with smaller cohorts of young adults as a result of outmigration.

According to Eurostat's projections, the population in the EU will increase moderately over the next 30-40 years, and slightly decrease thereafter until 2080. At the same time, its composition in terms of age, family structures and the share of migrants will undergo substantial changes.

Changes in dependency ratios. Population projections indicate a major rise in dependency ratios. While the old-age dependency ratios under the 2013 population scenarios (Figure 5.1) are similar to those projected in 2010, large increases are foreseen over the next 40 years, especially among the EU-11¹⁰⁸ Member States of Central and Eastern Europe (the CEEs).

Figure 5. 1: Old-age dependency ratios (65+ / 20-64) in 2013 and 2053



Source: Eurostat, code proj_13npms. Note: Member States sorted by increase in dependency 2013-2053

At the same time, some significant differences are observed between countries. The population data revisions caused by the 2011 censuses have revealed significant reductions in some populations (e.g. in Germany, Italy, Latvia and Romania) and increases in others (e.g., the United Kingdom). Moreover, the period since 2009 has been marked by a continuing

¹⁰⁷ In 2013 Eurostat did not just publish a single scenario; rather, they studied alternatives that allowed for lower fertility (which makes little difference to the size of the older population in 2053) and higher life expectancy (this would add about one year to life expectancy at age 65 in 2053, and impact considerably on demographic dependency ratios).

¹⁰⁸ This is the EU-13, i.e. the countries that joined the union since 2004, minus Cyprus and Malta.

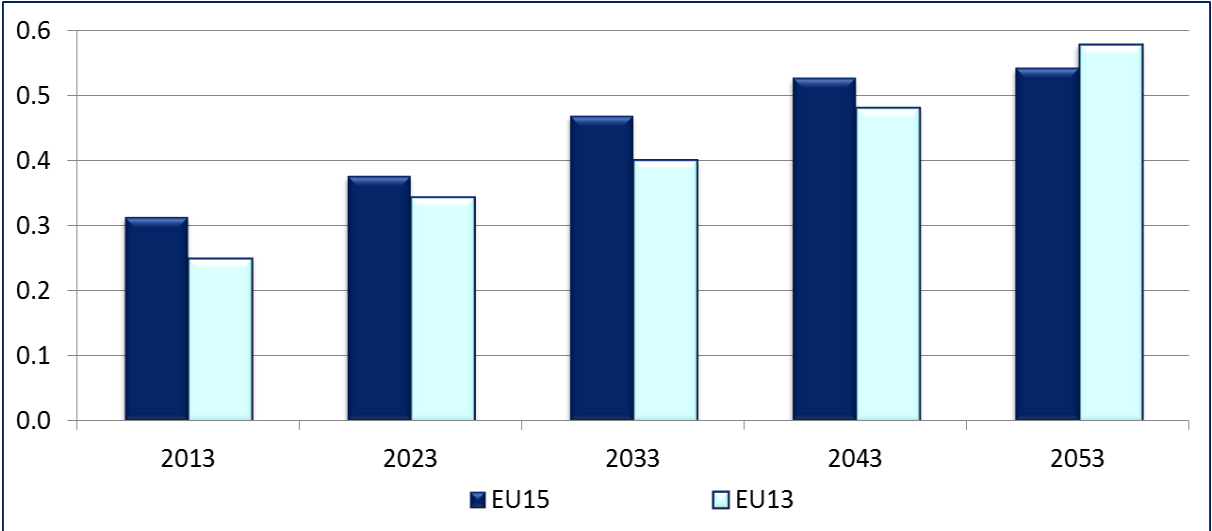
economic crisis in the EU as well as civil wars and political turmoil in North Africa and the Middle-East, both of which have impacted on migratory flows.

In the majority of Member States, the 2013 projections point towards somewhat lower demographic dependency ratios in 2053 than the 2010 population scenarios had suggested. While some large reductions have occurred, for instance in Latvia and Romania, the censuses have generally counted smaller populations than previously.

On one hand this implies that the younger adults, who are no longer in those countries, are not projected to be among their populations aged 65+ in 2053. On the other hand, even after this correction is made, these countries will still see dependency rising substantially over the next forty years and, needless to say, the exodus of prime-age workers and young parents will restrict the ability of these countries to prepare for future ageing.

Generally speaking, populations in the pre-2004 Member States (EU-15) are projected to age in a very different way from those in the new Member States (EU-13). While dependency increases in both, EU-13 countries will age later but more deeply as shown in Figure 5.2. The EU-15 Member States are already relatively aged and will see a steep increase in their old-age dependency ratios over the next couple of decades. Thereafter demographic dependency ratios will stabilise in these countries, as their baby-boomers will have retired and the oldest begun to reach the end of life.

Figure 5. 2: Old-age dependency along the next 40 years, EU-15 and EU-13

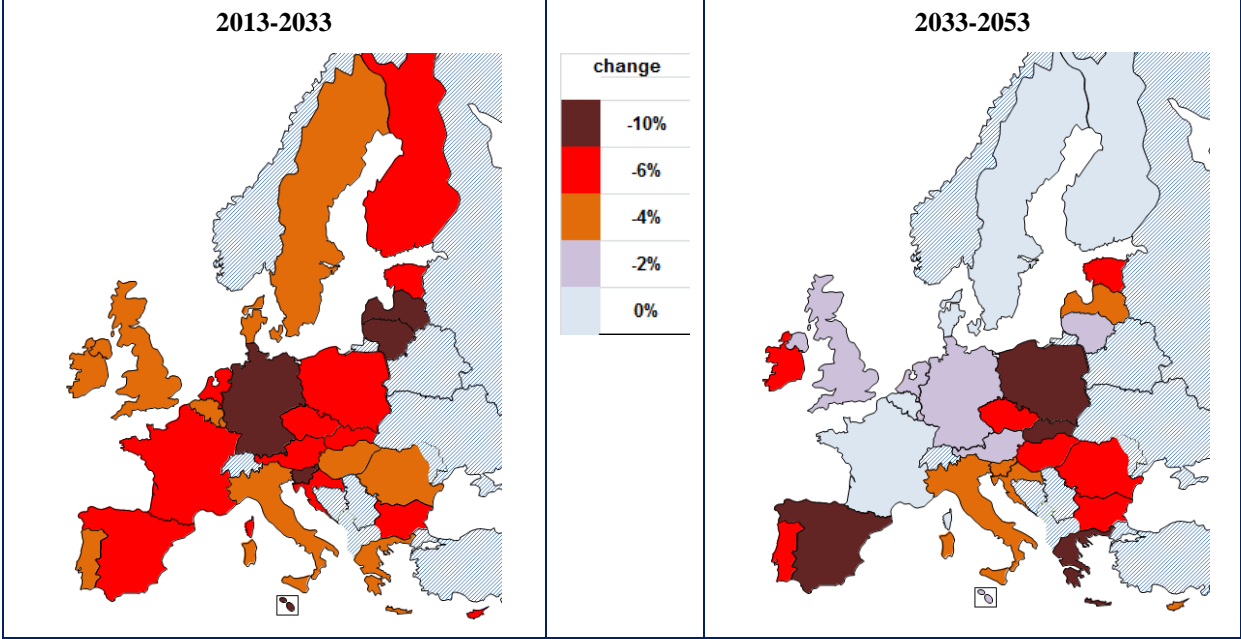


Source: Eurostat, code proj_13npms

EU-13 Member States currently have lower demographic dependency ratios and these will increase more slowly. However increases will continue for longer and, by 2053, their dependency will be even higher than that in EU-15. By 2053 Poland and Slovakia - closely followed by other EU-13 countries - are projected to become the ‘oldest’ countries in the current EU. While there are differences also within these two groups (e.g., Ireland stands out in the EU-15 as a young country remaining young throughout these decades), this clustering of countries is a useful rule-of-thumb. While the window of opportunity has begun to close in most of the EU-15 countries, the EU-13 will have more time to adjust, but will still need to prepare for higher demographic dependency.

A declining and ageing working-age population. The impact of ageing and overall population loss will lead to a shrinking of the working-age population (measured as the number of people aged between 20 and 64). All Member States will see this population segment decrease in the next 40 years, but with wide variations. In the CEE Member States the dependency increase will to a larger extent result from smaller younger cohorts, due to low fertility and emigration (Figure 5.3).

Figure 5. 3: Change in working-age population (as % of the total population), 2013-2053



Source: Eurostat, code proj_13npms

Since around 2008 the ‘baby boomer’ population groups have started to retire in substantial numbers. From 2012, the working-age population in the EU-28 has started to shrink and between 2013 and 2053 it is projected to fall by 12 per cent, from 308 million to 271 million, with the median population age set to rise from 42.2 to 46.2. Increased labour participation and growing productivity will become key factors in efforts to maintain rates of economic growth that support the high standards of social protection that most of Europe enjoys.

A major way for EU Member States to counteract the economic impacts of the decline in the population aged 20-64 would be to extend the definition of working age at the upper end (e.g. from 20-64 to 20-70). Reforms that raise the pensionable age and underpin this with changes enabling people to be employed to higher ages could be instrumental in bringing such an extension about.

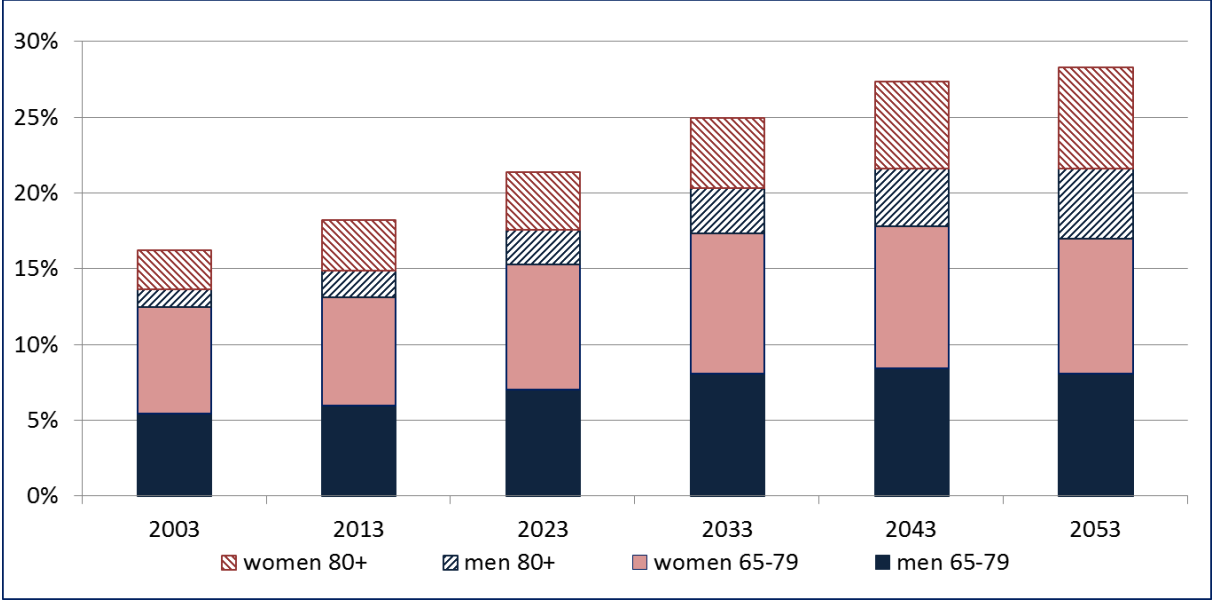
Even the older population will be ageing. The coming decades will be characterised by a general increase in the number and share of people aged 65 and above. In the first two decades or so, the baby boomers will be largely in the early stages of old age. In the following decades, those who survive will be over 80. Among those aged 65 and above, the proportion of relatively younger people, i.e. those under 80, will be growing until about 2030, and then largely stabilising, while also reaching more of a gender balance.

Meanwhile the oldest of the old, i.e. those aged 80 and above, will increase more substantially (Figure 5.4). The greatest relative increase will be among older men, but in numbers (and hence as a share of the total population) women aged 80 and above will be the strongest

growing group. This signals that, to a greater extent than at present, reducing poverty among older people in the future will require a focus on people over 80 and on women in particular.

Women over 80 are already more often at risk of poverty and living on minimum income provisions, notably when living alone. At the same time, policies to address the potential needs of this group need to note that, by 2053, women aged 80 and above will, on average, be better educated, in better health and with a longer working career behind them, than is the case today.

Figure 5. 4: Share of the older and oldest-old (80+) in the EU-28 population, 2013-2053



Source: Eurostat (codes: demo_pjan and proj_13npms)

Rising life expectancy. In the Eurostat projections, life expectancy (LE) at age 65 is assumed¹⁰⁹ to increase by a little over half a month each year on average, but rising more in Member States with currently lower LE values (Figure 5.5). In the 40 years between 2013 and 2053, LE at birth is projected to increase by significantly different amounts, from as little as 4.2 among Spanish women to as much as 10.7 among Lithuanian men.

This prediction is derived from the assumption of convergence, meaning that, while LE increases overall, the LE of groups with lower values will increase faster. A similar pattern is seen to apply to LE at 65, an age taken as representative of retiring people¹¹⁰. Projected increases in life expectancy at 65 in the next 40 years range from 3.3 years among Spanish women to 5.7 years among Latvian men.

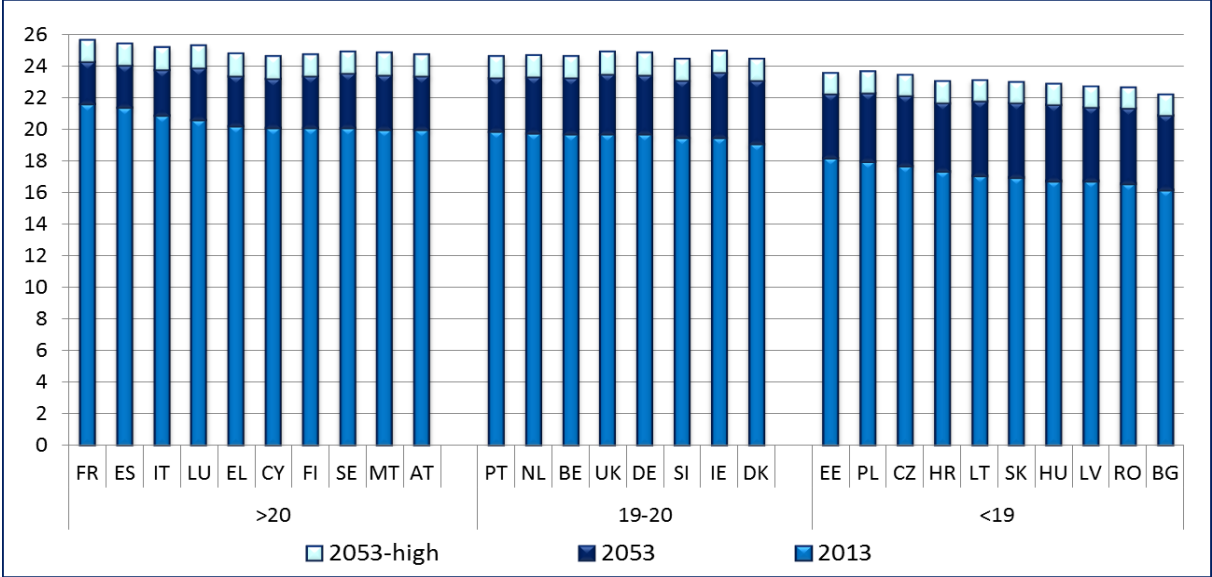
While these Eurostat projections of life expectancy form the basis for our analysis, it should be noted that there is some uncertainty about such forecasts. Some demographers point to the extremely regular increase observed since the mid-1800s, by 2-3 months every year in LE at birth, which could equal almost two years per decade. The associated historical trend in life expectancy at age 65 would then be a little more than half of that, i.e. 1.5-2 months. In this

¹⁰⁹ The population projections rest on assumptions concerning fertility, life expectancy and migrations; these are themselves partly projections from past trends, partly the result of assumptions; the higher rise in low LE countries is also due to an assumption of “convergence” to common levels among EU countries.

¹¹⁰ Currently people retire on average just after age 60, and this age has been increasing by about one year in the past decade.

respect Eurostat’s “high-LE variant” (see Figure 5.5) goes some ways towards reflecting this trend as it adds about one year of extra LE at age 65 to the increase projected by 2053. Alternatively, other specialists are sceptical that LE will continue to increase in line with historical trends and point to a foreseeable tapering off due to biological caps on the length of human life.

Figure 5. 5: Life expectancy at age 65 in 2013 and 2053



Source, Eurostat, codes demo_mlexpec, proj_13nalexp and proj_13nalexp_hlv. Note: ranked and grouped by 2013 value.

Only in the last 15 years have pension schemes begun to adjust to the consequences of structural longevity growth. The introduction of a remaining-life-expectancy-coefficient in benefits calculations has since been followed by mechanisms that link the pensionable age to developments in life expectancy. If pension benefits are to remain adequate, the length of the retirement period cannot simply be extended as average life expectancy at pension age continues to grow. An appropriate balance between years in work and years in retirement needs to be established and maintained.

Gender convergence in life expectancy. One consequence of the assumed convergence in LE between women and men, coupled with the convergence in their standard pensionable ages, is that the expected time in retirement would be converging. While there are currently many more older women than men among retirees, especially at higher ages, projections suggest that, in the future, the gender balance among pensioners will be less skewed towards women.

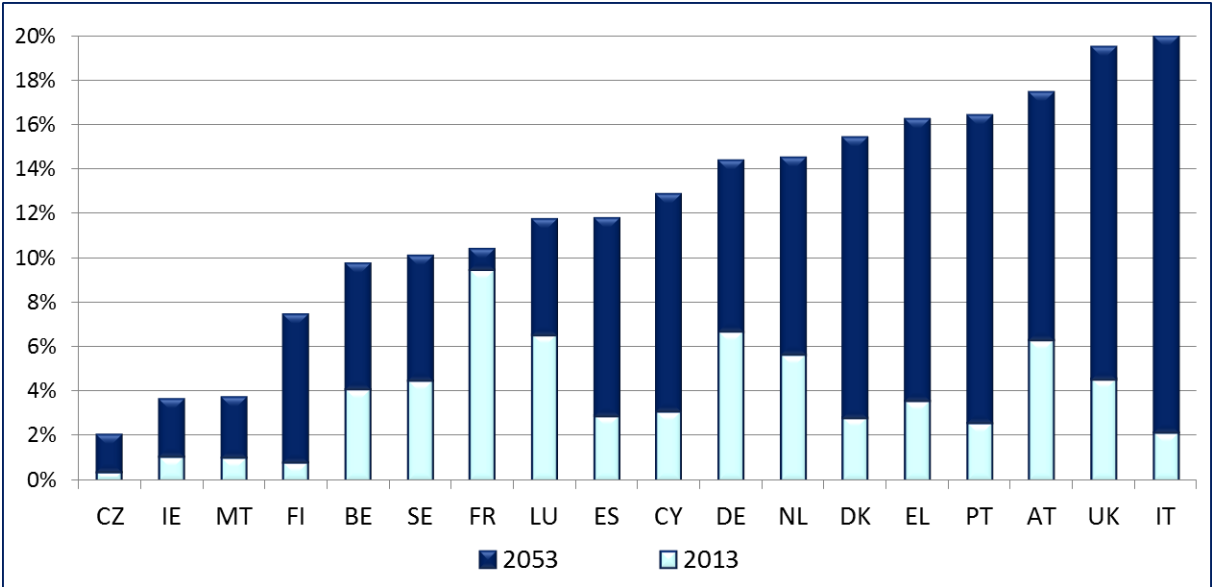
In 2012 there were almost 27 million recipients of survivor pensions in the EU-28 - a little less than a quarter of all pensioners - the overwhelming bulk of whom were women. As a consequence survivor benefits in Europe are characterised by their high number and unbalanced sex ratio. This pattern has both demographic and socio-economic roots. As regards demography, two factors drive the level and gender-imbalance of survivor beneficiaries, namely the higher life expectancy of women and their lower ages within their marriage or partnership. These factors are expected to continue to play a role in the future, but gender differences in life expectancy, around 5-6 years at birth, are showing the first signs of

decreasing. On the other hand, age differences within couples, which average 2-3 years, are showing few signs of diminishing.¹¹¹

The asymmetrical sex distribution of survivor benefits also has, of course, social roots linked to the traditional ‘male-bread-winner’ model Experienced by many current survivor beneficiaries. In the past five decades, however, marriages have been decreasing from about 5 to about 3 per thousand residents per year, with divorces doubling from about 1 to about 2 per thousand residents per year.¹¹² Fewer married couples and the emergence of recomposed couples will reduce the effectiveness of survivor benefits, which, currently, mitigates poverty risks for older women. On the other hand, the increase in employment rates among women will, in the future, allow them to rely much more on their own pension entitlements.

Migration from non-EU countries on the rise. Migrants from non-EU countries constitute a growing share of the EU population and many of the non-EU migrants retiring around 2053 will be moving to the EU in the next decades. Figure 5.6 presents estimates of the share of non-EU-born residents in the population aged 65+ in 2013 and 2053. The Member States that are not shown below have a very small non-EU-born resident population and thus are not affected.¹¹³

Figure 5. 6: Proportion of people born outside the EU28 among those aged 65+ in 2013 and 2053



Source: Calculations from Lanzieri¹¹⁴, based on the 2010 Eurostat Population projections. Sorted by 2053 values.

¹¹¹ Estimates are on the basis of the Labour Force Survey household data and refer to “person living in a couple relationship, not necessarily married”.

¹¹² See <http://ec.europa.eu/social/BlobServlet?docId=9967&langId=en>

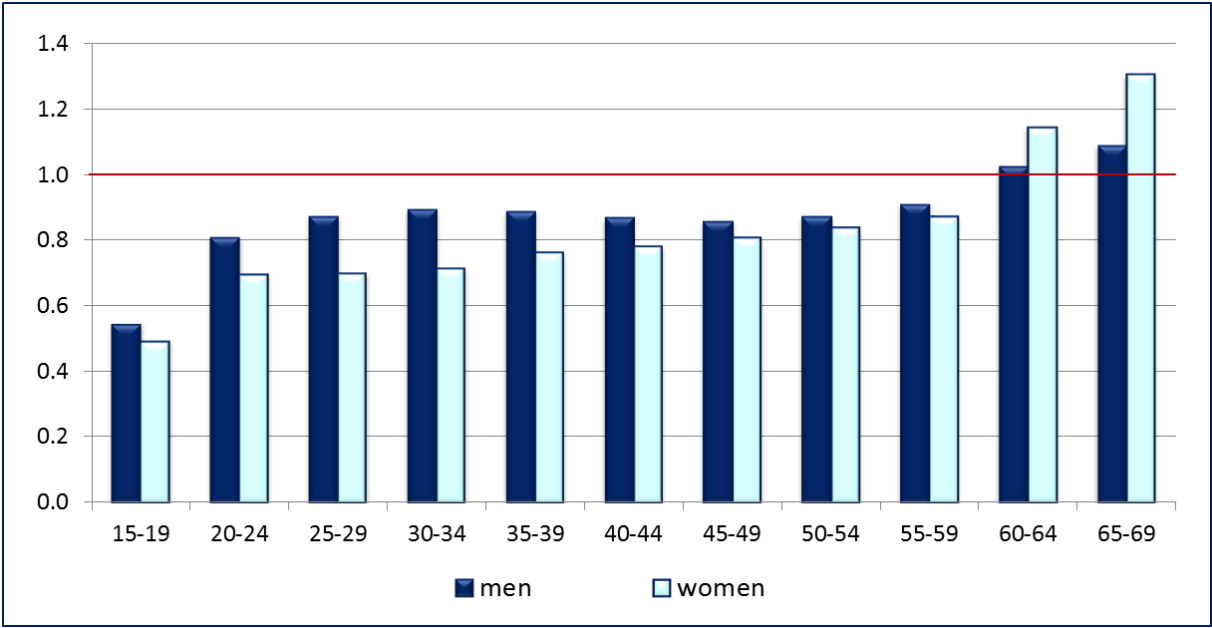
¹¹³ Croatia was not included in the 2010 projections. In some EU-12 countries, for instance the Baltic States, a currently large mixed population, a legacy of long decades of population and border changes, is projected to become less mixed.

¹¹⁴ The calculations apply to the non-EU-born in 2013 the same rate of change (increase) to 2053 that Lanzieri’s article computes for all foreign-born; both apply to the population aged 65. The immigrants who will be 65 in 2053 are already in the EU or will migrate in the next few years. As changes in migration occur slowly, the projections on the number of non-EU migrants are fairly reliable. See http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/publication?p_product_code=KS-RA-11-019 ; the data in 6 is based on his partial results, obtained contacting the author.

This projection shows that what is nowadays of marginal concern, except in France, will, by 2053, have become a major area of weaker pension adequacy liable to heighten old-age poverty risks in over half of the Member States. This increase in the share of non-EU-born residents among the older population is likely to result in a large gap in pension income with the majority having completed most of the contributory requirements, while non-EU migrants will face a heavy handicap as a result of the fact that they tend to be older than the domestic population when they enter work in the EU and older still before they gain pension coverage. This later start in coverage is their main handicap when accruing pension rights.

Figure 5.7 demonstrates the lower employment rates of migrants born outside the EU compared to locals, which is particularly pronounced at prime working ages. The fact that non-EU migrants are more active than locals at late ages cannot compensate for the late start and lower employment rates; rather, it signals that many cannot afford to retire and need to continue working. This appears to apply even more strongly to non-EU migrant women than men. First-generation non-EU migrants are only one part of the population change. The number of second-generation non-EU migrants is growing even faster and they also tend to have lower employment rates than those with a non-migrant background.¹¹⁵

Figure 5. 7: Ratio between employment rates, people born outside the EU-28 versus total EU-28, 2013



Source, Eurostat, code *lfsa_ergacob*. A value below 1.0 indicates a lower employment rate among people born outside the EU as compared to the EU-28 average.

The risk that non-EU migrants fail to accrue rights to an adequate pension is therefore substantially higher than for the endogenous population. Ensuring that older non-EU migrants do not end up in old-age poverty hinges on providing early opportunities for integration into labour markets and social protection. Yet, in earnings-related schemes they will be at a disadvantage as many of them have a lower education levels¹¹⁶ and tend to end up in low-pay,

¹¹⁵ However, it must also be underlined that the data in Figure 5.8 are collected in the wake of a crisis that has affected the employment of migrants rather negatively. Should the economy rebound migrants' employment rates may rise again to pre-2008 levels and be closer to those of the indigenous population.

¹¹⁶ Migrants into the EU tend to have either high- or low-education levels, with few people at intermediate level in comparison with the EU-born population.

low-level jobs. Generally the rise in non-EU migration is likely to increase pressure to provide basic and minimum pensions and minimum income provision for older people.

5.2. Prospective theoretical replacement rates

In this section, the future evolution of pension entitlements is assessed in terms of various career scenarios, with prospective theoretical replacement rates calculated for people who started work in 2013 at age 25 and who would retire in the future under today's pension legislation (as enacted by 2013). These calculations take account of projected future economic and demographic developments as well as changes that result from recent reforms of pension systems, including transitional rules to be implemented gradually. In other words the calculations of prospective TRRs typically reflect reformed pension systems in full maturity.

These projections are important at a general policy-making level, but they are also relevant for individual retirement planning. Pension adequacy in the future is thereby assessed through the TRR levels projected for 2053; by comparing the projections to the 2013 results; and by altering the baseline assumptions of an uninterrupted career to assess how future pension levels are affected by changes in career length and any forced early retirement. All these TRR results are summarised in Tables A5-1 to A5-9 in Annex 6.

5.2.1. Theoretical replacement rates in 2053

Prospective theoretical replacement rates are calculated for the same four 'core' cases that were used for the 2013 calculations presented in section 3.1. All cases are based on an uninterrupted career, but differ in terms of the underlying career length assumptions and retirement ages.

1. 'Base case I' assumes a 40-year career from age 25 in 2013 up to age 65 in 2053.
2. 'Base case II' assumes a 40-year career up to the standard pensionable age (SPA) in 2053.
3. The 'increase in SPA' case reflects the idea that increases in life expectancy will also translate into longer working lives by assuming a career from age 25 in 2013 to the national-specific SPA.
4. The 'AWG case' is based on country-specific labour market entry and exit age projections.

Table 5.1 presents the prospective *net* TRRs for someone with average earnings for base case I, base case II, and the 'increase in SPA' case. To facilitate interpretation, the assumed SPAs in 2053 are reported for all Member States. Where it is relevant (where different legislated pension rules affect pension outcomes in 2053), separate figures are reported for men and women. However, since the great majority of Member States have enacted unisex pension legislation for the future, the same career will only result in different pension outcomes for men and women in 2053 in four Member States (Bulgaria, Estonia, Romania and Slovenia).

As a general rule, different results under the different TRR cases reflect the underlying assumption concerning the length of career. By definition, the projected replacement rates are identical under all three cases for those 11 Member States with a future SPA of 65 years. In the nine Member States in which the future SPA is legislated to be *above* age 65, (early) retirement at age 65 after a 40-year career will result in relatively lower replacement rates in the future. In Ireland, the Netherlands and the United Kingdom, this drop in pension levels for

retirement at age 65 is particularly large, driven by the fact that the state/public pension cannot be drawn at that age in 2053. Accordingly, working from age 25 until the SPA, is synonymous with a longer career in these countries and results in comparably higher replacement rates.

Table 5. 1: Prospective TRRs for the different core cases (net, average earnings) and underlying standard pensionable ages (SPA)

Member State	Net prospective Theoretical Replacement Rates at average earnings						SPA in 2053	
	Base Case I		Base Case II		Increase in SPA			
	age 25 to 65		40 years to SPA		age 25 to SPA		men	women*
	men	women*	men	women*	men	women*		
BE	74.7		74.7		74.7		65.0***	
BG	83.3	90.8	83.3	78.7	83.3	75.7	65.0	63.0
CZ	50.9		58.1		61.4		68.3	
DK	n.a.		73.3		81.7		72.0	
DE	67.6		67.3		74.4		67.0	
EE	55.9		55.9		55.9		65.0	
IE	38.4		68.7		71.4		68.0	
EL	47.0		43.0		47.0		62.0	
ES	86.8		86.8		86.8		65.0	
HR	40.2		41.7		43.5		67.0	
FR	59.8		66.0		69.0		67.0	
IT	70.2		82.3		89.3		70.3	
CY	n.a.		70.0		75.0		68.5	
LV	51.2		51.2		51.2		65.0	
LT	71.3		71.3		71.3		65.0	
LU	95.3		91.1		83.7		60.0**	
HU	81.9		81.9		81.9		65.0	
MT	73.8		73.8		73.8		65.0	
NL	47.6		90.6		92.5		67.0	
AT	86.1		86.1		86.1		65.0	
PL	37.7		40.7		43.4		67.0	
PT	66.5		79.5		84.2		68.4	
RO	41.1	43.9	41.1	40.1	41.1	39.1	65.0	63.0
SI	60.9	63.6	60.9	63.6	60.9	63.6	60.0	
SK	59.5		66.1		69.6		66.0	
FI	59.1		59.1		59.1		65.0	
SE	55.3		55.3		55.3		65.0	
UK	35.9		76.1		80.4		68.0	

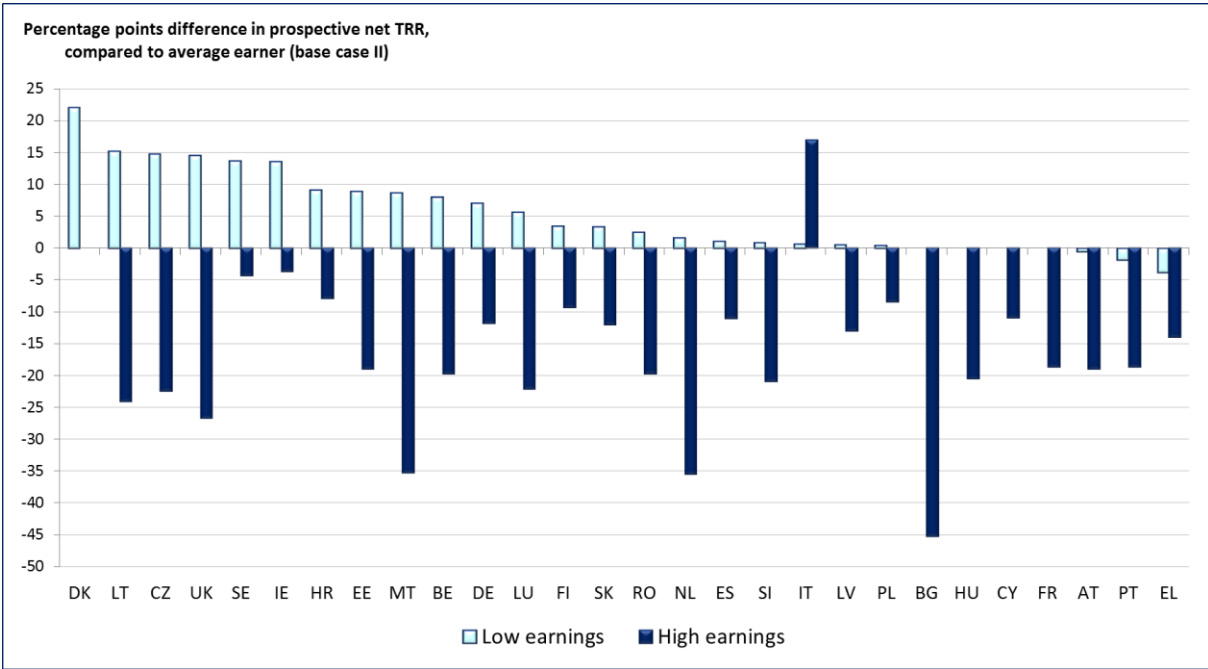
*Data source: Member States & OECD. * if gender differences exist. n.a.: pension cannot be drawn at age 65. In IE, NL and UK, the public/state pension cannot be drawn at age 65. ** LU: SPA of 57.0 assumed for base case I. *** BE: as of end 2014, reforms adopted thereafter are not reflected.*

Differences across Member States can be substantial. A 40-year career at average earnings until the country-specific SPA results in TRRs ranging from 40 to 91 per cent in 2053. This spread across countries is even more pronounced for a career from age 25 to the SPA. However, it is important to keep in mind that these projections are not directly comparable across countries. To the extent that labour market and retirement patterns differ across Member States, TRRs are not evenly representative across Member States.

The results further need to be interpreted against the pension schemes included for each Member State (see Table 1 in Annex 3). Second and third pillar schemes, for instance, are only included if they are deemed mandatory, typical, or have a wide reaching coverage.

Results for different earning profiles. The projected net theoretical replacement rates also vary across different earning profiles depending on the set-up of pension schemes and the redistributive character of the tax-benefit system. Figure 5.8 compares the prospective net TRRs for average wage earners (as shown in Table 5.1) to those projected for low and high wage earners. In the majority of Member States wage earners with an income of two-thirds the average wage can expect a somewhat higher net replacement rate than average wage earners. However this difference is smaller than five percentage points in 16 cases and even negative in Austria, Portugal and Greece. Given the low absolute income of low wage earners, they could face the risk of poverty in old-age in the future even if they have worked a full career.

Figure 5. 8: Percentage point difference between net Theoretical Replacement Rates for low and high wage earners as compared to average earners, 2053, base case II



Data source: Member States and the OECD. Note: A positive difference indicates a higher net TRR. Sorted by the difference between the net TRRs for low and average wage earners, respectively. If gender differences exist, results for men are reported in this figure.

TRR projections also reveal substantially lower net replacement rates for high-income earners relative to average earners, although these differences are comparable in size to the differences observed for current pensioners (see Figure 3.5). The sole exception in this respect is Italy, where the projected TRR for high income earners is higher than it is for both average and low-income earners. This is explained by the full uptake of the NDC system, the high standard pensionable age assumed for 2053, and the fact that taxes on income from work are higher than they are on pensions.

Differences between gross and net replacement rates. Results so far were presented in net terms, and reflect the combined outcome of the pension system and the tax-benefit rules. For comparison, and to assess the entitlements provided by the pension system itself, the prospective TRR results are presented in gross terms in Table 5.2. This shows that the

expected net TRRs are higher than gross TRRs in almost all Member States, indicating that the tax-benefit system for pension recipients is more favourable than it is for wage earners.

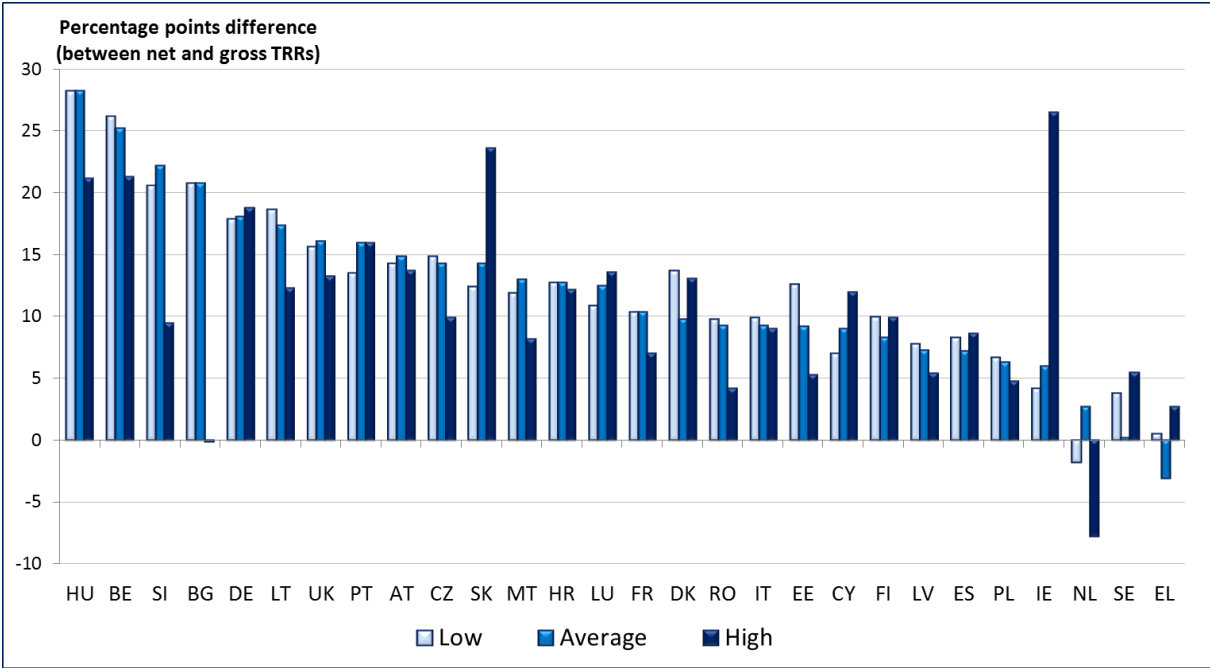
Table 5. 2: Prospective TRRs for the different core cases (gross, average earnings) and underlying standard pensionable ages (SPA)

Member State	Gross prospective Theoretical Replacement Rates at average earnings						SPA in 2053	
	Base Case I		Base Case II		Increase in SPA			
	age 25 to 65		40 years to SPA		age 25 to SPA		Men	women*
	men	women*	men	women*	men	women*		
BE	49.5		49.5		49.5		65.0***	
BG	62.5	68.1	62.5	65.0	62.5	56.7	65.0	63.0
CZ	38.3		43.8		46.3		68.3	
DK	n.a.		63.5		71.4		72.0	
DE	49.5		49.2		56.1		67.0	
EE	46.7		46.7		46.7		65.0	
IE	29.9		62.7		65.8		68.0	
EL	47.2		46.1		47.2		62.0	
ES	79.5		79.5		79.5		65.0	
HR	27.9		29.0		30.2		67.0	
FR	50.4		55.6		58.1		67.0	
IT	60.7		73.0		80.1		70.3	
CY	n.a.		61.0		66.0		68.5	
LV	43.9		43.9		43.9		65.0	
LT	53.9		53.9		53.9		65.0	
LU	83.6		78.6		70.3		60.0**	
HU	53.7		53.7		53.7		65.0	
MT	60.8		60.8		60.8		65.0	
NL	42.8		87.9		90.0		67.0	
AT	71.2		71.2		71.2		65.0	
PL	31.8		34.4		36.8		67.0	
PT	52.1		63.5		67.6		68.4	
RO	31.8	34.0	31.8	31.0	31.8	30.2	65.0	63.0
SI	38.7	40.7	38.7	40.7	38.7	40.7	60.0	
SK	46.7		51.8		54.6		66.0	
FI	50.8		50.8		50.8		65.0	
SE	55.1		55.1		55.1		65.0	
UK	26.8		60.0		63.8		68.0	

*Data source: Member States & OECD. Notes: * if gender differences exist. n.a.: pension cannot be drawn at age 65; ** LU: SPA of 57.0 assumed for base case I. *** BE: as of end 2014, reforms adopted thereafter are not reflected.*

Figure 5.9 illustrates the difference between net and gross TRRs for different earning profiles, showing that net replacement rates are higher for low and average wage earners, whereas the difference between gross and net is smaller for high wage earners in 18 Member States. Still, there are a number of Member States, where the (positive) difference between net and gross replacement rates is highest for high wage earners (Cyprus, Ireland, Spain, Luxemburg, Slovakia, Sweden and Greece). Overall, the patterns in the projected relationship between net and gross TRRs are similar to those observed for current TRRs (see Figure 3.6) which suggests that the tax treatment of income from work and pensions, and the effects of tax systems on pension adequacy, are not set to change much in the future.

Figure 5. 9: Percentage point difference between net and gross Theoretical Replacement Rates for different earning profiles, 2053, base case II



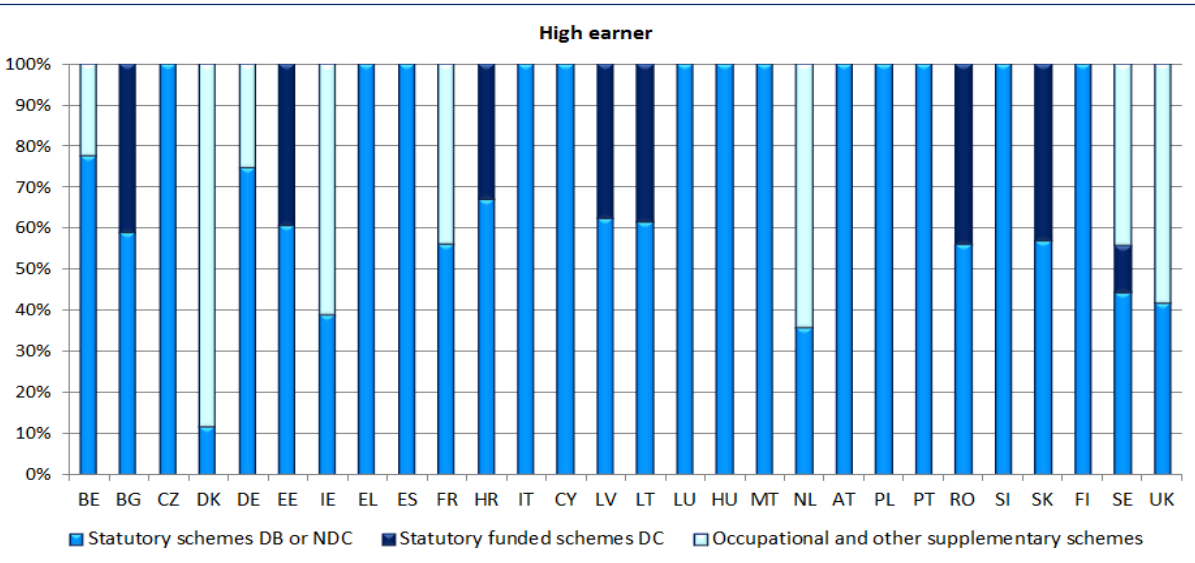
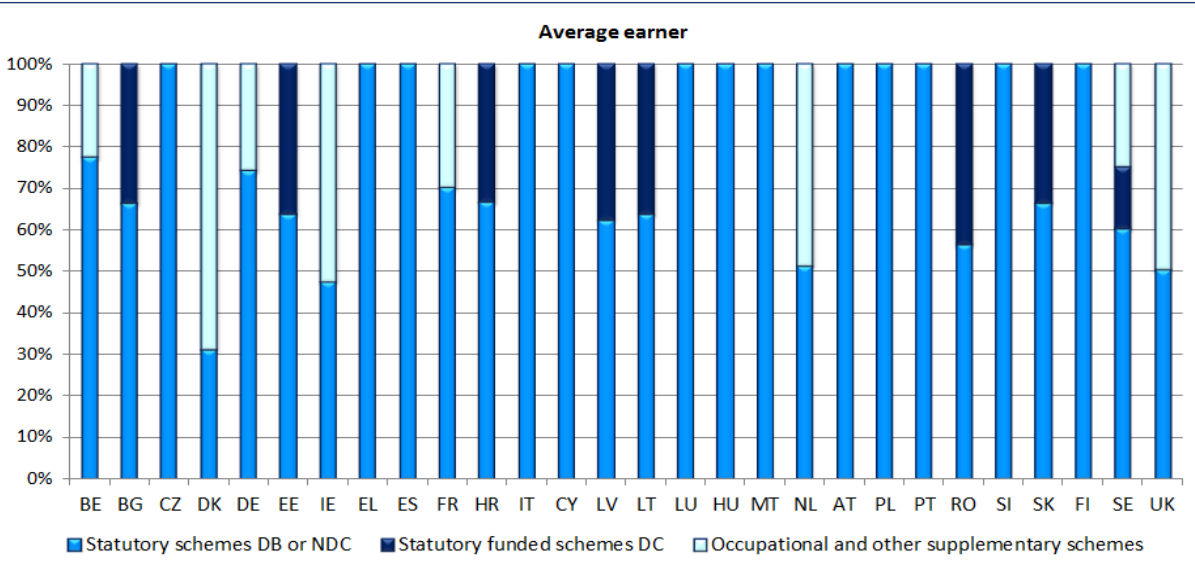
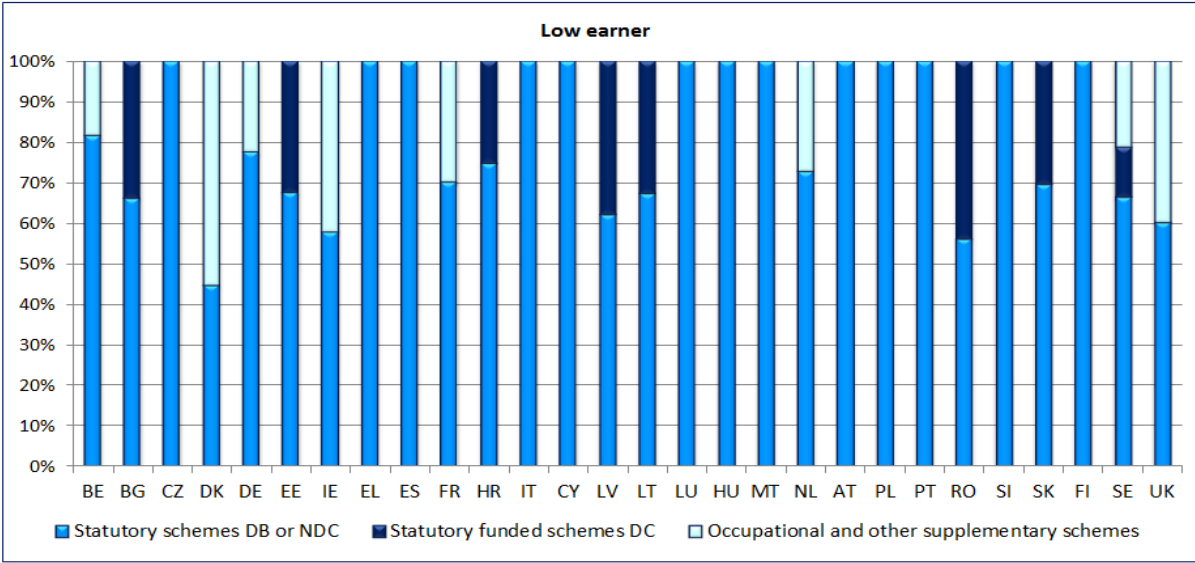
Data source: Member States and the OECD. Notes: A positive difference indicates a higher net TRR. Sorted by the average wage profile. If gender differences exist, results for men are reported in this figure. Hungarian results are explained by the fact that pensions are free from taxes or contributions, unlike regular earnings.

The role of private pensions in future pension adequacy. In the presentation so far the total TRR projections have not indicated the different sources of pension income. In order to better understand the different components of the prospective replacement rates, Figure 5.10 shows the relative importance of the different types of pension schemes in terms of gross pension entitlements from (i) statutory DB or NDC schemes, (ii) statutory funded DC schemes; and (iii) occupational and other supplementary schemes for the different earning profiles.

According to the TRR projections, high-income earners can expect to receive a relatively high proportion of their pension income from occupational and other supplementary pensions in 2053. This will account for more than 20 percent of the gross TRR in eight Member States. In contrast, the pension of low-income earners will largely be provided by pay-as-you-go statutory DB or NDC schemes. This projection outcome may also be partly explained by the redistributive character of the first pillar in many Member States, and by the comparably lower replacement rates of high wage earners under these schemes. Thus, even with the proportional building of entitlements under the second pillar, the relative importance of second pillar schemes will tend to be larger for workers with high earnings.

In a number of Member States, however, a relatively high proportion of pension income will be expected to come from mandatory funded DC schemes also for low-income earners. When comparing the prospective composition of pension entitlements to the composition of current (2013) TRRs (Figure 3.7), the increasing importance of mandatory funded schemes as well as occupational pensions is confirmed. However, this will also be caused by a substantially higher degree of maturity of the second pillar provision in 2053 as compared to 2013, and not just by the more extensive coverage of funded systems envisaged in the future.

Figure 5. 10: Shares of different pension schemes in gross TRRs for low, average and high-income earner, 2053 (ref. base case II)



Data source: Member States and the OECD. If gender differences exist, results for men are reported in this figure.

Country-specific career length assumptions ('AWG case'). The discussion of the TRR projections for 2053 concludes with the prospective AWG case, which is based on the career length assumptions of the EPC-AWG for the 2015 Ageing Report. Table 5.3 presents the TRR results for men and women in net and gross terms. The table also includes the projected average labour market exit age for 2053, and the resulting change in the assumed career length between the current and the prospective AWG case for men and women separately.

Table 5. 3: Prospective TRRs under the AWG case (net, average earnings); underlying career length assumptions 2053), and change in assumed career length between 2013 and 2053

MS	Prospective TRRs AWG case (1) at average earnings				AWG career length assumptions (2)					
	Net		Gross		Exit age 2053-		Career length 2053-		Change 2013-2053-	
	men	women	men	women	men	women	men	women	men	women
BE	n.a.	n.a.	n.a.	n.a.	62.1	62.4	39.3	38.7	0.2	0.3
BG	85.7	75.7	64.3	56.7	64.8	62.5	42.0	37.4	1.0	0.5
CZ	57.9	57.9	43.7	43.7	65.8	65.8	43.6	40.3	2.7	5.1
DK	77.3	74.6	67.3	64.6	67.7	67.1	45.1	44.0	2.1	3.8
DE	76.6	71.8	58.2	53.4	65.7	65.3	44.7	43.1	0.6	1.0
EE	59.7	57.8	50.5	48.6	65.4	65.0	44.0	42.2	1.0	0.8
IE	44.6	43.4	34.8	33.9	66.0	66.1	43.9	42.7	1.2	1.2
EL	49.7	48.6	50.0	48.9	67.5	67.1	44.9	43.0	3.1	2.6
ES	81.3	83.4	74.0	76.8	66.1	66.6	44.0	43.7	3.4	2.5
HR	39.2	35.8	27.2	24.8	63.1	63.1	40.6	38.7	0.7	1.7
FR	65.4	56.4	27.2	24.8	64.0	63.7	42.5	40.3	3.2	2.8
IT	78.7	76.8	69.4	67.4	66.9	67.3	42.9	41.1	4.5	5.1
CY	71.0	68.0	62.0	61.0	67.5	67.1	46.5	44.5	2.6	4.3
LV	55.7	53.5	47.9	45.9	65.3	65.3	43.7	42.1	0.7	1.3
LT	74.3	67.8	56.0	51.2	64.3	63.8	42.1	40.0	1.5	1.9
LU	88.7	87.9	75.8	74.9	60.2	60.9	37.8	36.7	0.0	0.0
HU	87.3	80.4	57.2	52.7	65.3	64.9	42.3	39.4	2.3	1.9
MT	72.1	69.9	59.3	57.2	64.0	62.6	44.2	41.6	2.0	1.6
NL	101.1	51.8	99.3	47.0	67.9	66.0	46.8	44.1	2.4	2.3
AT	88.2	81.7	73.8	66.4	64.2	63.2	43.9	41.2	1.8	2.1
PL	47.9	40.8	40.9	34.6	66.0	65.8	43.8	41.0	2.1	5.6
PT	82.7	75.0	66.3	59.5	66.6	66.1	44.3	43.3	2.3	2.2
RO	41.1	39.1	31.5	30.0	64.0	62.6	40.5	36.7	0.0	0.3
SI	60.1	62.8	38.1	40.1	64.1	63.6	41.5	40.2	1.6	3.7
SK	63.0	57.9	49.6	45.6	65.1	64.9	43.5	39.1	3.5	5.2
FI	58.6	57.1	50.2	48.5	64.1	63.9	42.1	41.1	0.5	0.7
SE	59.0	55.9	59.2	55.9	65.6	64.4	44.6	42.6	-0.2	0.0
UK	38.8	38.8	29.0	29.0	65.8	65.8	46.1	44.7	0.9	2.2

Data source: (1) Member States and the OECD; (2) The 2015 Ageing Report. Notes: n.a.: pension cannot be drawn at the assumed labour market exit age.

Under the AWG projections, the average career length is expected to increase by an unweighted average¹¹⁷ of 1.7 years for men and 2.2 years for women across the 28 Member States. However, differences across countries are foreseen to be substantial, with a projected

¹¹⁷ Unweighted change in exit ages between 2013 and 2053+ across Member States. Career length is here defined as the difference between entry and exit age.

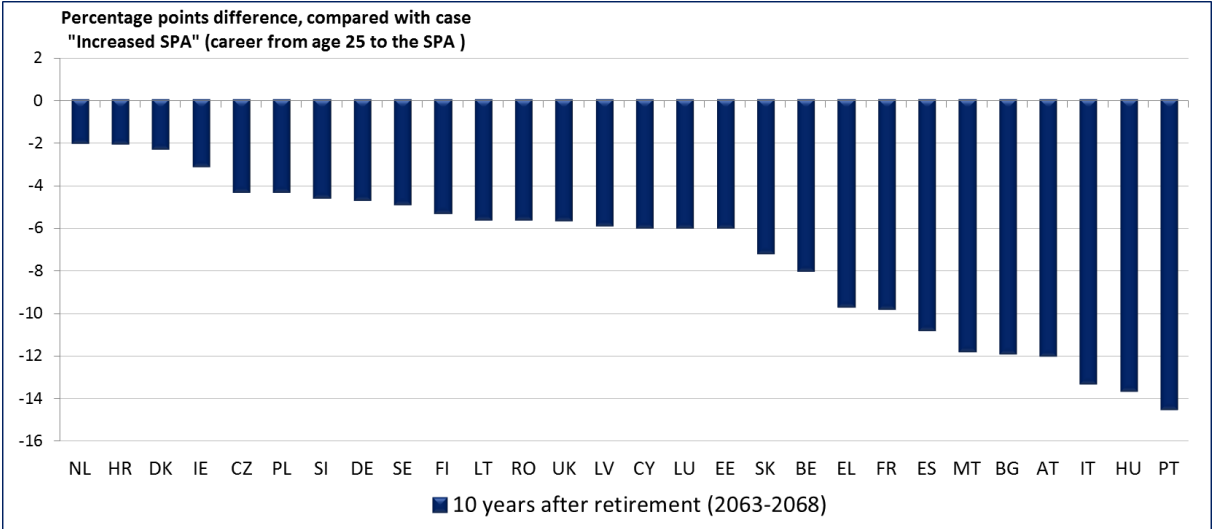
decrease in average labour market exit ages for men in Sweden, while an increase of more than three years is assumed for men in Greece, Spain, France, Italy and Slovakia, as well as for women in the Czech Republic, Denmark, Italy, Cyprus, Poland, Slovenia and Slovakia.

In this context, it is important to underline the inherent uncertainties surrounding projections of career patterns and retirement practices 40 years into the future. The AWG employment projections are discussed in more detail in section 5.4 on the comparison of TRR calculations with the 2015 Ageing Report results. For the interpretation of TRRs under the AWG case, it should be recognised that the country-specific career length projections are not necessarily representative of people who started their career in 2013. The AWG case should thus be understood as an additional (theoretical) career length scenario that may, or may not, apply to future generations of pensioners.

Reflecting the assumed future development of labour market exit ages, the results for the prospective TRR case differ widely across Member States. Importantly, a huge decrease in future TRRs is calculated for Member States in which the projected labour market exit age is well below the future standard pensionable age. In Belgium, Ireland, the Netherlands and the United Kingdom, public pensions cannot yet be assessed at the assumed labour market exit age, which results in particularly large drops in the prospective TRRs under the AWG assumptions. In this respect, replacement rate projections that are based on an assumption that careers continue up to the standard pensionable age may provide a more accurate estimate of future pension levels.

Indexation of pensions. Chapter 4 highlighted the fact that many Member States have reduced real pension benefits through changes to the indexation mechanism for benefit payment. To assess the impact of changes in indexation rules on future pension adequacy, prospective replacement rates have been calculated not only at the moment of retirement, but also ten years into retirement. The effects of indexation mechanisms on replacement rates 10 years after retirement are shown in Figure 5.11.

Figure 5. 11: Percentage points change in future TRRs, 10 years after retirement compared with the year of retirement (case "Increased SPA"), average earner



Data source: Member States and the OECD. A negative difference indicates a lower net TRR 10 years after retirement.

This variant case is calculated considering the value of an individual’s pension 10 years after retirement relative to the pension of another average-earner worker retiring 10 years later after

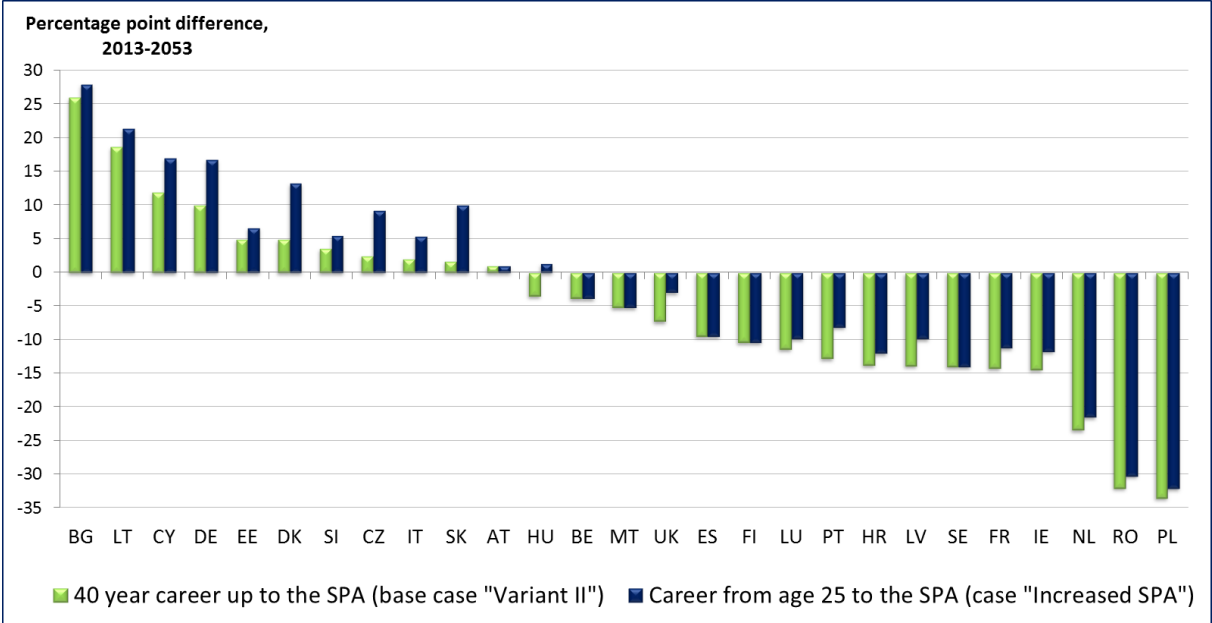
a full career (in other words the two retirees are in different cohorts, with 2013/2023 as the relevant entry ages for the calculation of their prospective replacement rates). This helps to provide an assessment of the ‘pension erosion’ in terms of the evolution of the relative income position of the individual once retired compared to the general level of wages over the same period. This ‘erosion’ typically reflects the effects of pension indexation rules.

The results show that the real value of pensions is set to decrease over time in all Member States. This decline is expected to range from less than five percentage points in nine Member States (the Netherlands, Croatia, Denmark, Ireland, Czech Republic, Poland, Slovenia, Germany and Sweden) to more than 10 percentage points in another seven (Spain, Malta, Bulgaria, Austria, Italy, Hungary and Portugal). The prospective TRR calculations thus confirm the future impact of recent reforms of pension indexation.

5.2.2. Comparing the evolution of TRRs between 2013 and 2053

In this section, prospective replacement rates for retirement in (or after) 2053 are assessed against the theoretical replacement rates for someone who retired with the same career in 2013. This comparison illustrates the expected development of pension adequacy over time, based on the current (2013) pension legislation. To ensure a consistent comparison, the evolution of TRRs over time is only assessed for the two TRR cases that assume retirement at the country-specific SPA.¹¹⁸ The percentage point difference between prospective and current net TRRs for a 40-year career until the SPA, and a career from age 25 to the SPA, can be seen in Figure 5.12.

Figure 5. 12: Percentage point difference in net TRRs: 2053 vs 2013, average earnings



Data source: Member States and the OECD. Note: A positive difference indicates a higher net TRR in 2053 as compared to 2013. Sorted by the percentage point change under base case "Variant II". 2013 data for EL not available. If gender differences exist, results for men are reported in this figure.

Differences between Member States in the long-term evolution of net replacement rates are substantial. It should be noted, though, that these differences are not only driven by changes

¹¹⁸ The comparison of current and prospective pension entitlements under base case I with retirement at age 65 is hampered by a multitude of factors (i.e., late retirement bonuses in 2013, early retirement penalties in 2053, ineligibility for public pensions at age 65 in 2053).

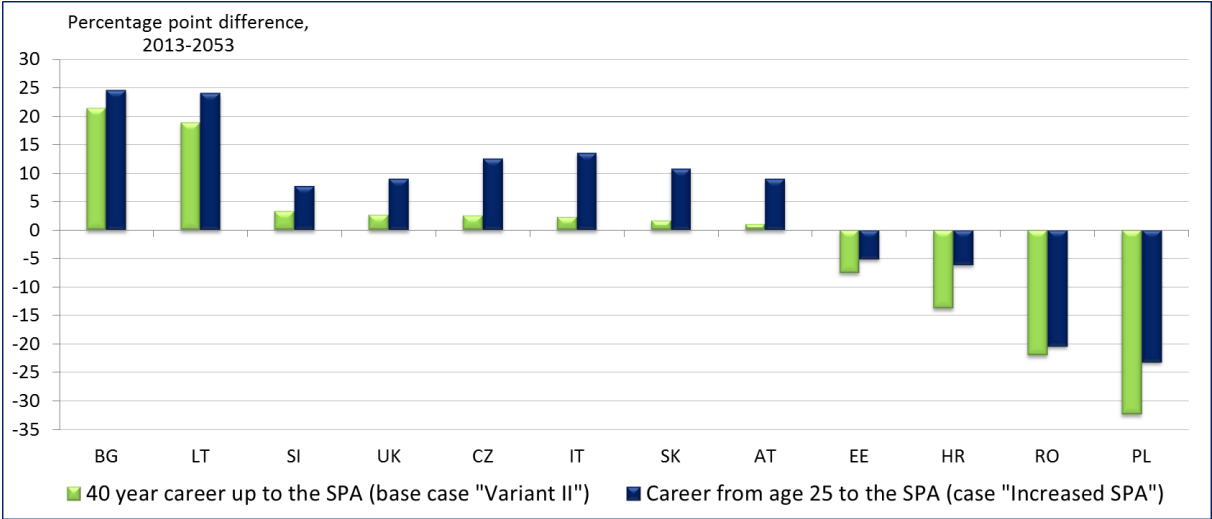
in pension legislation, but also by country-specific assumptions of economic, labour market and wage developments, and the underlying projections of population structures and life expectancy (see also section 5.4).

For a 40-year career up to the national SPA, the change in the net theoretical replacement rate between 2013 and 2053 ranges from -33.5 percentage points in Poland to +26 percentage points in Bulgaria for a male worker on average earnings. In 16 Member States, this is projected to result in a lower net replacement rate in 2053 than in 2013. In contrast, net replacement rates are projected to increase under this scenario in another 11 Member States.

Longer working lives are known to contribute to higher future replacement rates and, whenever the legal SPA is above age 65 in 2053, a full career from age 25 to the SPA is expected to result in future TRRs closer to, or above, what current pensioners with a 40-year career also receive.

Gender differences. Figure 5.13 presents the projected change in net TRRs between 2013 and 2053 for a female worker on average earnings for those 12 Member States where results for men and women differ. Results for women are generally overall similar to those for men, with somewhat different patterns in Member States where the pensionable ages for men and women are legislated to be equalised *after* 2013. The results confirm that longer careers up to increased SPA in 2053 will lead to higher replacement rates than the 40-year career assumed under base case II.

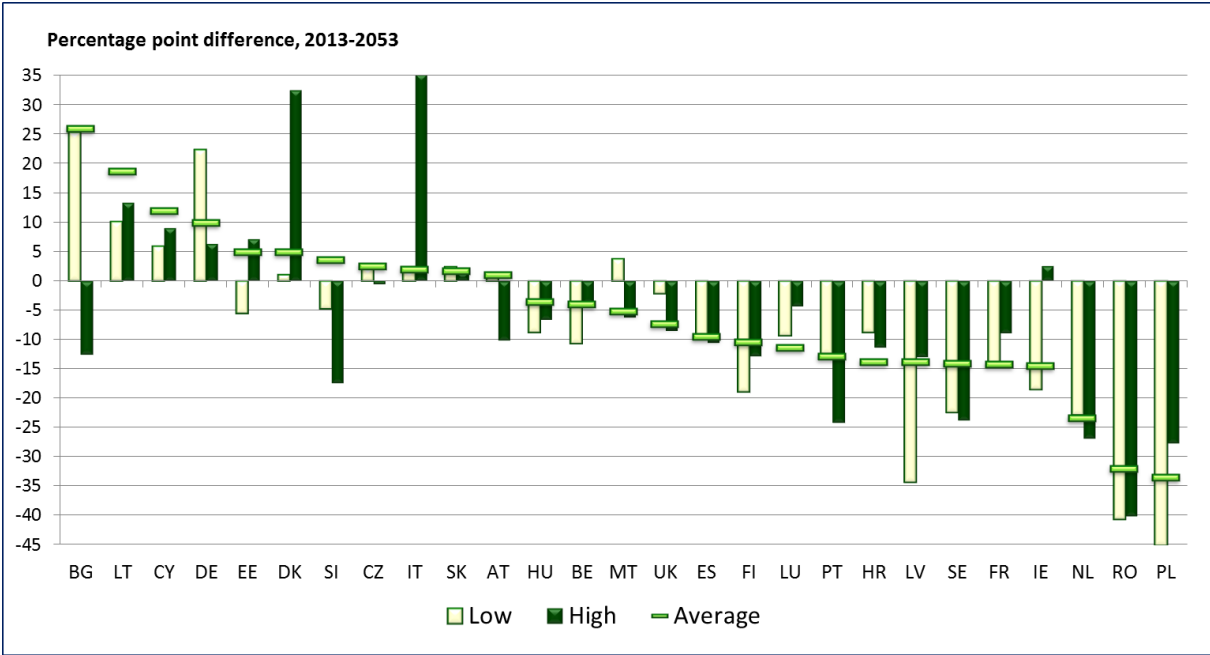
Figure 5. 13: Percentage point difference between the base case TRR in 2013 and 2053, net, average earnings (only those Member States where gender differences exist)



Data source: Member States and the OECD. Note: A positive difference indicates a higher prospective TRR as compared to the current one. 2013 data for EL not available.

Results for different earning profiles. The picture is mixed, however, with regard to the changes in TRR levels between 2013 and 2053 for different earning profiles, as presented in Figure 5.14. A deterioration of income replacement levels is most often observed for workers with high earnings, as seen in 21 Member States, with a decrease by more than 20 percentage points in Slovenia, Portugal, Sweden, the Netherlands, Romania and Poland. Average income earners tend to face lesser decreases in TRR levels over time, with the replacement rates for average income earners expected to evolve more positively than for high wage earners in 17 Member States.

Figure 5. 14: Percentage point difference between the net TRR in 2013 and 2053 for different earning profiles, base case II



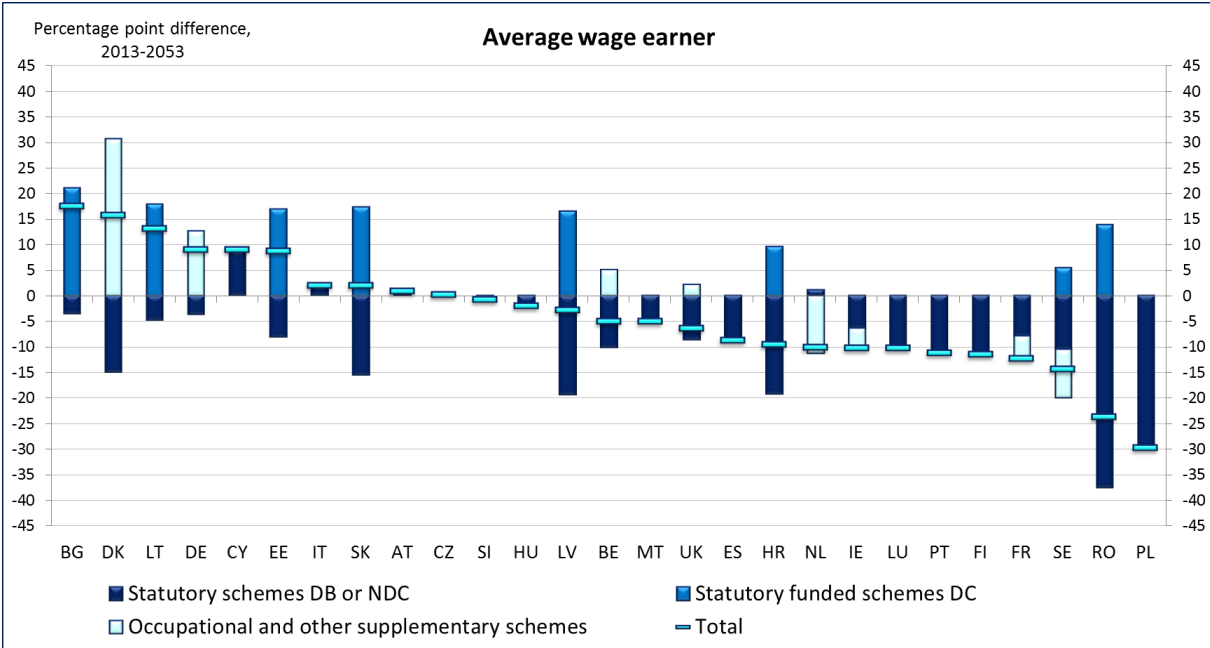
Data source: Member States and OECD. Note: A positive difference indicates a higher prospective TRR as compared to the current one. Sorted by average earnings profile. 2013 data for EL – not available. If gender differences exist, results for men are reported in this figure.

Likewise, the prospect for low wage earners is somewhat less favourable than for average income earners, with a larger decrease or lower increase in net TRRs expected for 13 Member States, while compared with the improvements foreseen in only five Member States. When comparing the evolution of replacement rates for low and high wage earners, trends differ widely across Member States with 12 foreseeing a more favourable development for low wage earners but with the opposite prospect in another 13 Member States. Recent pension reforms do not seem to have paid any particular attention to maintaining the relative level of lower pensions and providing protection against old age poverty, although it has to be recognised that replacement rate *levels* still tend to be relatively higher for low wage earners (see Table A5-1 in Annex 6).

The role of public and private schemes in future pension adequacy. The projected total change in replacement rates between 2013 and 2053 masks the expected evolution of the different pillars of the pension system. In order to provide a better understanding of such changes, Figure 5.15 divides the change in gross TRRs between 2013 and 2053 into three components: statutory DB or NDC schemes; statutory funded schemes (DC); and occupational and other supplementary schemes.

This decomposition reveals an overall decline in pension entitlements from public pension schemes. For an average wage earner, replacement rates of statutory DB or NDC schemes are projected to decrease by more than five percentage points in 16 Member States and by more than 15 percentage points in six Member States (Denmark, Slovakia, Latvia, Croatia, Romania and Poland).

Figure 5. 15: Percentage points difference between 2013 and 2053 in gross TRRs, by type of pension, average earnings, base case II



Data source: Member States and the OECD. Note: A positive difference indicates a higher gross TRR in 2053 as compared to 2013. 2013 data for EL not available. Sorted by total change in gross TRR for an average earner. If gender differences exist, results for men are reported in this figure.

The gap that results from the decrease in replacement rates under the first pillar is expected to be compensated for by rising entitlements from statutory funded schemes in eight Member States (Bulgaria, Lithuania, Estonia, Slovakia, Latvia, Croatia, Sweden and Romania). For the countries for which occupational and other supplementary schemes are considered, results are mixed, with a projected increase in the gross replacement rate relative to 2013 in Denmark, Germany, Belgium and the United Kingdom against an expected decrease in Ireland, the Netherlands, France and Sweden.

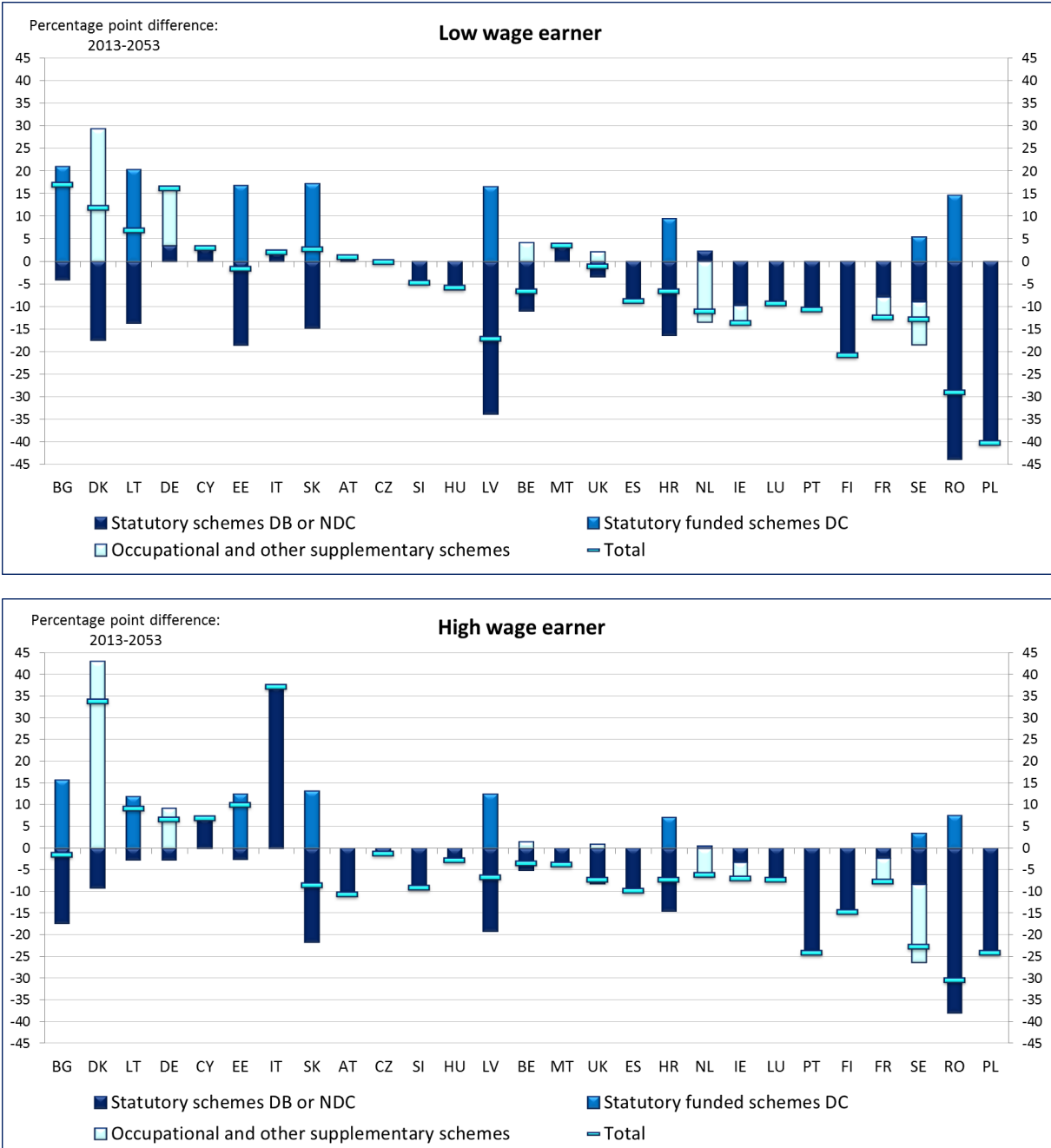
The future role of supplementary schemes is more difficult to assess based on the TRR projections since the only schemes included are those which are considered typical or having a wide reaching coverage. Given the overall trend of decreasing replacement rates from public schemes, however, complementary retirement savings through occupational or third pillar pensions are likely to become a more important determinant of pension adequacy in the future. With future pension entitlements being increasingly derived from funded schemes, the adequacy of pensions is consequently liable to become more dependent on financial market developments.

Figure 5.16 provides the same breakdown of the projected change in gross TRRs for low and high wage earners, (countries being ordered as in Figure 5.15 to facilitate comparisons). For low wage earners, the expected development of replacement rates under the different pension pillars is very similar to that of average wage earners in the majority of Member States with replacement rates under the first pillar projected to decrease to a somewhat similar extent to those of average wage earners.

At the same time, entitlements from funded schemes are expected to increase by more than 10 percentage points in eight Member States (Bulgaria, Denmark, Lithuania, Germany, Estonia,

Slovakia, Latvia, Romania). A similar overall picture also emerges when decomposing the change in gross TRRs for high wage earners.

Figure 5. 16: Percentage points difference between 2013 and 2053 in gross TRRs, by type of pension, low and high wage earners, base case II



Data source: Member States and the OECD. Note: A positive difference indicates a higher gross TRR in 2053 as compared to 2013. 2013 data for EL not available. Sorted by total change in gross TRR for an average earner. If gender differences exist, results for men are reported in this figure.

5.2.3. Prospective TRRs for different career patterns

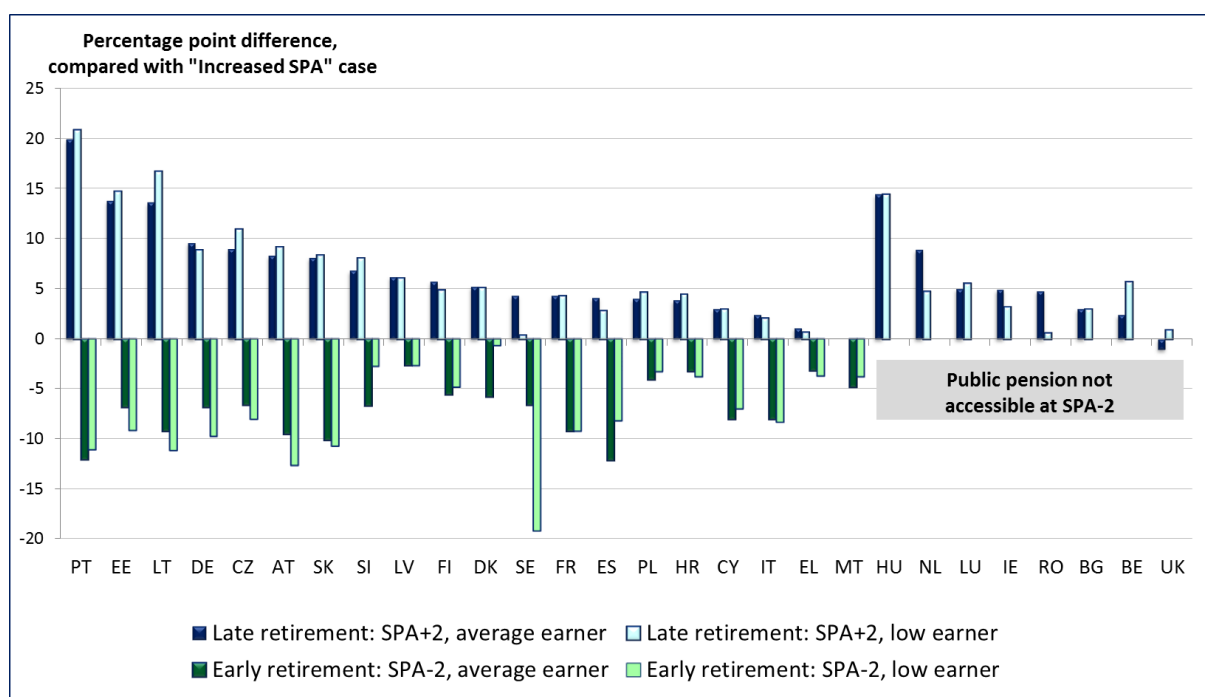
In this section, the impact of different career patterns on future pension adequacy is assessed. A full career from age 25 to the standard pensionable age is used as the reference point in order to illustrate the impact on future replacement rates of three hypothetical possibilities:

- retirement two years before and after the SPA
- forced early retirement five years before the SPA
- a short career of 30 years.

Retirement two years before and after the SPA. In order to assess whether pension systems sufficiently and sensibly reward longer working lives in the future, the monetary incentives or disincentives for retiring early and working longer are illustrated.

Figure 5.17 illustrates the changes in net TRRs for someone retiring two years before the SPA and working two years beyond the SPA, using a career with retirement at SPA as the reference. For the four Member States (Bulgaria, Estonia, Romania, Slovenia) where there are gender differences in future TRRs, comparisons are illustrated for a woman in this section.

Figure 5. 17: Percentage point difference in prospective net TRRs for working two years shorter / longer as compared to the 'increase in SPA' case for low and average wage earners



Data source: Member States and the OECD. Note: A positive difference indicates a higher TRR as compared to the 'increase in SPA' case (career from age 25 to SPA). Sorted by the Retirement at SPA+2 (average earner). TRRs for retirement at SPA-2 are not reported for HU, LU, BG, BE, IE, NL, RO and UK due to ineligibility for public pensions at SPA-2. If gender differences exist, results for women are reported in this figure.

In the majority of Member States, longer working lives provide higher pension entitlements in the future. For those on average earnings, delaying retirement by two years beyond the standard pensionable age is projected to result in an increase in net replacement rates of five percentage points or more in 14 Member States (Portugal, Hungary, Estonia, Lithuania, Germany, Czech Republic, the Netherlands, Austria, Slovakia, Slovenia, Latvia, Finland, Denmark and Luxemburg).

Whereas longer working lives offer an effective way to improve future pension outcomes in these countries, the incentive structures still appear insufficient in other pension systems. In seven other Member States (Cyprus, Bulgaria, Italy, Belgium, Greece, Malta and the UK¹¹⁹), net TRRs are projected to increase by three percentage points or less as a result of working longer. The incentives are very similar for workers on low earnings, although they tend to benefit slightly more in relative terms from postponing retirement than do those on average incomes.

However, the situation turns out to be quite different with respect to premature retirement in the future. Retiring two years *before* the SPA would result in substantial drops in future TRR levels in the majority of Member States. This is mostly explained by eligibility criteria for basic pensions, which cannot yet be drawn two years before the SPA in eight Member States (Hungary, Luxemburg, Bulgaria, Belgium, Ireland, the Netherlands, Romania and the United Kingdom). In contrast, earlier retirement does not have a significant impact on pension levels in some other Member States, with a decrease in TRR levels of less than five percentage points for average earners in five Member States (Greece, Croatia, Latvia, Malta and Poland).

These projections reveal that bonuses for late retirement and penalties for early retirement are often not constructed in an actuarially neutral way. The increments in replacement rates for prolonged working lives by two years tend to be larger than the reductions owing to two years shorter careers. However, since this analysis concerns net replacement rates, some of the apparent imbalances in work incentives may reflect features of the taxation systems, and not just the pension systems.

The impact of forced early retirement. Even if effective pension incentives are in place, the general challenge of providing enough job opportunities for older workers remains. Today, labour market exit ages are usually lower than the pensionable age, and early retirements are far more common than postponements of pension take-up. With increasing standard pensionable ages, people who are forced to stop working prematurely, for whatever reason, may face an increased risk of inadequate pension entitlements in the future.

The impact of forced early retirement as a result of unemployment or disability is assessed with two TRR variants. In this case it is assumed that an average wage earner will leave the labour market five years before the national standard pensionable age, having entered the labour market at age 25 in 2013.

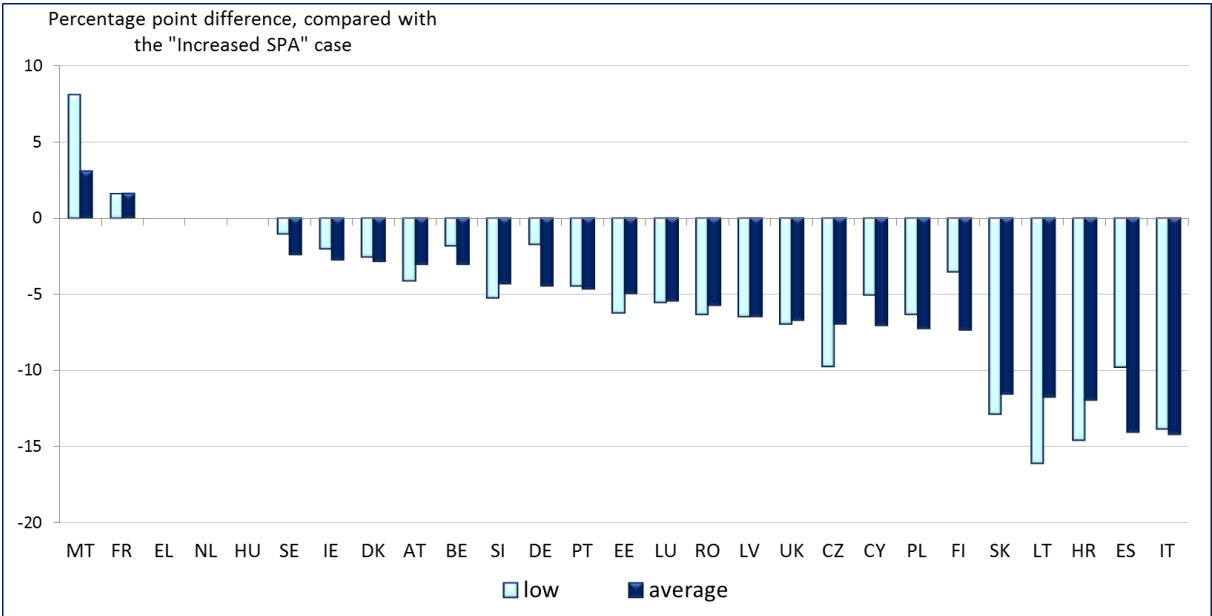
In the unemployment case, it is assumed that there are five consecutive years of unemployment and that the worker concerned claims the pension at the earliest possible point through early-retirement schemes. In the disability case, disability is classed as 100 percent and it is assumed that the individual is eligible for the maximum level of credit. The individual claims the pension at the earliest possible point through available early-retirement schemes. Under both variant cases, the replacement rate is calculated at the national standard pensionable age (and not at the time of labour market exit), with benefit payments indexed where required.

¹¹⁹ In the UK, those working beyond the SPA would no longer pay National Insurance contributions, which results in higher net income from work in the year SPA+1 than it would have been in SPA-1. As a result, the denominator increases and the net TRR is slightly smaller than the standard 'increase in SPA' case. On a gross basis, those two additional years in employment result in a higher TRR.

The ‘unemployment case’ is presented in Figure 5.18, which illustrates the percentage point difference between the net TRR for a worker with a full career and a worker who has to leave the labour market five years prior to the SPA for unemployment reasons. At average earnings, this can have a substantially negative impact on pension levels in the future. In 13 Member States, the net TRR of early retirees is more than five percentage points lower than those of a worker with a full career at average earnings (Italy, Spain, Croatia, Lithuania, Slovakia, Finland, Poland, Cyprus, the Czech Republic, the United Kingdom, Latvia, Romania, Luxemburg).

Pension outcomes of low wage earners tend to be similarly affected by forced early retirement due to unemployment, with an even greater fall in net replacement rates in 11 countries (Lithuania, the Czech Republic, Croatia, Estonia, Slovakia, Austria, Slovenia, Romania, the UK, and Luxemburg). As TRRs are measured against their relatively low wage income, the risk of old age poverty in the future could be substantial (see also section 5.3).

Figure 5. 18: Percentage point difference in prospective net TRRs comparing early retirement due to unemployment to a full career, different earning profiles



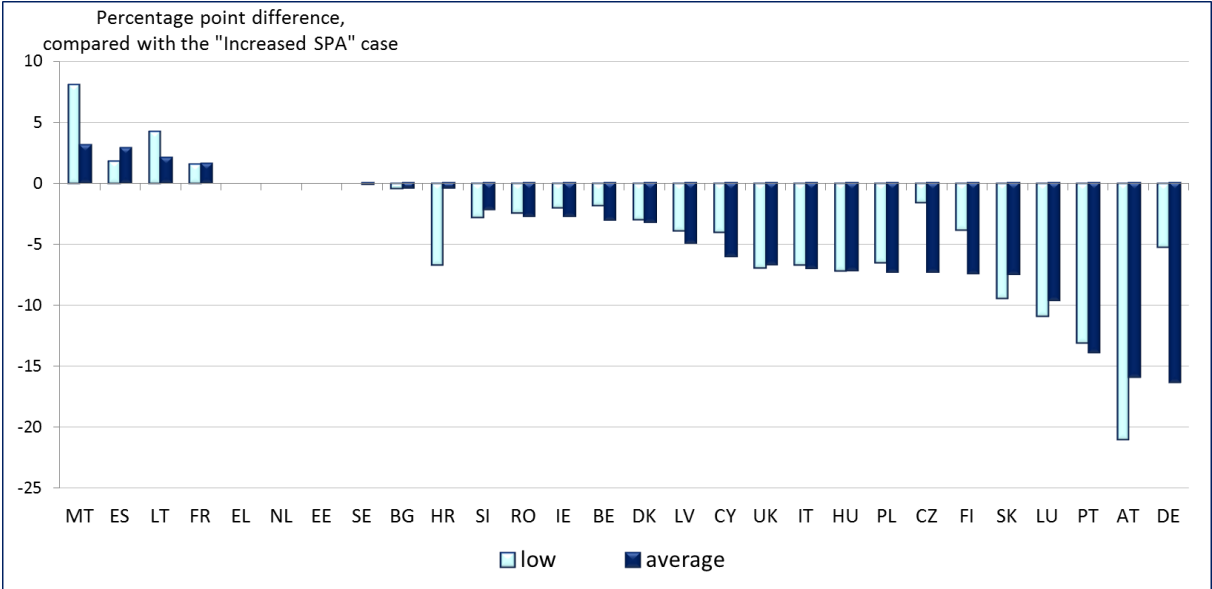
Data source: Member States and the OECD. Notes: A positive difference indicates a higher net TRR for a worker who becomes unemployed five years prior to SPA. Sorted by the average wage profile. Results for EL, NL and HU are equal to zero. If gender differences exist, results for women are reported in this figure. In BG, the old age pension cannot be drawn at SPA under this scenario as the required length of service is not met.

The ‘disability case’ as presented in Figure 5.19 shows a somewhat different pattern for people who retire five years before the standard pensionable age due to disability. In 18 Member States, a worker with average earnings who has to rely on disability benefits before retirement will receive a relatively lower pension upon reaching the SPA. However, the replacement rate of the disabled worker is projected to be higher compared to someone staying in the labour market up to the SPA in Malta, Spain, Lithuania and France.¹²⁰ Almost no differences in prospective TRRs for the two career scenarios are expected for another five Member States (Spain, the Netherlands, Estonia, Sweden, Bulgaria). Pension levels of low

¹²⁰ Higher replacement rates for forced early retirement can be explained by the fact that the last wage before early retirement is used as reference for the calculations. As the wage of someone working until the SPA is usually higher (due to positive real wage growth), replacement rates for a full career can be lower whereas pension entitlements might still be higher in absolute terms.

income earners are thereby slightly less affected, or improve slightly more, in the case of early retirement due to disability in a total of nine Member States, whereas the opposite is observed in four Member States.

Figure 5. 19: Percentage point difference in prospective net TRRs comparing early retirement due to disability to a full career, different earning profiles

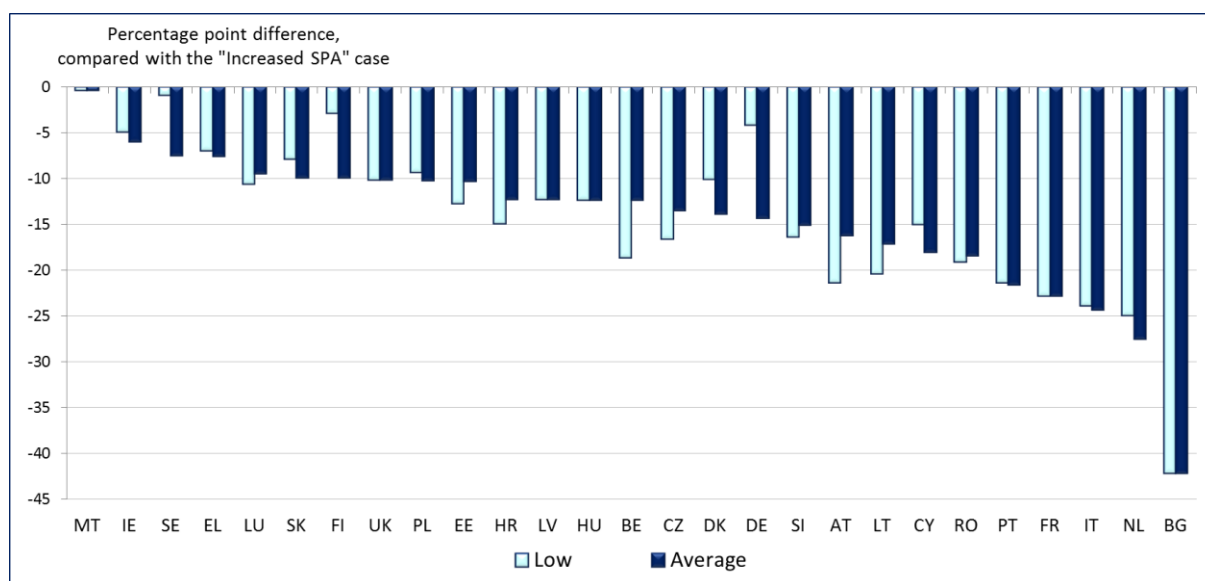


Data source: Member States and the OECD. Notes: A positive difference indicates a higher net TRR for a worker who is classed 100 percent disabled five years prior to SPA. Sorted by the average wage profile. If gender differences exist, results for women are reported in this figure. Results for EL, NL and EE are equal to zero.

Short career of 30 years. Even larger falls in future replacement rates are projected for those with long-term career breaks as illustrated in Figure 5.20. Here the career break is assumed to begin at age 45 after 20 years of uninterrupted employment, with an assumed return to full time work 10 years before the national standard pensionable age, resulting in a total 30-year career. During the career break, the worker is assumed to have not contributed to the pension system and to have not received any social benefit or contribution credits.

In such cases the net replacement rates are expected to decrease by more than 10 percentage points in 23 Member States (the exceptions being Malta, Ireland, Sweden, Greece and Luxemburg) and by more than 20 percentage points in five Member States (Bulgaria, the Netherlands, Italy, France and Portugal). A similar drop in replacement rates is projected for low wage earners with a short career, but with a decrease of less than five percentage points observed in only four Member States (Malta, Sweden, Finland, Germany).

Figure 5. 20: Percentage point difference in prospective net TRRs between a short career (30 years) and a full career from age 25 to SPA, average and low wage earner



Data source: Member States and the OECD. Notes: A negative difference indicates a lower net TRR for persons with a long-term career break. Sorted by the average wage profile. If gender differences exist, results for women are reported. For ES - not eligible (TRR case of short career of 30 years).

5.3. Alternative approaches to assess future pension adequacy

The theoretical replacement rate (TRR) is the main concept used in this report to assess future pension adequacy, but this approach, and its findings, can be complemented by alternative measures and additional analysis. This section presents such alternative indicators where they are available, identifies knowledge gaps where they exist, and discusses analytical approaches that could be developed in order to further our understanding of the future evolution of pension adequacy.

For example, by comparing the projected pension entitlements to average earnings levels in the future, career scenarios that risk resulting in inadequate pension incomes and old-age poverty can be identified (as in 5.3.1). Microsimulation techniques can also be used to draw a more fine-grained picture of the evolution in particular of old-age poverty in the future (as in 5.3.2), while the concept of pension wealth can enable the length of retirement to be taken into account in the assessment of aggregated pension entitlements (5.3.3).

5.3.1. Future pensions levels for different career scenarios

In the previous section, theoretical replacement rates were used to illustrate the difference between pre-retirement levels of income and pension incomes, thereby providing a proxy of the standard of living that individuals might expect upon retirement, compared to their situation when working.

In this section, the same TRR projections are used to illustrate the relationship between future pension entitlements and the projected *overall* standard of living in a given country. For this purpose, the net pension in the first year of retirement is compared to economy-wide *average* net earnings in the same year. The use of average earnings as the common denominator allows a direction comparison across different TRR cases and helps identify career patterns

that are likely to result in comparably low pension outcomes in the future. Table 5.4 presents future pension levels under the various TRR scenarios for a low wage earner while Table 5.5 summarises the same projections for an average wage earner.¹²¹

Table 5. 4: Prospective net pension levels for different career variants, low wage earner

MS	LOW WAGE EARNERS								
	Short	Forced early retirement due to..		Career break			Full career from age 25 with retirement at...		
	30 years	Disability	Unemployment	Unemploym. 3 years	Unemploym. 1 year	Childcare 3 years	SPA-2	SPA	SPA+2
BE	47.0	56.5	56.5	59.9	60.4	59.7		60.7	64.9
BG	23.4	48.4		47.2	51.4	51.4		52.7	54.8
CZ	41.8	48.8	43.6	49.7	52.0	53.3	47.7	53.3	60.9
DK	62.1	63.6	64.0	67.2	68.3	67.2	68.4	68.9	72.3
DE	51.5	48.3	50.7	53.6	54.0	53.8	47.6	54.5	60.9
EE	34.8	40.3	36.4	40.5	41.9	42.3	37.2	43.3	53.2
IE	56.1	54.4	54.4	55.3	59.1	58.3	25.9	59.6	61.9
EL	31.4	33.7	33.7	36.4	36.4	36.4	33.8	36.4	36.9
ES		58.6	51.1	60.2	61.1	61.0	55.5	61.2	63.2
FR	31.2	45.1	45.1	46.0	46.4	51.6	40.4	46.6	49.6
HR	26.5	30.0	24.9	34.3	36.1	35.8	34.3	36.9	40.1
IT	45.8	54.5	49.8	60.2	62.3	61.2	56.6	62.4	63.9
CY	40.5	45.2	44.5	49.6	51.0	50.3	46.1	51.0	53.1
LV	27.5	31.1	29.5	34.7	35.6	33.3	34.2	36.1	40.3
LT	46.1	59.5	46.2	58.1	59.9	59.5	52.6	60.3	72.0
LU	56.8	53.2	57.0	62.9	64.3	64.5		64.5	68.7
HU	45.9	46.3	50.7	50.9	53.0	54.0		54.0	63.5
MT	57.2	59.3	59.3	51.3	51.3	56.3	54.9	57.5	57.5
NL	48.4	62.3	62.3	64.8	65.5	64.8		66.0	69.4
AT	46.1	43.9	55.4	59.8	61.0	65.3	52.4	61.5	68.1
PL	22.5	22.8	22.9	26.9	28.4	28.7	26.5	28.7	31.8
PT	44.1	46.8	52.7	56.3	56.5	56.3	51.6	59.7	74.9
RO	15.1	24.6	22.1	24.4	25.3	28.4		28.4	28.8
SI	34.2	41.2	39.6	53.2	51.3	42.3	43.7	45.7	51.4
SK	44.9	41.0	38.8	47.3	49.5	49.2	42.9	50.3	56.1
FI	43.1	40.0	40.2	44.7	45.1	45.0	41.7	45.2	48.7
SE	46.4	44.3	43.7	44.0	44.3	47.1	34.0	47.1	47.3
UK	58.6	57.2	57.2	63.2	64.8	63.2		65.6	66.3

Data source: Member States & OECD; EC calculations. Reference: Average net earnings in the first year of retirement (in the cases of forced early retirement, the reference year is at SPA). If gender differences exist, results for women are reported. No results are reported for career scenarios under which a pension cannot yet be drawn at the assumed exit age.

¹²¹ Note that for the calculation of TRRs, the denominator (earnings from work in the last year *before* retirement; e.g. in SPA-1) is adjusted for one year of inflation assumed at 2 percent. Instead, average net earnings in the year of retirement (e.g. SPA) are used as denominator for the calculation of pension levels. The assumption of positive *real* growth in average earnings results in higher average earnings in the year of retirement as compared to the inflation-adjusted average earnings of the previous year. The denominator used for the pension level calculations is hence larger than the one used for the TRR calculations, which results in slightly lower pension levels as compared to TRRs. Under the forced early retirement cases, the denominator for the pension level calculations is the average net earnings at SPA, whereas the TRR calculations are based on the net earnings in the last year before the unemployment/disability period (SPA-6) as reference.

In the majority of Member States, a *low wage earner* with a full career (gross income at two-thirds of the average gross wage across the entire working life) can expect a net pension close to 50 per cent of the net average wage in the future. After an uninterrupted career from age 25 to the country-specific SPA, his or her pension is projected to lie between 50 per cent and 65 per cent of net average earnings in 14 Member States, and between 40 per cent and 50 per cent in five Member States, respectively. A pension of more than 65 percent of net average earnings for a low wage earner is projected for Denmark, the Netherlands and the United Kingdom, which is explained by the combination of good basic pensions and the important contribution of funded schemes in these countries. In four Member States, prospective pension levels are found to be below 40 per cent of the average net wage.

Career breaks tend to worsen still further the income prospects of future pensioners with a working life on low earnings. However short career breaks due to spells of unemployment or childcare usually lead to comparably small reductions in future pension levels. In 18 Member States, for instance, pension levels are still above 50 per cent of average earnings after a low earnings career with three consecutive years of unemployment.

By contrast, early retirement appears to pose a major risk to the pension adequacy of low wage earners in the future. Whether the labour market exits are the result of unemployment or disability five years before the SPA, or take place two years before the SPA, this can result in a drop in pension levels of more than five percentage points in the majority of Member States, with a decrease of more than 10 percentage points in Lithuania, Italy, Slovakia and Spain in the case of unemployment, and in Austria, Portugal and Luxemburg in the case of disability.

In terms of short careers, someone who retires after 30 years of work at low earnings will receive benefits of less than 40 per cent of average earnings in nine Member States. When compared to a full career at low earnings, the drop in pension levels as a result of a short career exceeds 10 percentage points in 13 Member States while it only leads to losses of below five percentage points in Malta, Sweden, Finland, Germany and Ireland.

As expected, higher pension levels are projected for future retirees with a career at average earnings, with Table 5.5 showing that such a career would be expected to lead to a pension level of more than 60 per cent in 20 Member States, and more than 80 per cent in eight Member States. As with low wage earners, short career interruptions have a rather minor impact on future pension levels, with three year breaks due to unemployment or childcare resulting in a decrease in pension levels of less than five percentage points in all but a few Member States.

More substantial drops in pension levels are projected for different forms of early retirement. After a full career at average earnings until five years prior to the SPA, a premature exit from the labour market results in pension levels of less than 60 per cent of average earnings in twelve Member States (due to unemployment) and eleven Member States (due to disability). Even at average earnings, a short career of 30 years will result in comparably low pension entitlements, with pension levels of below 50 per cent for 12 Member States and below 40 per cent in six. Likewise, retirement two years before the SPA leads to a drop in pension levels of more than five percentage points in 15 Member States and, in another seven Member States, the public pension cannot be drawn two years prior to the SPA.

Table 5. 5: Prospective net pension levels for different career variants, average wage earner

MS	AVERAGE WAGE EARNERS									
	Short	Forced early retirement due to..		Career break			Full career from age 25 with retirement at...			Indexation
	30 years	Disability	Unempl.	Unempl. 3 years	Unempl. 1 year	Childcare 3 years	SPA-2	SPA	SPA+2	SPA+10
BE	61.8	67.9	67.9	71.8	72.5	72.0	74.1	76.4	66.7	
BG	33.1	68.8		66.9	72.8	72.8	74.6	77.7	63.8	
CZ	47.3	50.2	50.5	57.0	59.4	60.7	54.1	60.7	69.6	57.1
DK	67.2	74.1	74.5	78.4	80.0	78.6	75.2	80.9	86.1	79.4
DE	59.5	70.3	66.1	73.4	73.4	78.1	67.0	73.7	83.2	69.7
EE	45.0	51.3	46.8	51.7	53.5	54.5	48.4	55.1	68.8	49.9
IE	64.6	63.7	63.7	67.8	69.5	67.8	70.5	75.4	68.3	
EL	38.9	43.1	43.1	46.4	46.4	46.4	43.2	46.4	47.5	37.3
ES		83.5	67.8	84.0	85.7	85.3	60.6	85.8	89.8	76.0
FR	45.7	66.0	66.0	67.4	67.9	75.6	59.1	68.2	72.5	59.2
HR	30.8	39.7	29.1	39.9	41.9	41.4	39.7	42.9	46.8	41.4
IT	64.3	77.0	70.4	84.8	88.2	84.6	80.4	88.3	90.7	76.0
CY	56.3	64.2	63.2	71.2	74.1	68.2	66.2	74.1	77.1	69.0
LV	38.4	42.9	41.5	48.8	50.0	46.4	47.9	50.6	56.7	45.3
LT	53.6	68.4	55.5	67.7	69.9	69.2	61.4	70.5	83.9	65.7
LU	73.4	69.4	73.4	80.7	82.5	82.8	82.8	87.8	77.7	
HU	68.8	69.4	76.0	76.4	79.5	81.0	81.0	95.3	68.3	
MT	72.6	71.6	71.6	72.9	72.9	72.9	68.2	72.9	73.0	62.0
NL	64.3	86.7	86.7	88.7	90.5	88.7	47.1	91.5	100.3	90.5
AT	69.2	66.0	78.2	83.6	84.7	86.6	75.8	85.2	93.5	74.1
PL	32.8	33.4	33.5	39.5	41.8	42.1	38.8	42.9	46.8	39.1
PT	61.9	65.3	73.9	78.5	78.6	78.4	71.3	83.2	102.9	69.7
RO	20.4	33.2	30.5	31.2	32.6	38.6	38.6	43.3	33.5	
SI	48.0	57.4	55.4	67.7	67.4	59.0	56.3	62.9	69.6	59.0
SK	59.0	57.5	53.8	61.4	67.5	67.2	58.8	68.7	76.8	62.4
FI	48.7	48.5	48.5	57.1	58.2	57.9	52.9	58.5	64.1	53.8
SE	47.3	51.5	49.4	53.5	54.3	54.8	48.1	54.7	58.9	50.4
UK	69.5	68.7	68.7	75.8	78.2	75.8	79.5	78.4	74.8	

Data source: Member States & OECD; EC calculations. Reference: Average net earnings in the first year of retirement (in the cases of forced early retirement, the reference year is at SPA). If gender differences exist, results for women are reported. No results are reported for career scenarios under which a pension cannot yet be drawn at the assumed exit age.

In contrast, postponing retirement by two years results in an increase in pension levels of more than 10 percentage points in Portugal, Hungary, Estonia and Lithuania although incentives to work beyond the standard pensionable age appear less strong in the 14 Member States where pension levels would increase by less than five percentage points as compared to retirement at SPA.

In short, the projections reveal a wide spread of future pension level outcomes across Member States and according to career patterns or experiences. In terms of the adequacy of pensions in the future, it appears that a substantial part of today's workforce and tomorrow's pensioners might be faced with an increased risk of old-age poverty as pensions become increasingly contingent on less interrupted and longer careers.

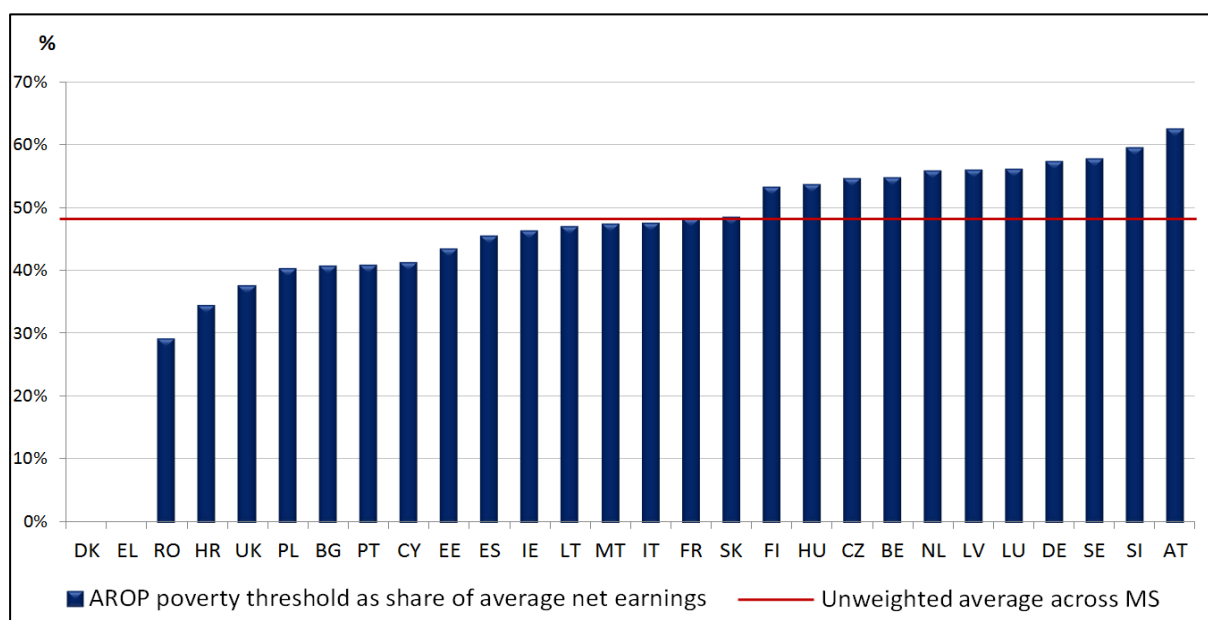
5.3.2. The potentials of microsimulations to assess future risks of old-age poverty

Given the uncertainty inherent to long-term projections, the links between the projected pension levels and the future poverty risks are difficult to assess. However, as a first general indication of potentially vulnerable career patterns, the current relationship between average earnings and the poverty line may be used as a benchmark.

Figure 5.21 illustrates the ratio between the poverty threshold (set at 60 per cent of the median disposable household income) of a single person¹²² and average net earnings¹²³ in 2013. This provides a rough indication of the income level at which people are at risk of poverty—measured as a share of the average net earnings in a given Member State.

This ratio varies substantially across Member States, ranging from 29 per cent in Romania to 62 per cent in Austria, with an unweighted average of 48 per cent. These differences across Member States reflect different forms of income inequality, with a lower value indicating higher *average* earnings as compared to the *median* household income.¹²⁴

Figure 5. 21: Ratio between AROP threshold (single person) and net average earnings, 2013



Data source: EU-SILC (AROP threshold) and Member States (net average earnings).

Given the long projection period and the unknown evolution of labour markets, income distributions and overall living standards, no bold conclusions on *future* old-age poverty should be drawn based on the pension level projections. Indeed it would be a strong assumption to claim that the relationship between average individual earnings and the distribution of household incomes below the median remains constant over time. Nevertheless the results do show how low earnings careers, with long career breaks or early retirement, will result in comparably low pension levels in the future.

The overall development for the population as a whole cannot be estimated from the TRR calculations alone. For a projection of poverty levels in the 2050s, it is also necessary to

¹²² Based on EU-SILC data, see also section 2.2.

¹²³ As used for the calculation of current net TRRs. Source: Member States.

¹²⁴ This might in particular be driven by high incomes at the top of the income distribution which pull up the average, but have no impact on the median household income.

understand how frequently different TRR profiles are likely to be found in the aged population. Here, micro-simulation models can provide a valuable complement to the case study based TRR calculations.

Micro-simulations take a different approach, eschewing detailed analyses based on individual cases. Instead, they follow a representative sample approach and focus on maintaining a consistent view of changes over the whole population. They can thereby seek to ensure consistency with other relevant scenarios, such as the demographic and economic projections in the Ageing Report. An additional advantage of microsimulations is their capacity to simulate the medium-term impact of different factors that contribute to the final situation, be they pension reforms, economic assumptions, demographic projections, as well as interactions between them.

Although the microsimulation capacity in the area of pensions has been strengthened in recent years, gaps in coverage mean that comparable and comparative assessment across the EU are not yet possible. However three examples of dynamic microsimulation pension modelling from Belgium, Sweden and Hungary are indicative and illustrative of the possibilities (see Box 5.1).¹²⁵ These results show the potential in extending this kind of analysis to other countries, many of which already have their own microsimulation models.

Box 5.1: The use of microsimulation models to project old-age poverty – examples from Belgium, Sweden and Hungary

In preparation of the 2015 Pension Adequacy Report, three Member States offered to use their dynamic microsimulation models to simulate possible developments of pension adequacy while taking into account the projections and hypotheses of the AWG as much as possible. Contrary to static microsimulation models, of which EUROMOD is the most well-known, the models used in this project are of the “full” dynamic type in that they include a notion of time. In particular, dynamic microsimulations allow assessing the impact of pension reform or changing economic circumstances on pension adequacy in a prospective setting.

Not only was the idea to show the consequences of the AWG hypotheses and projections on prospective income distributions and poverty risks, but also to demonstrate the potential value of using dynamic microsimulation on the EU level. For the study, three indicators were selected (at-risk-of-poverty rate, Gini coefficient, S80/S20) and computed for four subgroups (total population, pensioners, population 65+ and working-age population). A main objective of the exercise was to assess the consequences of the AWG projections and hypotheses on the adequacy of pensions and, in particular, the risk of old-age poverty in the future. Figure 5.22 illustrates the projected AROP for the population 65+ for Belgium, Hungary and Sweden.

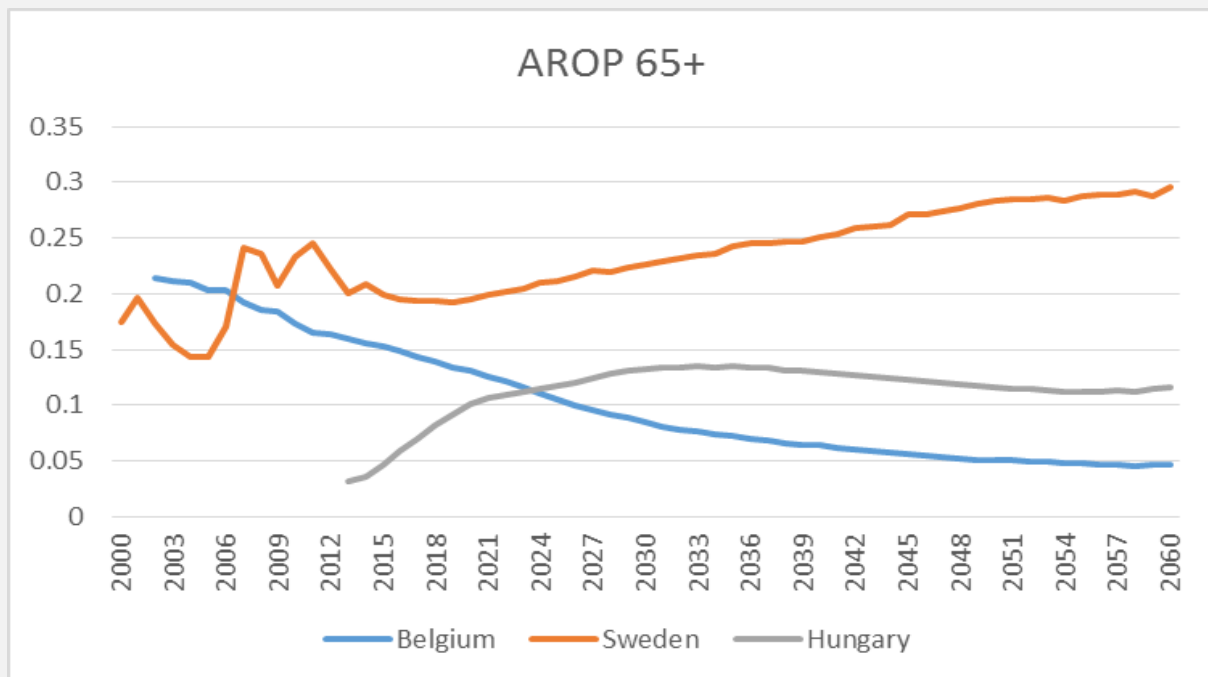
In Belgium, public pension expenditure rises by 3.5 percentage point due to an increasing dependency ratio (+5.8 percent); projected decreases in the coverage ratio and benefit ratio do not offset this. According to the microsimulations, the poverty risk (as well as inequality) among pensioners will decrease, mainly because of increases in the minimum pensions, in the employment rate of women and of decreases in the productivity growth rate.

¹²⁵ Gijs Dekkers, Raphaël Desmet, Ádám Rézmovits, Olle Sundberg, Krisztián Tóth (2015): On using dynamic microsimulation models to assess the consequences of the AWG projections and hypotheses on pension adequacy: Simulation results for Belgium, Sweden and Hungary. Report Federal Planning Bureau 27/05/2015.

In Sweden, the rise of the contribution of the demographic dependency ratio is more than offset by the decreasing benefit ratio and employment effect, and projected gross public pension expenditure is expected to decrease by 1.5 percentage points. The benefit ratio and replacement ratio decrease because the AWG assumes an unchanged retirement age. This assumption also causes the risk of poverty among the elderly population to increase by roughly 10 percentage points over the simulation period, from around 20 to 30 percent. The effect on the pensioners' disposable income can be however mitigated by a rise in occupational and private pensions.

In Hungary, gross pension expenditures would decrease by 0.1 percent point over the whole simulation period. The interplay between increasing dependency and decreasing coverage (especially among those aged below 65 due to a rising pension age) would however create a U-shaped pension expenditure and benefit trend in the projection period. Simulations point to shorter careers in the short run. These gradually reduce the replacement rate and the benefit ratio, thereby resulting in increasing poverty risks among the elderly in the short run. In the long run, however, the average career length will increase with a decreasing early age coverage ratio. Hence the poverty risk will stabilize and even show a minor decrease.

Figure 5. 22: Projected at-risk-of-poverty rates, age 65 and above



Source: Dekkers et al. (2015).

Besides depicting poverty scenarios, microsimulations can be used to explore the roots of changes. In Belgium, for instance, the rise in the labour market participation of women has an impact on pensions. More women accruing more pension rights over longer working lives increase pension benefits and thus decrease the AROP for older people. This interacts with an increase in single households; since the pension benefits for singles are reduced less than the equivalent income, poverty among older people decreases.

These results are designed to be complementary to TRR analysis. Whereas the latter focuses on the “consumption smoothing dimension” of pension adequacy, Figure 5.22 depicts the “income security” dimension. Due to this complementary nature, a summary comparison is in order. Taking as an example the TRR case of a 40 year career up until the country’s SPA, Hungary’s high and slightly increasing value (net TRR 80 percent) seems to mirror the relatively low poverty among the population 65+, followed by Belgium (net TRR rising from 75 to 78 percent) and Sweden (net TRR decreasing from 70 to 55 percent). There is thus at least a qualitative consistency between the TRR

trends and the poverty impact trends as projected in the microsimulations. Finally, the simulation results on the various AWG scenarios for Belgium and Sweden show that increasing the employment of older workers not only results in a reduction of pension expenditures, but also reduces old age poverty risks. Careful policy design can therefore reinforce both sustainability and adequacy.

5.3.3. From TRRs to pension wealth: getting a fuller picture of financial pull factors

Analysis of replacement rates at different ages of retirement do not capture the full impact of public pension schemes in terms of the incentives to retire or remain in work. The comparisons between in and out of work incomes presented in the TRR cases are ‘static’ ones with a focus on a given point in time. But as decisions about continuing to work or retire also affect the sum of future pension entitlements, a comprehensive analysis should take account of the impact of work decisions on future pension entitlements across the entire retirement period. In economic jargon, the retirement-income system affects the individual’s ‘inter-temporal budget constraint’.

The concept of pension wealth offers such a more complete measure of retirement incentives. Pension wealth describes the present value of the expected lifetime flow of pension benefits, usually measured at the point of retirement. The present value of these flows depends on the probability of being alive to claim the pension in a given period, which is inferred from mortality tables. The adjustment of pensions in payment that reflect changes in costs or standards of living should also be taken into account (“indexation” or “uprating” policy).¹²⁶

Gruber and Wise (1998, 1999) argue that it is possible to interpret the change in pension wealth that results from working an additional year as an implicit tax or subsidy. This measure directly compares the present value of two alternative flows of income, one from retiring immediately, the other from working an additional year and then claiming the pension. The difference between the two income flows is earnings during the year, adjusted for the implicit tax or subsidy in the pension system, since this is measured relative to individual earnings.

In other words, pension wealth does not change if the additional pension contributions from working another year and the foregone pension are matched by an equal increase in the value of the pension received over the remaining (shorter) retirement period. Such a system offers no incentive to retire earlier, as the discounted value of the additional future pension flows is equal to the (monetary) ‘costs’ of working one year longer. In contrast, if an additional year of work causes pension wealth to decline, continuing working carries an implicit tax, which is a financial (dis-)incentive that may influence retirement behaviour. Conversely, if pension wealth increases by working an additional year, there is a subsidy to delay retirement.

There have been various attempts to measure the importance of pension wealth when explaining retirement behaviour (see Blondal and Scarpetta, 1999; Gruber and Wise, 1999; Burtless, 2004; d’Addio et al. 2010) and, in each case, the effect has been shown to be statistically significant. However, since the pension wealth implications of retiring early or continuing to work are neither transparent nor easy to calculate, pension wealth should not necessarily be seen as the determining factor in retirement behaviour, where work place and

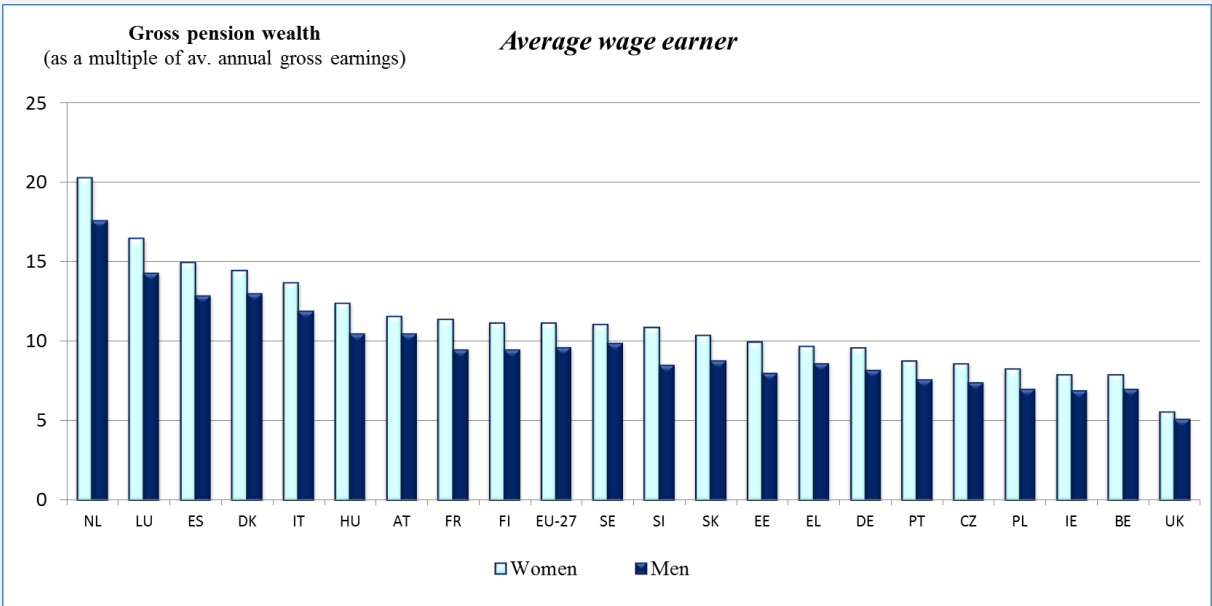
¹²⁶ This is defined formally in Queisser and Whitehouse (2006) and OECD (2007, Part I). See also d’Addio, Blanchet, Roger and Savignac (2015) for a more recent analysis.

labour market factors play a large role. Nevertheless it is important to seek to better understand hidden financial incentives in a rational and equitable way. Unfortunately, the data for the EU-28 countries that would allow us to test the importance of pension wealth in retirement patterns are not available. Box 5.2 provides an introduction to the pension wealth calculations based on the OECD pension models, which help illustrate the magnitude of cross-country differences in projected pension wealth.¹²⁷

Box 5. 2: Pension wealth calculations based on OECD pension models

In 'Pensions at a Glance 2013', the OECD provides estimates of prospective pension wealth based on the TRR calculations and country-specific mortality rates by age and sex projected for the year 2060. Using a uniform discount rate of 2 percent and assuming a career from age 20 to the standard pension-eligibility age, the "discounted value of the lifetime flows of pension benefits measured at the point of retirement" is calculated. Figure 5.23 illustrates the prospective **gross pension wealth** for an average wage earner for a selection of EU Member States for which results are available. Gross pension wealth reflects the lump sum that would be needed to buy a flow of pension payments equivalent to that promised by the mandatory pension system in each country. It is affected by life expectancy and by the age at which people take their pensions, as well by as indexation rules. This indicator is measured as a multiple of annual gross earnings by gender.

Figure 5. 23: Prospective gross pension wealth by sex, average wage earner



Source: OECD: Pensions at a glance 2013. A discount rate of 2 percent is applied.

The results reveal substantial differences across countries. For the EU-27, the pension wealth of an average male earner is projected at 9.6 times the average annual earnings. Pension wealth is thereby projected to be highest in the Netherlands with gross pension wealth equal to 17.6 times average earnings, whereas this value is found below 10 in the majority of countries included in this analysis. The figures are generally higher for women, simply because of their higher life expectancy. Pension wealth also tends to be higher for low wage earners than for average earners. It is important to note, however, that these estimates are based on the assumption of a full career, which not all men and women will be able to achieve.

¹²⁷ In section 3.5., the information on the current gender pension gap is combined with gender-disaggregated data on the average length of retirement. This allows for a rough indication of current gender differences in pension wealth (see Box 3.5).

The results of a related analysis of pension wealth dynamics (d’Addio et al., 2010) are summarised in Figure 5.24. For a number of countries, the interplay between two factors is assessed: the *level* of net pension wealth at age 60 (for a worker who entered the labour market in 2008 with an uninterrupted career at average earnings) and the *change* in net pension wealth from working an additional five years until age 65. The analysis suggests that, in some countries, the pension system provides a powerful incentive to leave work at the earliest possible opportunity while in others the retirement-income regime is relatively neutral with respect to the age of retirement. In countries where pension entitlements accrued at 60 are high, and pension wealth hardly changes (or even declines) if people work beyond age 60, this suggests a need to review the penalties and rewards built into the system.

Figure 5. 24: Net pension wealth as indicator for incentives to work longer

		Change in net pension wealth from age 60 to 65		
		<i>Low</i>	<i>Middle</i>	<i>High</i>
Level of net pension wealth at age 60	<i>Low</i>		Germany, Ireland. Sweden, the United Kingdom	Czech Republic, Poland
	<i>Middle</i>	Belgium, Estonia	Denmark, Finland	Austria
	<i>High</i>	Greece, Italy, Luxembourg, Portugal, Slovenia	France, Hungary, Spain	The Netherlands, Slovakia

Source: OECD (2011). Pensions at a Glance 2011. Based on OECD Pensions models; see also D’Addio et al. (2010) "Population ageing and labour markets", Oxford Review of Economic Policy.

While financial rewards obviously matter, and getting the retirement incentives ‘right’ is a central concern in pension reforms, there are many other factors in work places and labour markets that influence the retirement behaviour of older workers. Thus, although appropriate financial incentives to keep people working are likely to be a necessary part of the solution - even if only for equity reasons - they are unlikely to be sufficient to solve the problems of early retirement alone given both the practical workplace problems and the occasional negative perceptions of older workers by employers.

5.4. Comparing PAR projections with those of the 2015 Ageing Report on employment, public expenditure and pension adequacy

The results of theoretical replacement rate and pension level projections depend very much on the assumed evolution of economies and labour markets. The aim of this section is to shed light on some of these assumptions and to then compare the TRR calculations with the 2015 Ageing Report (AR) projections of pension adequacy. The AR projections of employment participation and labour market exit ages constitute crucial parameters for the projection of pension sustainability and adequacy, and are reviewed in sub-section 5.4.1. This is followed by an overview of the AR pension expenditure projections and its components in the light of the TRR calculations. Such comparisons allow the consistency of the findings of the two reports to be compared, and for the trade-off between adequacy and sustainability to be discussed on a comparable methodological basis.

5.4.1. The Ageing Report projections of employment rates and labour market exit ages

Prepared jointly by the Ageing Working Group of the Economic Policy Committee (EPC-AWG) and the European Commission, the Ageing Report provides long-term budgetary projections of age-related public expenditures in the areas of pensions, health care, long-term care, education and unemployment benefits. The demographic and macroeconomic assumptions used for the Ageing Report also served as a basis for the calculation of prospective TRRs. The focus of this sub-section is on the assumed future evolution of employment rates and labour market exit ages.

The Ageing Report projections of labour market participation are based on the so-called ‘Cohort Simulation Model’ (CSM), which essentially consists of carrying over current employment rates along cohorts as they age (see Box 3.3 in section 3.1.2 for a more detailed introduction to the methodology). Some of the key results of the AR employment projection exercise are presented and discussed below.

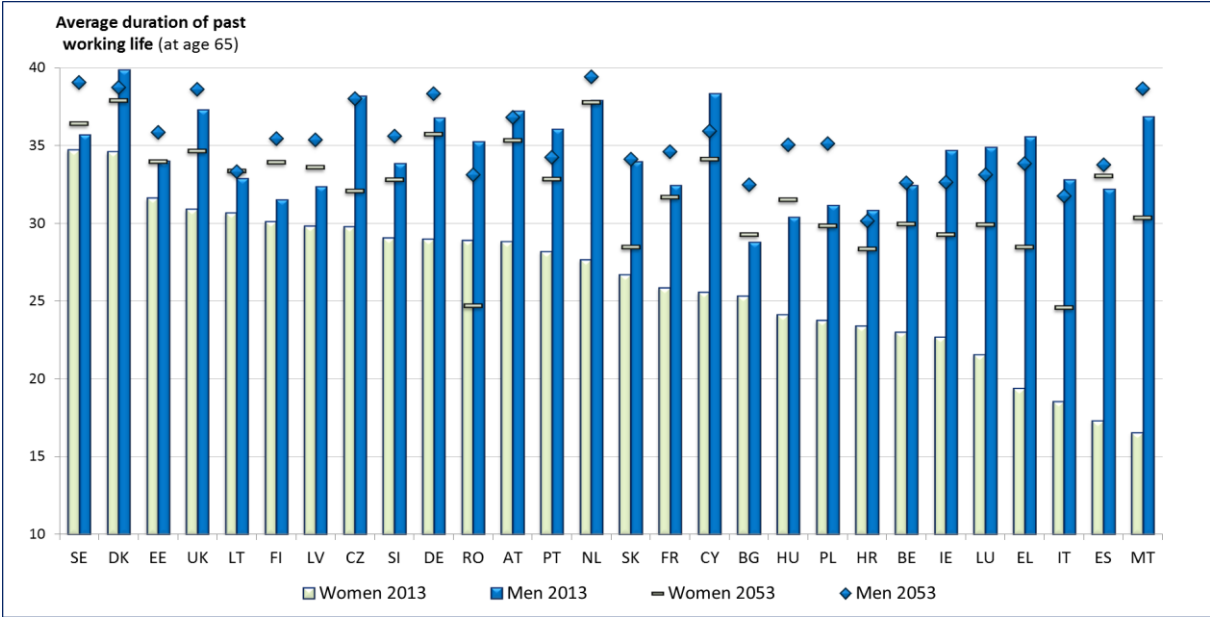
In general, employment rates have been increasing in recent decades, especially among women and, more recently, older workers (see section 2.5 on recent employment trends), and the Ageing Report projects that this trend will continue in the next 40 years. Figure 5.25 illustrates the estimated average duration of past working lives for men and women in 2013 and 2053, respectively.¹²⁸ The assumption of overall rising employment rates leads to longer working lives and more contribution years, notably as employment rates after age 65 are also projected to increase.

Among men the increase is moderate and in most countries its impact on the average duration of past average working life at age 65 (AWL-65) is limited. However, an increase by three or more years is projected for six Member States (Hungary, Poland, Finland, Bulgaria, Sweden and Latvia). In 2053, the AWL-65 for men ranges from slightly above 30 years in Croatia to around 39 years in the Netherlands, Sweden and Denmark. The AWL-65 in 2053 is thereby influenced by the current low youth employment rates in countries most affected by the

¹²⁸ Note that the indicator only takes worked periods into account and represents averages for the total population, meaning that both those who have worked and those who have been inactive are included. Thus, these figures are likely to differ from administrative data from national sources, as they tend to underestimate the working period behind the average pension request. In addition, these estimates take only employment rates into account, not working time. In as far as some periods are worked part-time, the estimates below overestimate accrued pension rights.

recession, which partly explains the decrease among men in Ireland, Greece, Cyprus and Portugal.

Figure 5. 25: Average duration of past working life at age 65 in 2013 and 2053, by gender



Source: Eurostat, *lfsa_ergan*, *lfsa_ergacob*, *migr_imm3ctb* (<2013); 2015 Ageing report (>=2013); European Commission calculations. Sorted by the value for women in 2013.

Among women, the AWL-65 in 2053 is projected to range between less than 25 years in Romania and Italy to more than 35 years in Denmark, the Netherlands, Sweden, Austria and Germany. The projected increase between 2013 and 2053 is often substantial, as is the case in Spain and Malta, where the past work career is projected to almost double from current low levels. A main driver behind the expected increase in female labour market participation is the assumption of *constant* cohort-specific and gender-specific labour force participation probabilities, which results in an increase in women's employment rates over time as older cohorts with lower labour market attachment are replaced by younger ones with fuller careers.

The calculations of prospective TRRs illustrate how pension adequacy will increasingly depend on longer contributory periods and later retirements in line with rising pensionable ages in many Member States. In order to reflect the impact of pension reforms on incentives to undertake longer working lives, labour market exit probabilities for people aged 55 to 70 were adjusted upwards on a country-by-country basis (see also section 5.2.1 on the prospective AWG TRR case). The resulting projections of the ‘average effective exit age from the labour market’ confirm that the gaps between pensionable ages and average exit ages are likely to expand over the projection period.

The Ageing Report projections of labour market exit ages do not foresee a continuous increase in the effective retirement ages of people through the linking of pensionable ages to life expectancy. Table 5.6 provides an overview of the future evolution of average effective exit ages from the labour market of men and women. In the EU-28, the average effective exit age is expected to increase by 1.7 years for men and 2.2 years for women between 2014 and 2060. The calculations suggest a major increase in the effective exit ages in the short period from 2014 to 2020, but with average exit ages tending to remain rather stable thereafter. In

particular, constant average exit ages of both women and men are projected in 19 and 18 Member States respectively over the period 2040 to 2060.

Table 5. 6: Average effective exit age from the labour market, by gender

MS	<i>Men</i>					<i>Women</i>				
	2014	Change between			2060	2014	Change between			2060
		2014-2020	2020-2040	2040-2060			2014-2020	2020-2040	2040-2060	
EU	63.6	0.8	0.6	0.3	65.3	62.6	1.0	0.9	0.3	64.8
BE	61.9	0.2	0.0	0.0	62.1	62.1	0.2	0.1	0.0	62.4
BG	63.8	1.0	0.0	0.0	64.8	62.0	0.5	0.0	0.0	62.5
CZ	63.1	0.3	1.5	1.4	66.3	60.7	0.7	3.0	1.9	66.3
DK	65.6	0.6	1.1	0.6	67.9	63.4	1.9	0.8	1.6	67.7
DE	65.1	0.3	0.3	0.0	65.7	64.2	0.4	0.7	0.0	65.3
EE	64.4	0.3	0.7	0.0	65.4	64.2	0.4	0.4	0.0	65.0
IE	64.9	0.4	0.7	0.0	66.0	64.8	0.6	0.7	0.0	66.1
EL	64.4	0.5	2.0	0.6	67.5	64.5	0.3	1.5	0.8	67.1
ES	62.8	2.0	1.3	0.1	66.2	64.1	1.7	0.8	0.1	66.7
FR	60.8	1.5	0.8	0.0	63.1	60.9	1.4	0.8	0.0	63.1
HR	62.4	0.2	1.4	0.0	64.0	61.4	0.5	1.8	0.0	63.7
IT	62.4	3.5	0.5	0.9	67.3	62.1	3.4	0.9	1.1	67.5
CY	64.9	1.5	0.6	0.7	67.7	62.8	2.8	0.8	1.0	67.4
LV	64.6	0.4	0.3	0.0	65.3	64.0	0.7	0.6	0.0	65.3
LT	62.8	0.8	0.7	0.0	64.3	61.9	0.9	1.0	0.0	63.8
LU	60.2	0.0	0.0	0.0	60.2	60.9	0.0	0.0	0.0	60.9
HU	63.0	1.7	0.6	0.0	65.3	63.0	1.4	0.5	0.0	64.9
MT	62.0	1.1	0.9	0.0	64.0	61.0	1.0	0.6	0.0	62.6
NL	65.5	1.1	0.9	0.6	68.1	63.7	0.9	0.9	0.7	66.2
AT	62.5	1.5	0.2	0.0	64.2	61.0	1.2	1.0	0.0	63.2
PL	63.9	2.1	0.0	0.0	66.0	60.2	1.8	3.8	0.0	65.8
PT	64.3	1.0	1.2	0.2	66.7	63.9	1.2	0.9	0.2	66.2
RO	64.0	0.0	0.0	0.0	64.0	62.3	0.1	0.2	0.0	62.6
SI	62.5	1.6	0.0	0.0	64.1	60.0	3.6	0.0	0.0	63.6
SK	61.6	0.3	1.7	2.6	66.2	59.7	2.0	1.6	2.6	65.9
FI	63.6	0.5	0.0	0.0	64.1	63.1	0.8	0.0	0.0	63.9
SE	65.8	-0.2	0.0	0.0	65.6	64.5	-0.1	0.0	0.0	64.4
UK	64.9	0.0	0.7	0.2	65.8	63.6	0.6	1.6	0.0	65.8

Source: The 2015 Ageing Report.

The expected moderate increase in effective labour market exit ages for the majority of Member States reflect the underlying assumptions of constant cohort-specific labour force participation probabilities and a country-specific shift in the distribution of exit ages according to legislated changes in early and standard retirement ages. As a consequence, the model predicts rather constant (or even declining) labour market exit ages for countries with no changes in pensionable ages in the projection period.

As a result, the gap increases between the average exit ages predicted by the Cohort Simulation Model and the legislated pensionable ages for most Member States between 2014 and 2060. This is particularly clear for men¹²⁹ as illustrated in Table 5.7, where the progression in pensionable ages from the 2015 Ageing Report is listed next to the calculated gap with respect to the average effective labour market exit age.

¹²⁹ A table for women would show similar results.

In 2014, the gap between average exit age and pensionable age ranged from more than three years in Belgium, Italy, Luxemburg and France to average exit ages *above* the pensionable age in seven Member States (Latvia, Estonia, Hungary, Denmark, the Netherlands, Czech Republic and Bulgaria). CSM-based average exit age probabilities that exceed the pensionable age are thus not always consistent with the retirement patterns actually observed in the countries. Hungary, for instance, reports one of the lowest duration of working live and very low older workers employment rate.

Table 5. 7: *Evolution of average effective exit ages (EEA) and standard pensionable ages (SPA) between 2014 and 2060, men*

MS	2014		2020		2040		2060		Change in gap 2014-60
	<u>SPA</u>	<u>Gap: SPA-EEA</u>	<u>SPA</u>	<u>Gap: SPA-EEA</u>	<u>SPA</u>	<u>Gap: SPA-EEA</u>	<u>SPA</u>	<u>Gap: SPA-EEA</u>	
BE	65.0	3.1	65.0	2.9	65.0	2.9	65.0	2.9	-0.2
BG	63.7	-0.1	65.0	0.2	65.0	0.2	65.0	0.2	0.3
CZ	62.7	-0.4	63.7	0.3	66.5	1.6	69.3	3.0	3.4
DK	65.0	-0.6	66.0	-0.2	70.0	2.7	72.5	4.6	5.2
DE	65.3	0.2	65.8	0.4	67.0	1.3	67.0	1.3	1.1
EE	63.0	-1.4	63.8	-0.9	65.0	-0.4	65.0	-0.4	1.0
IE	66.0	1.1	67.0	1.7	68.0	2.0	68.0	2.0	0.9
EL	67.0	2.6	65.8	0.9	69.9	3.0	71.9	4.4	1.8
ES	65.0	2.2	67.0	2.2	67.0	0.9	67.0	0.8	-1.4
FR	65.8	5.0	67.0	4.7	67.0	3.9	67.0	3.9	-1.1
HR	65.0	2.6	66.8	4.2	67.0	3.0	67.0	3.0	0.4
IT	66.3	3.9	66.8	0.9	68.4	2.0	70.0	2.7	-1.2
CY	65.0	0.1	65.0	-1.4	67.0	0.0	69.0	1.3	1.2
LV	62.0	-2.6	63.8	-1.2	65.0	-0.3	65.0	-0.3	2.3
LT	63.0	0.2	64.1	0.5	65.0	0.7	65.0	0.7	0.5
LU	65.0	4.8	65.0	4.8	65.0	4.8	65.0	4.8	0.0
HU	62.0	-1.0	64.5	-0.2	65.0	-0.3	65.0	-0.3	0.7
MT	62.0	0.0	63.0	-0.1	65.0	1.0	65.0	1.0	1.0
NL	65.1	-0.4	66.3	-0.3	69.3	1.8	71.5	3.4	3.8
AT	65.0	2.5	65.0	1.0	65.0	0.8	65.0	0.8	-1.7
PL	65.3	1.4	67.0	1.0	67.0	1.0	67.0	1.0	-0.4
PT	65.0	0.7	66.4	1.1	67.7	1.2	68.8	2.1	1.4
RO	64.7	0.7	65.0	1.0	65.0	1.0	65.0	1.0	0.3
SI	65.0	2.5	65.0	0.9	65.0	0.9	65.0	0.9	-1.6
SK	62.0	0.4	62.4	0.5	65.1	1.5	66.8	0.6	0.2
FI	65.0	1.4	65.0	0.9	65.0	0.9	65.0	0.9	-0.5
SE	65.0	1.2	65.0	1.4	65.0	1.4	65.0	1.4	0.2
UK	65.0	0.1	66.0	1.1	66.7	1.1	68.0	2.2	2.1

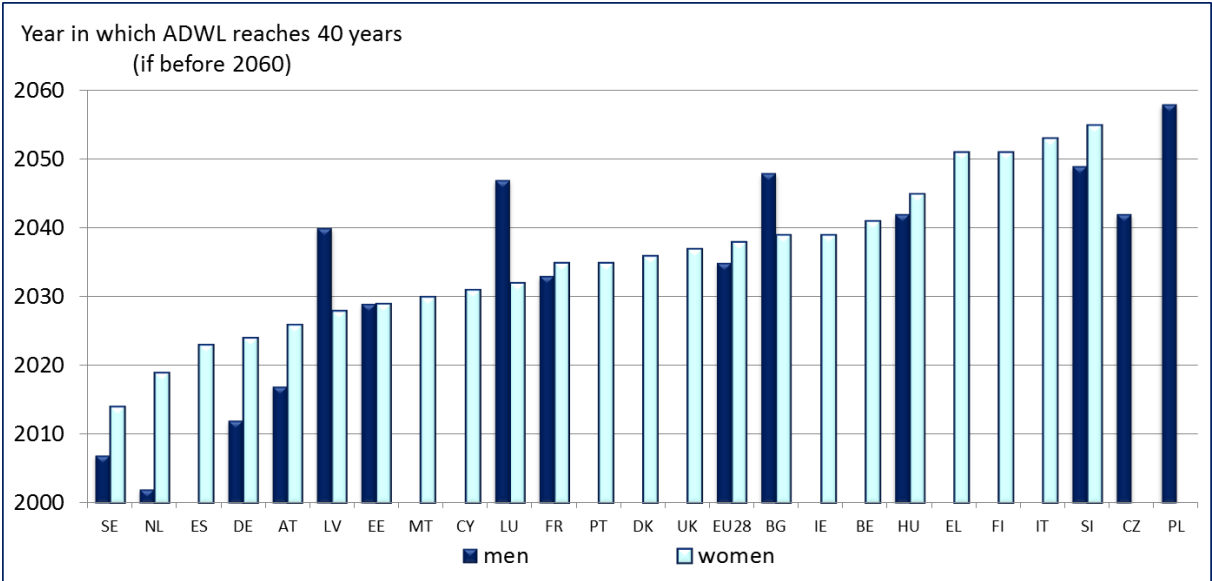
Source: *The 2015 Ageing Report (average effective exit ages) and Member States (SPA)*

The projected change in the gap between the average effective exit age and the pensionable age over the period 2014 to 2060 is displayed in the last column of Table 5.7. In eight Member States (Austria, Slovenia, Spain, Italy, France, Finland, Poland and Belgium), the gap is predicted to decrease over the coming decades, which would bring the average age of labour market exit closer to the (in some countries increasing) pensionable age. In 12 Member States, however, the gap is projected to increase by more than one year between 2014 and 2060, with a widening of the gap by more than two years in the United Kingdom, Latvia, the Czech Republic, the Netherlands and Denmark.

Member States that have linked the pensionable age to life expectancy appear to be in particular difficulties.¹³⁰ As the pensionable age continues to increase in line with life expectancy, they seem to be achieving little beyond a widening of the gap. Consequently, the data suggest that there will be sizeable increases in the ‘length of retirement’ for women (+2.7 years) and men (+3.7 years) as effect of people continuing to exit the labour market a number of years before they reach the pensionable age.

Projecting career lengths based on recent trends. The trend in labour market exit behaviour projected by the Cohort Simulation Model tends to deviate from the observed evolution of older workers' employment in the recent past. As outlined in detail in section 2.5, the last decade has been a period with continuous and rapid increases in the employment rates of older workers, and subsequently in the average duration of working lives. Between 2000 and 2013, the working lives of men and women lengthened on average in the majority of European countries, with the increases observed being larger for women (3.3 years) relative to men (1.3 years). However, women exhibited working lives almost seven years shorter than those of men in 2000 (29.2 years relative to 36.4 years in EU-28), and still had working lives that were five years shorter in 2013.

Figure 5. 26: Year in which the average duration of working life (ADWL) reaches 40 years if the trend in the period 2000-2013 is continued, by sex



Source: European Commission. Note: If the 2000-2013 trend is assumed, ADWL would reach 40 years only after 2060 in ES, BE, FI, IT, LT, SK (men) and CZ, LT, HR, PL, SK (women), respectively. No results are reported for MT, PT, E, EL, HR and RO for men due to a negative employment trend in the 2000-2013 period. In CY, DK and UK, the AWDL was above 40 years already in 2000.

In order to obtain an alternative estimate of the length of working careers that people would manage to achieve in the future, a computation was made concerning the year in which the duration of working life for EU28 would reach 40 years, if it continued to lengthen at the same annual speed as it had done between 2000 and 2013 (Figure 5.26). If this past trend continues into the future, an average duration of working life of 40 years would be reached in 2035 for men and in 2038 for women in the EU-28. However, differences across Member States are substantial, driven also by the very different evolution of employment participation of older workers in the past decade. Encouragingly the present gender gaps in the duration of

¹³⁰ Only Italy manages to decrease the gap between effective and pensionable ages.

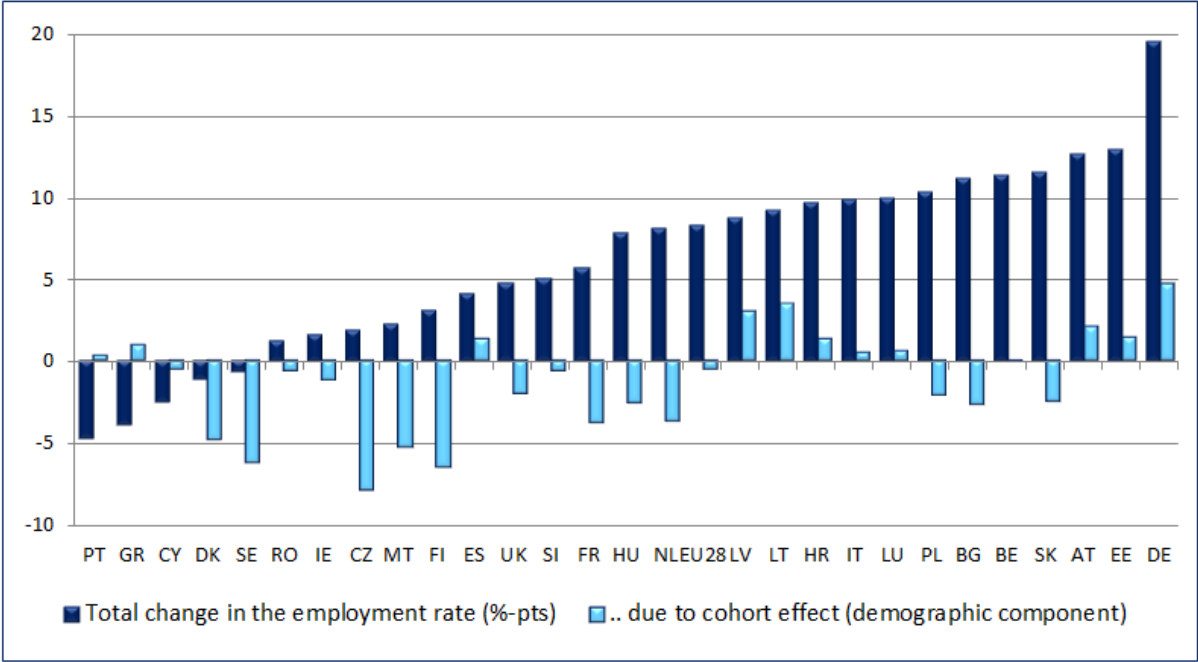
working life has reduced markedly over the last decade (see Figure 2.39) and the convergence in the length of careers is also reflected when the past trend is extrapolated into the future.

Structural factors in the evolution of older workers' employment. However, simply assuming that past trends in the employment rates of older workers can be carried forward neglects the importance of structural factors (i.e. cohort and composition effects) that have played a key role in the recent evolution of older workers labour market participation, but are unlikely to continue for the next 40 years.

As a case in point, the impact of the age composition of older workers on past employment trends is illustrated here. Employment rates of older workers are usually assessed for the age group 55-64 years, which are, however characterised by big differences between the employment rates of cohorts aged 55-59 and cohorts 60-64. If cohorts passing through the 55-59 age range become substantially larger, then the share of younger cohorts within the group of older workers becomes larger, thereby causing the older-workers' employment rate to rise. Such a shift would not imply a genuine increase in the employment rate for every single age-cohort, but be due only to the transitional change of the age-composition towards younger ages within the 55-64 age group.

Figure 5.27 illustrates the change in the employment rates of older workers between 2002 and 2013, expanding the age-range in question to those aged between 50 and 69 years of age. Countries are ordered in terms their observed increase in the employment rate of the age cohort 50 to 69 years, which was particularly remarkable in Germany (close to 20 percentage points). On the other hand, in the Nordic countries which have all had above-average employment rates in absolute terms, the increase since 2002 has been either very moderate or even negative.

Figure 5. 27: Change in the employment rate from 2002 to 2013 and demographic component in employment (50-69 year-olds)



Source: DG EMPL calculations based on Eurostat Europop 2013 population projection, Main scenario, and Eurostat LFS.

In fact the seemingly less favourable development in these countries was in fact due to a structural cohort effect. The light blue bars indicate the impact of the age composition effect on the overall change in the employment rate observed between 2002 and 2013.¹³¹ For instance, it shows that Germany was helped by demographic 'wind on its back' as a quarter of the overall increase in the older-workers' employment rate has been due to the cohort age composition effect. France, on the other hand, would have seen a considerably stronger increase were it not for the demographic 'wind in its face'. In countries like Sweden and Denmark the head-wind was so strong that it turned an upward shift in the older-workers employment rate into a decline.

This age component is a transitional phenomenon of shorter duration, though. As particularly large cohorts from the peak of the post WWII baby-boom pass through the age-range of 50-69, the structural effect related to cohort size is expected to level out. Hence countries that have benefited from favourable demographic conditions would have to make an extra effort to carry forward the currently impressive employment profile of older people into the future.

Annex 5 provides a detailed analysis of how four factors - the age composition; the gender composition; the structure of the economy; and the educational attainment of older workers - have all shaped the rise in older workers' employment rates and exit ages in the past decade, and how these effects will also impact on future labour market developments beyond policy changes and incentives from pension reforms.

In summary, the employment projections of the Ageing Report, as well as alternative attempts to predict the future evolution of labour markets, all point to increasing threats to pension adequacy as a result of insufficient contributory records. While these scenarios suggest that a reasonable alignment between the duration of working life and the contribution period requirements could emerge, the differences between Member States and population groups are large. Even Member States with benign scenarios overall face serious risks of misalignment, which call for work places and labour market changes in order to enable and encourage women and men to work to higher ages before they take-up a pension.

5.4.2. Comparison of TRR calculations with adequacy projections from the Ageing Report

Based on the employment projections outlined above, the Ageing Report provides projections of the fiscal sustainability and adequacy of public pension schemes. This section outlines the Ageing Report projection of public pension expenditure over the next four decades for all 28 Member States, and compares the resulting pension adequacy projections to the prospective TRR calculations.

For EU-28 as a whole, gross public pension expenditure as a share of GDP is projected to be at about the same level in 2055¹³² as it was in 2013. However, the projections differ substantially across Member States, ranging from declines of 3.8 p.p. of GDP in Croatia to increases of 3.8 p.p. of GDP in Slovenia (Figure 5.28). Apart from these global projections, the Ageing Report also provides a decomposition of the main drivers of pension expenditure

¹³¹ If one keeps the age-specific employment rates for every single-age cohort between 50 and 69 years constant at 2002 levels, this would leave any change in the overall employment rate for the total age-range 50-69 to structural changes of the age-composition within that range.

¹³² The Ageing Report does not have data for 2053, the final year in the TRR cases, therefore the closest year that is covered is chosen for our comparisons.

as set out in Box 5.3, namely the dependency ratio, the coverage ratio, the benefit ratio, and the labour market effects. In this respect, recent pension reforms have aimed at mitigating the expenditure-increasing impact of the first determinant by reducing the effects of the other three.

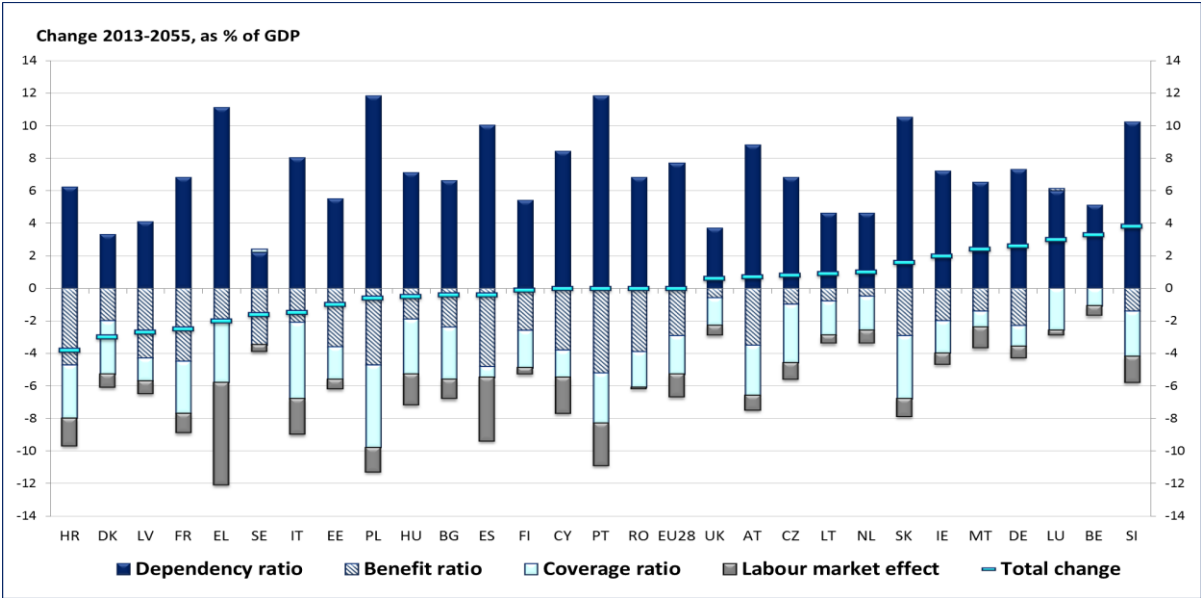
Box 5. 3: Decomposition of public pension expenditure (source: The 2015 Ageing Report)

Changes in public pension expenditure are decomposed into the following four main effects:

- The **dependency ratio effect** reflects changes in the population structure (population 65+ vs. pop. 20-64).
- The **coverage ratio effect** is defined as the number of pensioners (all ages) relative to the population 65+, reflecting (i) the evolution of effective retirement ages; and (ii) future coverage of public pension systems.
- The **labour market effect** describes the impact of LM behaviour on pension expenditure, consisting of the three sub-components (i) labour intensity (hours worked by the working-age population); (ii) employment rate of people aged 20-64; and (iii) career prolongation effect (capturing the effect of working above the age of 65).
- The **benefit ratio effect** reflects the development of the average pension relative to the average wage.

The contribution of these four effects to the future change in pension expenditure is disentangled in Figure 5.28. In all Member States, the increasing share of elderly people relative to the working-age population (the rising dependency ratio) is projected to drive up pension expenditure with the isolated effect of population ageing expected to increase public pension expenditure by 7.7 percent of GDP in 2055.

Figure 5. 28: Change in public pension expenditure projections between 2013 and 2055, total and decomposed into main effects (from the 2015 Ageing Report)



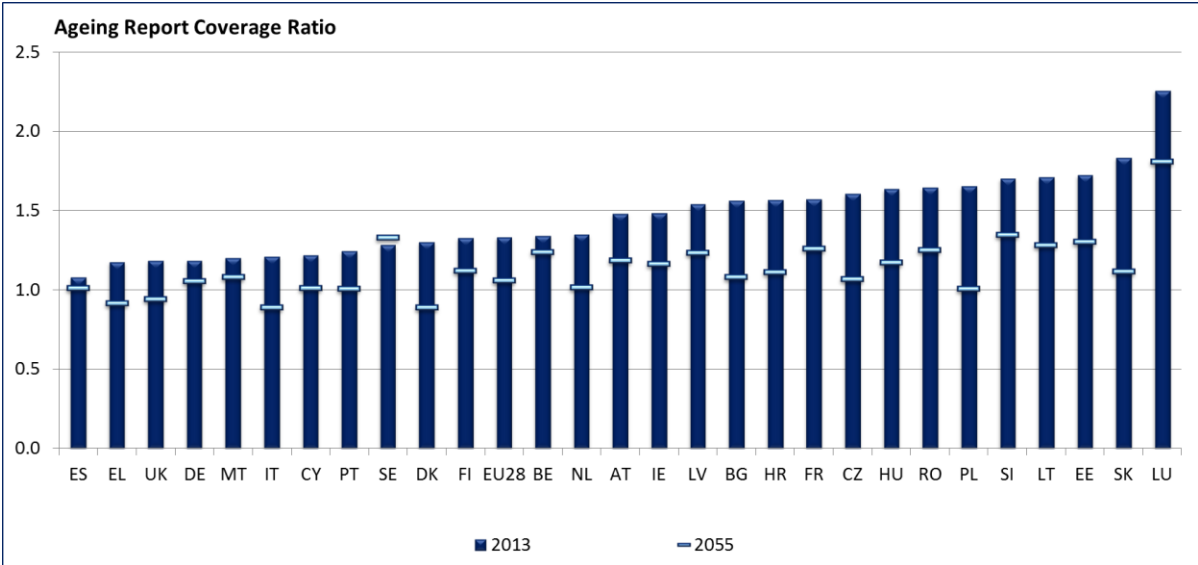
Source: The 2015 Ageing Report.

This rise in expenditure is slightly offset by changes in labour market behaviour, such as overall higher participation rates or increased employment beyond the age of 65, but this is only expected to reduce the pressure on public pension expenditure by 1.4 percentage points of GDP over the period. The main contribution to the overall stable evolution of public

pension spending over the next four decades is found in the substantial decreases in the coverage ratio (-2.4 p.p. of GDP) and in the benefit ratio (-2.9 p.p. of GDP).¹³³

Changes in the coverage ratio. The coverage ratio concerns the proportion of people who are supported by the pension system. One way to contain a rise in expenditure is by reducing the number of people who depend on it. Figure 5.29 illustrates the evolution of the ratio between pensioners and residents aged 65 and over between 2013 and 2055. As shown by the horizontal lines, almost all EU Member States are expected to see a reduction in the coverage ratio, despite the fact that the increase in female labour participation will result in a higher proportion of women having accrued pension rights and thereby have a positive impact on the coverage ratio.¹³⁴

Figure 5. 29: Ratio between the total number of pensioners and residents aged 65+, in 2013 and 2055



Source: The 2015 Ageing Report. Note: sorted by the decrease in coverage ratio over time.

The decrease in the coverage ratio is mainly driven by rising exit ages from the labour market, leading to more people around the age of 65 relying on work income. While this is a welcome development, there could be a rise in the take-up of social benefits to bridge the time from labour exit to the pension age if rising SPAs are not matched by an equivalent increase in the duration of working lives. As shown in the previous section, the gap between the average labour market exit age and the standard pensionable age is projected to increase substantially in a number of Member States.

Finally, the trend towards a decreasing coverage ratio could also be due to more restricted access to benefits, including disability pensions, or to an increase in the proportion of people who do not have access to old-age benefits at all. For instance, section 5.1 indicated how, in several Member States, the proportion of older migrants is set to rise substantially and these

¹³³ Note that the difference between the total change in public pension expenditure and the contributions of the four main effects is explained by interaction effects equal to -0.4 p.p. of GDP for the EU-28.

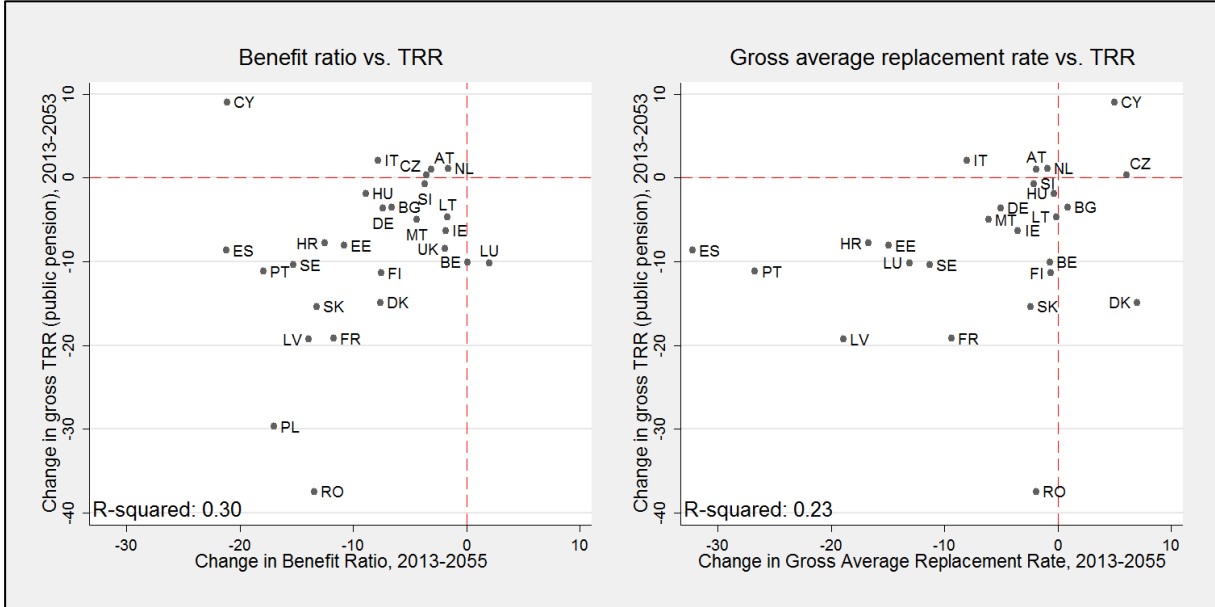
¹³⁴ Note that the picture below is not necessarily comparable across Member States as the number of pensioners is from the viewpoint of national pension systems. For instance, these will have to pay also for foreign workers who might have returned to their country of origin after a career abroad. Luxembourg is a clear case in point, as it will be paying about 3 pensions for each two residents aged 65+, due to the large number of people who work in the countries and live in neighbouring countries.

people are less likely to have acquired rights to a pension through contributions or residence requirements.

Changes in the benefit ratio. The second substantial factor that contributes to containing pension expenditure in the EU-28 in the future are reduced benefits relative to average wages. In the Ageing Report, two indicators of pension adequacy are provided: the Benefit Ratio (BR), which is defined as the average pension benefit relative to the economy-wide average wage, and the Gross Average Replacement Rate (GaRR), which relates the average first pension to the economy-wide average wage at retirement (See Box 3.1 for a more detailed introduction).

In EU-28, the benefit ratio is projected to decrease by 8.8 percentage points from 44.0 in 2013 to 35.2 in 2055, while the gross average replacement ratio is expected to decline by 6.6 percentage points from 42.5 in 2013 to 35.9 in 2055. The fact that most Member States have enacted reforms that are expected to reduce benefit levels from the public pension system is reflected in both of the adequacy indicators from the Ageing Report. Dependent on the replacement indicator, the only exceptions are Bulgaria, the Czech Republic (GaRR), Belgium and Luxemburg (BR), where the ratio is projected to increase slightly in the next 40 years.

Figure 5. 30: Changes in the Benefit ratio (2013-2055) and the Gross average replacement rate for earnings related public pensions (2013-2060), compared to the change in the gross TRR (public pension) under base case II (2013-2053)



Source: Member States and OECD (TRR), 2015 Ageing Report (BR and GaRR).

In Figure 5.30, the projected changes in both AR adequacy indicators are compared to the 2013-2053 change in the gross theoretical replacement rate for public pension schemes.¹³⁵ The three different measures of future changes in pension adequacy provide a generally consistent picture.¹³⁶ Despite the different concepts behind the indicators with regard to their

¹³⁵ TRR for mandatory DB and NDC schemes under base case II (40 year career up to the SPA).

¹³⁶ "Outliers", such as Cyprus under the benefit ratio or Romania under the gross average replacement rate, can be explained by different schemes that are included under the different indicators

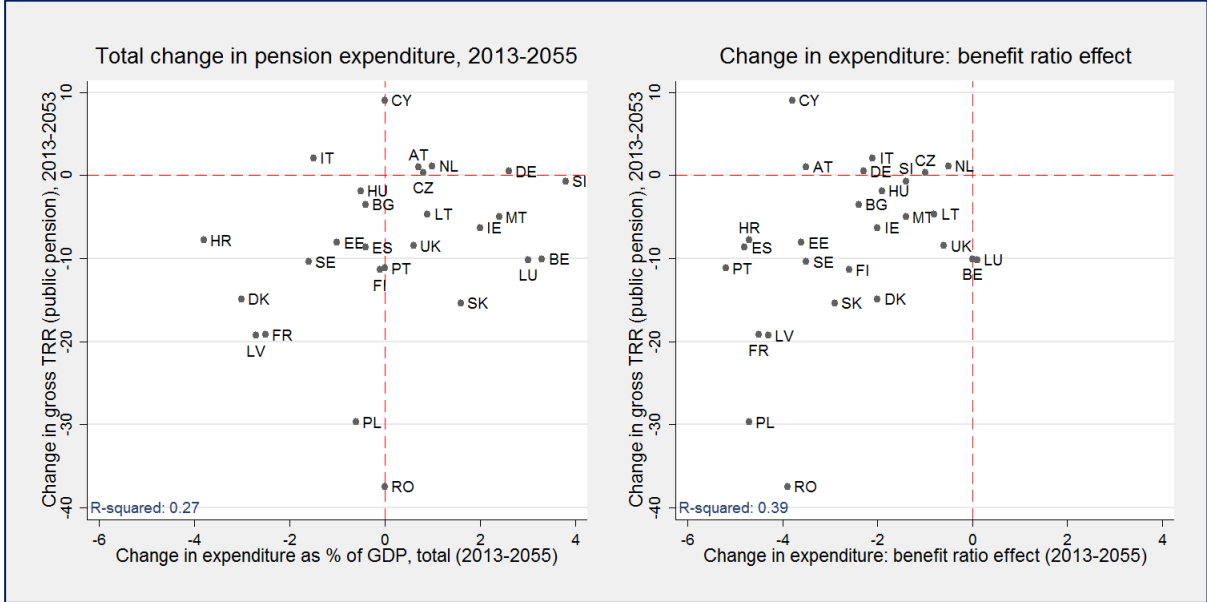
coverage of pension schemes and their time horizons, a downward trend of future pension levels is foreseen for the majority of Member States.

Consistently across all three replacement rate concepts, future pensioners are expected to receive relatively lower pensions from public pension schemes compared to the current generation of retirees. The expected decline in theoretical replacement rates for public pensions is of a similar overall magnitude as the decline in the two AR adequacy indicators, with an average (unweighted) decrease of 8.7 percentage points across the 28 Member States.

Success in containing public pension expenditure in the long run, as projected by the Ageing Report, is thus mainly achieved through reduced benefit levels in the future. This is confirmed when comparing the projected evolution of public pension expenditure with the change in the gross TRR from public schemes. The left panel of Figure 5.31 compares the total change in pension expenditure between 2013 and 2055 to the evolution of gross TRRs for public pension schemes between 2013 and 2053.

There is no clear link between the change in replacement rates and the projected evolution of pension expenditure, with the latter being also dependent on demographic and labour market developments. Thus Member States with a projected increase in pension expenditure might still be confronted with a projected reduction in public pension adequacy (United Kingdom, Lithuania, Slovakia, Ireland, Malta, Luxemburg, Belgium, Slovenia).

Figure 5. 31: Projected changes in public pension expenditure 2013-2055, total and benefit ratio effect, compared to the change in the gross TRR (public pension), base case II



Source: Member States and OECD (TRR), 2015 Ageing Report (expenditure projections).

However, the decrease in future replacement rates is clearly mirrored in the projected development of the benefit ratio (see right panel). Reductions in expenditure from curbing the benefit ratio go hand-in-hand with projected TRR decreases. Generally speaking, replacement rates tend to decrease more in Member States in which reductions in future pension expenditure are achieved through a decline in the benefit ratio.

Changes in the Labour Market. As illustrated in the previous subsection, labour participation is projected to increase in almost all Member States, but with complex

consequences for pension expenditures and adequacy. More labour participation means that more people (and, in these projections, especially more women) will gain the right to a pension on the basis of longer contributory periods. This increases adequacy but it also increases expenditure in the future. Since this impact on pension expenditure is expected to be more than compensated by an increase in GDP caused mainly by an increase in manpower, though, pension expenditure as a proportion of GDP is expected to decrease.

The employment scenarios in the 2015 Ageing Report (AR) also point, however, to increases in the number of pensioners whose working lives will have been short, thereby potentially increasing poverty and inequality at older ages. If women continue to be the main drivers of fuller and longer working lives, as the scenarios suggest, the gender gap in pensions will decrease, making up for the expected weakening of the derived benefits (survivors pension) that hitherto have helped mitigate female poverty at older ages.

Overall, the results from the 2015 Ageing Report indicate that, when it comes to raising effective exit ages, pension reforms alone cannot achieve this. These results thus point to the need for further reforms, with a particular focus on changes at the workplace and within labour markets more generally in order to encourage and enable women and men to work to higher ages and earn entitlements to adequate pension benefits.

5.5. Major risks to future pension adequacy

All pension arrangements entail exposure to internal and external risks. Different types of pension schemes - pay-as-you-go versus pre-funded schemes, or flat-rate versus earnings-related schemes - differ in their risk profiles, with particular sensitivities and inherent weaknesses. Beyond such differences in the overall conception and design, risks in pension arrangements will depend on their detailed features, the quality of their implementation, and how well they match key aspects of the national context.

Importantly, many risks cannot be removed, but only mitigated or balanced against each other. Reforms that aim to remove or reduce risks in present arrangements – such as ageing leading to excessive increases in public pension expenditure - may also introduce new or higher risks in other areas. Chapter 4 discussed some of the political risks associated with the reductions in pensions, including some of the major risks to future pension adequacy emanating from the direction of longer-term reforms in many Member States.

For instance, when reforms seek to take the pressure off public pensions, to diversify risks or maintain or raise the overall adequacy of pension provisions by promoting prefunded private pensions, they also make pension adequacy far more dependent on the volatilities in financial markets. Chapter 4 and the country profiles highlighted how different national pension arrangements – whether pay-as-you-go or pre-funded - have been affected by the financial, economic and fiscal crisis since 2008 with special attention paid to the risks associated with the financing and organisation of mandatory private pensions in some Member States.

Similarly, when reforms strengthen the links between pension entitlements and contributions based on earnings from work by increasing the contribution period and raising the pensionable age, they import some of the risks associated with workplace practices and labour markets. The analyses in chapters 5.2 and 5.3.1 specified the magnitude of how replacement

rates and benefit levels for certain income patterns and career types may be affected by the risks inherent in reformed national pension systems.

Pension schemes also differ in the extent to which they pass some of the risks to which they are exposed onto their beneficiaries. Classical DB schemes - whether pay-as-you-go or pre-funded - shielded individual beneficiaries from important parts of the risks in labour and/or financial markets. The more entitlements become defined by contributions, however, the more beneficiaries come to share in, or fully bear, some of these risks.

What is important is to detect the new risk profiles that result from reforms and to take appropriate measures to mitigate such risks and/or develop instruments to address them should the problems actually occur. In that respect the two main risks to future pension adequacy from recent reforms are

1. those that emanate from the reduction in the relative value of pension benefits due to tighter links with contributions and weaker valorisation and indexing; and
2. those that result from career patterns that fail to match rising pensionable ages and comply with increases in contribution periods.

Since the latter results from a key trend in recent reforms (see section 4.4) it is given particular attention in the following analysis.

5.5.1. Risks linked to reductions in the relative value of pension benefits

In the 2015 Ageing Report, the decomposition of factors that reduce the impact of ageing on public pension expenditure demonstrate that an important part of the gains in sustainability can be explained by reductions in the 'benefit ratio', which measures the relative value of pension benefits compared to average wages.

Reductions in the indexation of pension benefits. This evidence fits with the results of the review of recent pension reforms in chapter 4 which revealed the high frequency of reductions in the indexation, and the widespread move towards contribution-determined benefits. In the current low-growth low-inflation environment, the risks resulting from weak indexation are small. If economic growth were to accelerate, however, indexation linked to prices will not offer sufficient protection. The '10 years after retirement' TRR case shows that inadequate indexation arrangements present an increasing risk to income adequacy for pensioners as they age. Over a short period of years with high rates of economic growth, the relative value of pension benefits can be significantly diminished by wage developments.

Lower replacement rates from public pension schemes. The decomposition of the changes in TRR levels (presented in Figures 5.15-5.17) confirms that, in a majority of Member States, the net TRRs for public pensions will decline in the future. However, across the EU there are many differences foreseen with regard to the evolution of net TRRs for public pensions between 2013 and 2053. For a male worker with average earnings and a 40-year career up to the national SPA, changes range from a drop of more than 30 percentage points in Romania and Poland to an increase of 9 percentage points in Cyprus. There are a total of 22 Member States where such a career would lead to a lower net TRR for public pensions in the future, and 5 where it would result in a higher.

High income earners will be more affected than workers with average and low income as net TRRs for them will be declining in 24 Member States. The least affected tend to be average income earners, while net TRRs under a full career scenario will be declining for low income earners to a greater extent than foreseen for average earners in 14 Member States. Hence it would seem that many recent reforms have paid only limited attention to maintaining the net replacement rate and poverty protection for low-income earners.

The extent to which people will be able to compensate for the reduction in net TRRs from 2013 to 2053 by working some years longer is not fully clear from the TRR case examples. While working two years beyond the SPA and postponing pension take-up will be rewarded by extra entitlements in most Member States, such an extension of working life will not, in general, be sufficient to compensate for the decline in net TRRs for a 40 career up to the SPA.

A greater role for pre-funded pension schemes increases the risks for individual beneficiaries. The decline in net TRRs from public pay-as-you-go schemes in 22 Member States is projected to be largely, or somewhat, compensated by rising entitlements in statutory funded schemes in eight Member States and by occupational and other supplementary schemes in four others. A further four Member States envisage that the share of benefits from occupational schemes will decrease. Overall this implies that pension income will become more dependent on developments in financial markets in almost half of the Member States. The analysis of theoretical replacement rates in this report is based on the assumption of a uniform real rate of return of 3 percent from 2017 onwards (see Annex 3 for further details). Exemplary evidence on the degree to which future pension entitlements will depend on investment returns is presented in Box 5.4.

Box 5. 4: Private pension funds and the degree of investment risk: historical evidence applied to selected OECD countries

The OECD has analysed the past distribution of real rates of return for an illustration of the investment risk inherent to private pension funds.¹³⁷ Based on historical data from eight OECD countries (Canada, France, Germany, Italy, Japan, Sweden, the United Kingdom and the United States), the analysis revealed a median real rate of return of 4.3 percent annually for a portfolio equally split between equities and government bonds. Some 10 percent of the time, the real return is expected to be less than 2.5 percent, whereas it is found at more than 6.0 percent in the top decile of the distribution of returns.

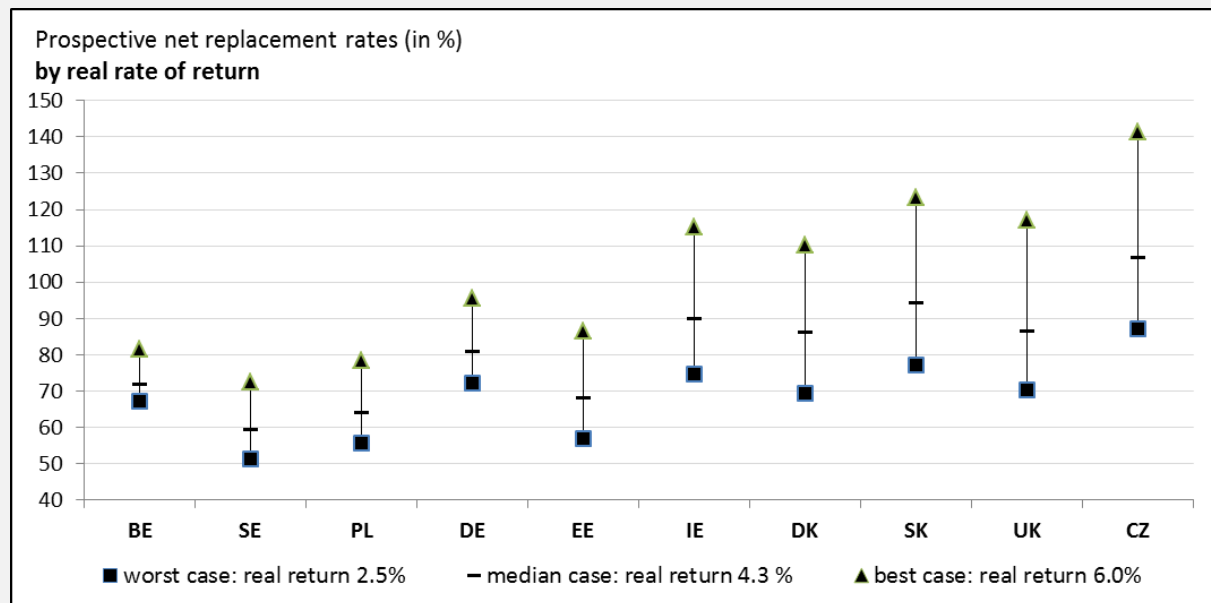
The way in which the investment risk impacts on retirement incomes then also depends on the structure of the retirement-income package as well as the taxation system in place. Private pensions often represent only a fraction of the overall retirement-income package, with many benefits (in particular from public earnings-related schemes or basic pensions) being unaffected by investment returns. Further, progressive tax systems function as an automatic stabiliser of retirement incomes, as lower returns from funded schemes would result in a more than proportionate reduction in tax liability.

To illustrate how different investment outcomes would affect future pension income, the historical rates of return are applied using the OECD pension models. For the three different rates of return described above, Figure 5.32 reports the net replacement rates for an average wage earner¹³⁸ for 10 EU Member States with mandatory DC schemes or a wide coverage of voluntary private plans.

¹³⁷ OECD, 'Pensions at a Glance 2013: Retirement-Income Systems in OECD and G20 Countries', p. 144 ff.

¹³⁸ It is assumed that the worker started his career in 2012 and will retire after a full career at average earnings from age 20 to the standard pension-eligibility age.

Figure 5. 32: Selected net prospective replacement rates, average earner, by rate of return



Source: OECD Pensions at a Glance 2013. Note: Sorted by the range in replacement rates for different real rates of return.

It is important to note that the results from the OECD 'Pensions at a Glance' are not directly comparable to the prospective TRRs reported in this report, as different macro-economic assumptions and career profiles are used. Rather, the results shown in Figure 5.32 help illustrate the degree to which future pension incomes will depend on financial market developments. The projected net replacement rates can differ substantially between different rates of return, depending in particular on the importance of funded schemes in retirement incomes and the stabilising impact of the tax system.

A greater role for occupational schemes is also liable to raise the exposure to labour market risks. The degree to which projections expect the decline in public pay-as-you-go entitlements to be compensated by the growth in benefits from funded schemes varies. In six Member States the growth in net replacement rates from funded benefits will fail to match the decline in net TRRs from public pay-as-you-go schemes, and at least seven Member States do not envisage expanding funded schemes to limit the effects of the drop in net TRRs from public schemes.

Regulatory reforms have generally improved the internal risk mitigation and shock absorption mechanisms in pre-funded schemes. Moreover, many private schemes are seeking to lower their sensitivity to market volatilities by moving from DB to DC designs and thus shifting the investment risk to scheme members. Nevertheless the costs of funded schemes are generally challenged by the perspective of a long-term continuation of the current low interest climate in the main financial markets.

European initiatives and recommendations to expand cost-effective complementary retirement savings have so far been much less successful than efforts to stimulate pension reform and longer working lives. Before the crisis most Member States envisaged a significantly larger role for pre-funded pensions in their overall pension provision. However the crisis has compelled a number of them to scale back or abolish their earlier ambitions. Moreover, together with the impact of the financial crisis on funded pensions, this roll-back of mandatory private pensions seems to have soured the political climate for complementary retirement savings in a number of Member States.

Overall the economic climate for expanding pre-funded pensions has become rather difficult. Households have little room for extra savings, public budgets have very limited room to take on tax subsidies for complementary retirement savings, longer term interest rates are at a historic low, and national economies are seen to be far more in need of greater spending than more savings.

5.5.2. Risks linked to obstacles to longer working lives in work places and labour markets

The subchapter on TRRs confirmed the importance of attaining a full contributory record and working until the pensionable age. The analysis of pension levels identified where the key risks lie, and which career profiles are most likely to be affected. In many Member States, forced early retirement five years before the SPA, and short careers of 30 years, will entail a major risk of inadequate incomes in old age for low wage earners, just as it will imply significant replacement rate reductions for average wage earners. By contrast, short career interruptions due to unemployment or maternity are foreseen to mostly have a rather minor impact on future pension levels in most Member States.

To gauge the severity of these risks it is important to know more about the prevalence with which they are likely to occur as result of current and future practices at the workplace and in labour markets more generally. Building scenarios, which could serve as projections of the likely future incidence of these risks of forced early retirement and short careers, is beyond the scope of this report but it is still possible, on present trends, to identify the profiles of people most likely to be affected, including the relative risks to women and men.

Unemployment and atypical work risks resulting in insufficient contributory periods. In several Member States young people have, since the onset of the crisis, been among those most affected by long-term unemployment. Moreover, when they do get a foothold in the labour market it is often through short-term or otherwise precarious work contracts involving low wages and no pension coverage, with consequent longer term implications for their pension entitlements. In chapter 5.1 non-EU migrants were also identified as a population group that was increasing and also particularly exposed to the risk of developing only a shorter contribution record. For first generation non-EU migrants this may both be due to a late arrival and the length of time required to secure entry to the regular pension covered parts of the labour market. For second generation cohorts general problems with educational, social and economic integration can also lead to the danger of developing only shorter contribution histories.

Gender differences in labour markets narrow only slowly. Chapter 3.5 documented how gender gaps in remuneration, working hours and duration of working lives in combination with pension system features have led to major gender gaps in the pension entitlements among the present population of retirees. Chapters 2.5 and 5.3 emphasised how, in the past 15 years, employment rates (notably among the 55-64 year olds), exit ages, and the duration of working lives of women, have increased far faster than for men in nearly all Member States. However, while some gender disparities in employment and retirement are narrowing, gender gaps in remuneration and working hours are persisting. Hence, on present trends, the risk of ending working life with a pension entitling career of only 30 years is something that would apply to far more women than men, with the higher risks for women stemming from a larger frequency and length of career interruptions due to caring duties.

Beyond shorter careers, the gender division of labour in relation to caring and housework also leads to a much higher frequency of part-time work and hence to significantly lower earnings-related pensions. Experiences from Member States show that, even where incentives to work full-time are strong and well-publicised, a significant share of women continues to work part-time. Thus, even if many more women build entitlements in contributory schemes as a result of their increasing employment rates, a sizeable proportion may end up not having accrued rights that entitle them to anything more than a minimum pension. Moreover, though the risk of forced early retirement five years before the SPA may occur with the same frequency for both women and men, women are more likely on present trends to be low-wage earners and therefore more affected by the resulting risks of low pension levels and poverty.

In more general terms, the obstacles to longer working lives in workplaces and labour markets can be indicated by factors on both the supply and demand side. Supply side factors that may make it difficult for older workers to continue working until the pensionable age include reduced ‘workability’ (perhaps for reasons of life-style or work-related health problems) and reduced ‘employability’ (perhaps due to outdated skills, seniority pay, stagnating productivity and reduced adaptability). In most Member States the extent of awareness of supply side obstacles and the scale of policy efforts to address them have been much greater than those addressing hindrances on the demand side, despite their common, and often joint, importance.

Difficult demand side factors can include a lack of flexibility in working arrangements, negative perceptions of older workers and general age discrimination affecting processes of hiring, firing and promotion, or simply the absence of appropriate age-friendly workplace practices. A relatively overlooked, but important obstacle on the demand side concerns different experiences and practices with respect to the retention and rehiring of older workers. Having reviewed OECD research of policy initiatives to promote longer working lives across a number of countries, Anne Sonnet from the OECD's employment unit drew the following conclusions at a recent workshop on Delivering on longer working lives¹³⁹:

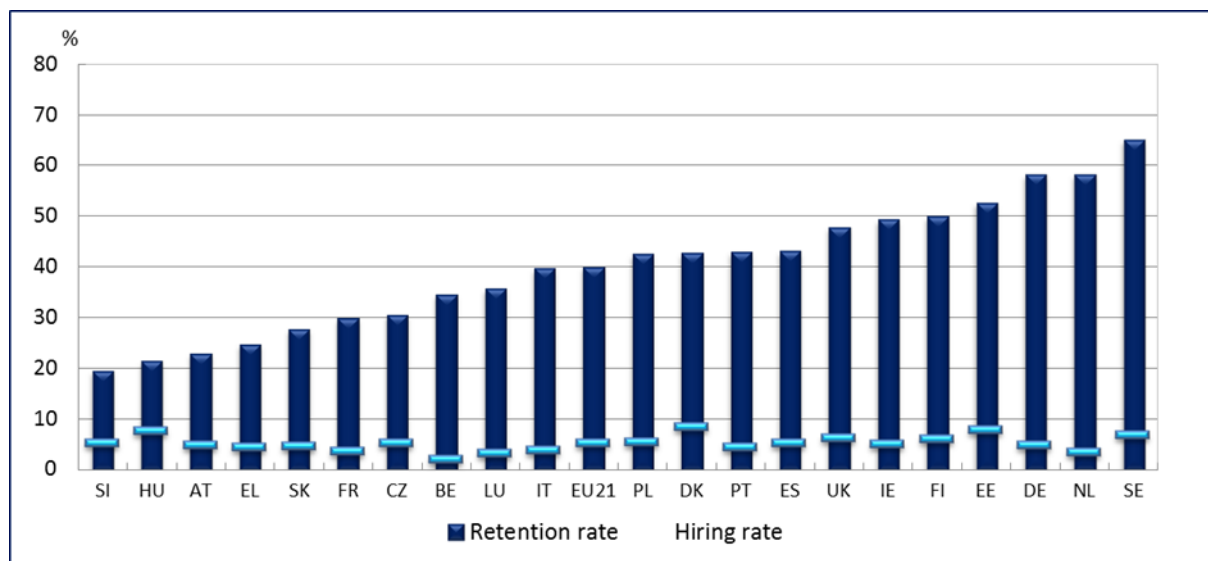
- *It is timely in the wake of the recent economic crisis, and the rise in the unemployment among older workers, to pay particular attention to demand-side issues...*
- *In particular, if individuals lose their job in their late 50s, they are most at risk of long-term joblessness. They will likely face a chaotic transition to retirement, being too “young” to retire but too “old” to find a new job.*
- *Therefore, more focus should be given to improving the hiring of older workers...*

Much of the documentation for these points is condensed in Figure 5.33, which shows that, while retention rates after the age of 60 differ between Member States, the hiring rate of workers aged 55-64 is low in all countries. On the one hand, longer working lives are fully possible as long as they occur through retention, with employers being satisfied to employ older workers who they had hired at a younger age, and with the age threshold for laying-off

¹³⁹ <http://ec.europa.eu/social/main.jsp?langId=en&catId=88&eventsId=1020&furtherEvents=yes>

people, who have been on the payroll for a long time being relatively high. On the other hand, thresholds for recruiting older workers are much higher than for prime-age workers.

Figure 5. 33: Retention and hiring as a percentage of employees in the reference group, 2013



Source: OECD (2015), *Working Better with Age: Poland*, OECD Publishing, Paris. Notes: The retention rate refers to employees currently aged 60-64 with tenure of 5 years or more as a percentage of all employees aged 55-59 5 years previously. The hiring rate refers to employees aged 55-64 with job tenure of less than 1 year as a percentage of all employees aged 54-63 the year before.

The results indicate that labour markets are often largely closed for people aged 55 or older in all the 21 Member States represented. Moreover, there is nothing in the employment data for the seven EU Member States not included to indicate that the situation is any better there. This de facto absence of a late-career labour market (i.e. one where people 55+ can be hired) in most Member States presents a major obstacle to efforts to promote longer working lives and higher employment rates of older workers.

5.6. Mitigating future risks to pension adequacy

The reduction in the relative value of pension benefits, rising pensionable ages, and increases in contribution periods, have been identified as the major risks to future pension adequacy from recent reforms. This section provides a brief overview of available options in pension and labour market policies to address these risks.

5.6.1. Mitigating adequacy risks linked to reductions in benefit levels

Minimum income provision in old age. As demonstrated in the ‘10 year after retirement’ TRR case, insufficient indexation present an increased risk of income adequacy to retirees as they age. If Member States are to avoid the relative value of pension benefits dropping below acceptable levels, they will need to both monitor developments and develop appropriate fiscal space for possible action. To the extent the risks associated with changed and reduced indexation mechanisms turn into poverty risks for older pensioners, notable those with low incomes in their active years, Member States might be able to compensate the worst affected by income-tested pension supplements and special allowances.

Actuarially fair incentives for longer working lives. Regarding the general decline in net replacement rates in many countries, it will be important to give people the opportunities to

recoup the loss. In this respect, a first priority should be to ensure that working longer and delaying pension take-up will be rewarded. Member States could, for instance, develop examples that illustrate how declines in net TRRs could be recouped by working a number of years beyond the SPA/required contribution period and deferring the pension claim.

Cost-effective provision of pre-funded schemes. In several countries it would also be important to create better opportunities for people to make up for some of the decline in the net TRRs of public pension benefits through complementary retirement savings. Notwithstanding present difficulties for the promotion of pre-funded schemes, policy makers wishing to go down this route could draw on the experience of those Member States that have developed cost-effective vehicles for retirement savings in occupational and third pillar pension schemes.

Facilitate employment after retirement. Easing limits on combining work income with pension benefits represents another way to enhance opportunities for people to acquire supplementary income in old age that can help compensate the declining value of public pension benefits. As discussed in section 2.5, the differences across Member States are still large when it comes to the possibilities to combine pension benefits with earned income or the degree to which public pensions can be deferred beyond the standard statutory retirement age.

In order to enable people to make **the right choices** on how long to work and how much to save for an adequate pension income, it is important to have easy-to-understand information on what they can expect. Efforts at making European pension systems transparent and easy to understand for future pensioners are often taking place in parallel to reforms of the same systems. The changing rules pose a challenge for communication. Awareness of pension rights is of particular relevance in a context of a growing shift away from traditional defined-benefit schemes, as the risk is at least partially transferred to members, and growing labour mobility that will result in more workers having pension rights in multiple schemes. Box 5.5 provides an overview of pension information policies in Member States.

Box 5.5. Pension information and pension awareness

All Member States have put in place legislative provisions that ensure the right to information about the rules governing pensions and, increasingly, the state of individual entitlements, however the approach varies significantly from country to country.

In the majority of Member States, members of statutory pension schemes are entitled to individual information about the prospective pension amount. While some countries make it available from the early stages of working life, others only start providing it at 50 (Finland), 55 (Germany, France) or 59 (Malta) years of age. Most countries provide such information only upon request, while some include it in pension statements that are circulated to insured persons. The frequency of pension statements varies from annual (Germany, Sweden) to every five years (France). In Belgium, the statement is automatically only sent upon reaching age 55. At the same time, future pensioners typically can also receive their individualised projections at any time upon request or on-line.

In a majority of Member States, pension information is provided by the public social security agency. Private providers are responsible for first-pillar pension information in Denmark and Finland, while in such countries as Italy, Latvia, the Netherlands, Sweden and UK public and private actors have developed joint pension information tools.

Some Member States, such as Germany, France, Poland, Sweden and the Netherlands, communicate two or more scenarios of the prospective retirement income, reflecting such variables as take-up age

and wage development. In addition to pension statements, a growing number of Member States provide an on-line pension calculator, allowing interested users to test the impact of different variables on their future benefits.

Developing pension communication policies include continuous efforts to balance the level of detail, which can be useful for some recipients but confusing for others. Thus, in Sweden, different wage development scenarios were removed from the pension statement after being evaluated as too confusing. Evaluations carried out in different Member States also suggest shorter, reader-friendly pension statements, with limited use of special terminology. Layered information and pension calculators are used to offer more nuanced information to those looking for it.

Pension information does not however automatically translate into high pension awareness. The latter can be measured, for instance, by surveying how well informed future pensioners feel, checking "read" rates of provided information, more profound regular or ad-hoc surveys or through qualitative research such as focus groups. While surveys often show the respondents' high self-assessment of their pension knowledge, more in-depth questions typically reveal much weaker understanding of pension information and, frequently, lack of interest and will to improve it. E.g., a survey in Sweden showed that only four in five recipients of the highly-recognised "orange envelope" (pension statement) actually open it, while as few as one in five reads all of its contents. Some surveys suggest that women on average tend to be less informed about and interested in their pensions than men.

These indications raise concerns about the overall level of pension awareness as well as a gap between self-perceived and real awareness, which could be a factor undermining pension adequacy by limiting individuals' ability to take corrective action. However, the empirical impact of pension information on pension behaviour is even more complicated to measure. In a survey in Finland, only 20 percent of respondents said they "planned to act" on the information. Against this background, some Member States try to identify and reach out to groups considered at a high risk of pension inadequacy, through pro-actively offering consultation and advice. Such groups can be people with incomplete career record (France, Slovenia), new entrepreneurs and self-employed (Sweden, Finland), young parents, minorities and low-earners (Sweden).

5.6.2. Mitigating adequacy risks linked to the uncertain ability of labour markets to align with requirements about later retirement and longer contribution records

Policy makers in pensions and employment have a mutual interest in delivering on longer working lives.¹⁴⁰ In pensions this is needed in order to secure future adequacy. In employment it is needed to counteract the decline in labour supply from a shrinking working age population.

Those aged 50+ represent the only group of working age that is set to grow over the next decades. For many Member States 40 percent of potential labour supply will soon be in that age group. Thus, unless employers are able to employ the 50+ and 60+ productively, they will face major constraints in terms of labour supply. In addition, given the rise in pensionable ages in many Member States by 2050, people at age 50 will have close to another 20 years of work ahead of them before they can retire with a pension. Thus, in some Member States, their employability and workability will have to be maintained for up to a decade more than today.

¹⁴⁰ Recognition of a common interest in raising effective retirement ages by enabling and motivating women and men to work to higher ages formed the basis for the joint workshop with the OECD of the SPC and EMCO on 13-14 November 2014, at which the chairs of the two committees pledged to intensify collaboration on the goal of 'Delivering on longer working lives and higher retirement ages'.

<http://ec.europa.eu/social/main.jsp?langId=en&catId=88&eventsId=1020&furtherEvents=yes>

Mitigating future risks to pension adequacy from early retirement or short careers is likely to be primarily focused on underpinning pension reforms with measures to encourage the development of workplaces and labour markets that enable and encourage women and men to have longer and less interrupted working careers. To deliver on longer working lives, policy makers will need to work on both the demand and the supply side of late-career labour markets in close cooperation with the social partners. This implies a complex agenda of interrelated policies and measures.

Financial incentives in the pension system are important, but not sufficient. There is no doubt that the occasional presence of ‘positive’ retirement options, combined with ‘negative’ experiences of age management in workplaces and labour markets have created incentives to retire early. The removal or restriction of early retirement incentives through pension reforms has most likely contributed to the rise in older workers’ employment rates and exit ages in recent years, but, in several Member States, the higher employment rates for people aged 55-64 have also been driven by the structural changes in the gender, educational and employment sector composition of this age group.¹⁴¹ If improvements in exit and pension take-up ages are to be continued, however, it will require more than the removal of early retirement options and the strengthening of incentives to work longer.

Further changes in age management in workplaces and labour markets will be required. As highlighted by the SPC in the Main Messages of the 2012 PAR: "There are clear limits to how much age management practices at work can be influenced by incentive structures in pensions. Tackling the pension adequacy challenge will require determined efforts to promote longer and healthier working lives through employment and industrial relations policies."

As benefits that reflect contributions based on earnings from work are set to constitute a significantly larger part of the overall pension package, the agenda for adequate income maintenance in old age will increasingly overlap with the overall agenda for employment and adequate income in working age. Box 5.6 provides an overview of the most important barriers to longer working lives in working conditions.

Box 5. 6: Tackling barriers to longer working lives in working conditions

While older workers are more likely to have health problems that can impair their workability and employability and physical strength and dexterity do indeed decline over working life, older workers usually make up for this thanks to their experience and resilience (including less overall absence due to sickness), particularly when offered the right working arrangements.

Thus, as extensively documented in the research of Eurofound¹⁴² the barriers to longer working lives are usually found more in working time, the organisation of work and the distribution of work load and responsibilities than in the physical lay-out and demands of work places. Yet the latter may be a major factor in arduous working conditions and thus represent a part of the factors blocking the ability of people to work to higher ages.

Flexibility in working arrangement (e.g. working hours, working time, degree of autonomy in work organisation, job rotation etc.) including to improve the reconciliation of work and family can be

¹⁴¹ See Annex 6 on the impact of structural factors in the recent development of older workers employment.

¹⁴² For a recent overview and summary see Eurofound (2014): ‘Sustainable work – towards better and longer working lives’, Foundation Focus issue 16, Dec 2014.

important for workers of many ages, but has proved itself a particularly useful instrument for enabling and encouraging labour force participation to higher ages.

Adapting workplaces is also about prevention. Workplaces and work processes can be designed in such a way that occupational illnesses can be avoided. Indeed, early labour market exit for health reasons is often the result of decades of work under unhealthy conditions. Moreover, lots of the adaptations in the organisation of work including working time that can be helpful for workers as they age would also be conducive to the continued employment of people of all working ages. This kind of workplace adaptation should therefore be seen as part of a life course oriented occupational health and safety strategy.

Avoiding arduous working conditions is part of the route to longer working lives and this may also involve changes to the physical layout of workplaces. In recent years the auto-industry has substantially pro-longed the ability of workers to be highly productive at the assembly-line by investing in the re-engineering of the conveyor belt and the adjacent work organisation. While auto-assembly line workers earlier had to retire in their mid-fifties they are now able to continue for up to a decade longer. The physical layout of work places and the physical and mental demands of work processes can certainly be important for the ability to continue working to higher ages.

Adaptations of working arrangements thus have an important role to play in helping older workers stay longer in the labour market, either by preventing occupational diseases and premature erosion of work ability or by offering reasonable accommodation in working arrangements to fit the evolving needs and preferences of workers. It is one of the key measures required to encourage and enable women and men to extend their working lives.

Measures that lower longer term unemployment among youth and ensures early labour market integration on normal contractual conditions including social protection coverage will also represent a key avenue for lowering risks to pension adequacy. By opening better opportunities for young people to complete full contribution records before reaching the pensionable age, policies to combat youth unemployment also mitigate risks to pension adequacy. Likewise, the agenda for the earlier and better integration of non-EU migrants into labour markets and society is also an essential part of a programme for reducing risks to income maintenance in old age. Moreover policies for reducing gender gaps in pay, working hours and career length are equally key policies for narrowing the gender gap in pension entitlements.

Extending working lives at the 'upper end', i.e. late in people's careers, presents a challenge that is not quite covered by the general employment agendas. Ideally, Member States should transform 'early retirement cultures' into 'working longer cultures'. Obviously, such a shift cannot be achieved overnight. However, it could conceivably be brought about if policy makers in employment and in social protection work together with the social partners in addressing and achieving it (see Box 5.7).

Safeguards in pension systems will still be needed to protect against old-age poverty.

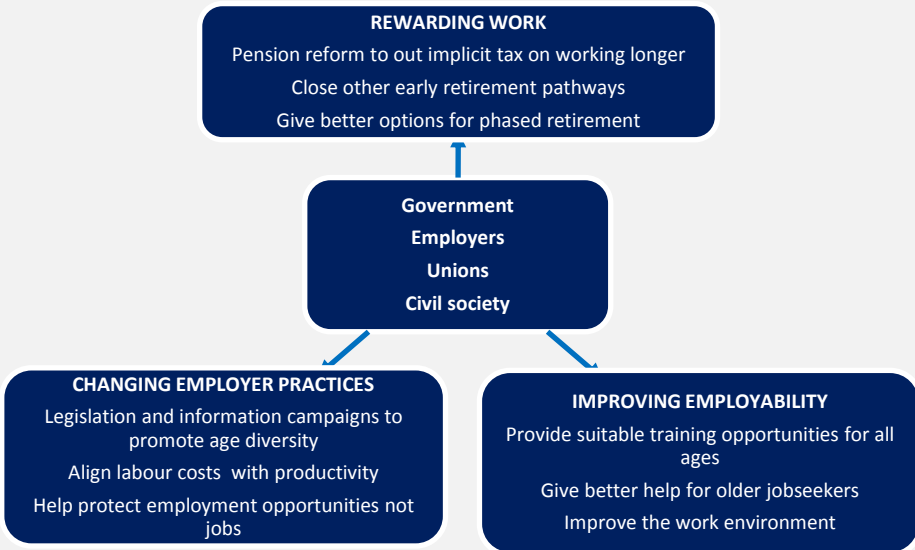
Even where reasonably successful, however, these agendas for employment and adequate income in active years are unlikely to remove the future need for safeguards in pension systems that can protect people from the risk of poverty. Forecasting the extent to which people will be well served by opportunities to build adequate pension entitlements, or end up having to rely on social protection safeguards in order to avoid or mitigate poverty risks in old age, goes beyond the scope of this report. However, a scenario for 2053 could be that, across the Member States, somewhere between two thirds and three quarters of a cohort manage to

meet the requirements for a decent earnings-related pension by completing working and contributory careers, while between a quarter and a third will need access to early, possibly part-time, retirement and/or some kind of basic defined benefit pension.

In other words, while a major section of society will have the ability to earn adequate earnings-related pensions, there will also be a growing group of women and men for whom access to minimum or basic pensions as well as some form of survivor's benefits will be necessary in order to protect them from poverty. In addition some form of crediting of involuntary absence from employment will also be called for in order to reduce the impact on entitlement accruals of illness, unemployment, caring duties etc.

Box 5. 7: Key directions for longer working lives

Figure 5. 34: Policy mix needed to deliver longer working lives and higher pension ages



Source: According to the OECD, Older workers reviews (2014, 2015).

This policy mix, which in many ways corresponds to key points in the Guiding Principles for the employment aspects of Active Ageing jointly developed by EMCO and the SPC, basically highlight that for longer working lives to develop rewards from working must be sufficient to compete with the benefits of retirement, while workers in terms of employability and workability must be enabled to and in terms of attitudes motivated to continue working, and in parallel, employer perceptions and practices must be changed so managers become far more willing to recruit and more able to manage and retain older workers.

To overcome the **barriers** to longer working lives **in work place and working arrangements** the EU's guiding principles of Active Ageing recommend that measures focus on the following issues:

Continuing vocational education and training: Offer women and men of all ages access to, and participation in, education, training and skills development allowing them (re-)entry into and to fully participate in the labour market in quality jobs.

Healthy working conditions: Promote working conditions and work environments that maintain workers' health and well-being, thereby ensuring workers' life-long employability.

Age management strategies: Adapt careers and working conditions to the changing needs of workers as they age, thereby avoiding early retirement.

Transfer of experience: Capitalise on older workers' knowledge and skills through mentoring and age-diverse teams.

In relation to **demand side issues** the EU's guiding principles of Active Ageing suggest concentrating on the following matters:

Prevent age discrimination: Ensure equal rights for older workers in the labour market, refraining from using age as a decisive criterion for assessing whether a worker is fit for a certain job or not; prevent negative age-related stereotypes and discriminatory attitudes towards older workers at the work place; highlight the contribution older workers make.

Age management strategies: Adapt careers and working conditions to the changing needs of workers as they age.

Employment services for older workers: Provide counselling, placement and reintegration support to older workers who wish to remain on the labour market.

To ensure that the **wider context is conducive to longer working lives** the Guiding Principles finally advise addressing the issues of:

Employment-friendly tax / benefit systems: Review tax and benefit systems to ensure that work pays for older workers, while ensuring an adequate level of benefits.

Reconciliation of work and care: Adapt working conditions and offer leave arrangements suitable for women and men, allowing them as informal carers to remain in employment or return to the labour market.

With regard to this need for some form of 'work-to-pension-bridges' it is necessary to avoid re-installing work disincentives or early retirement traps that have been experienced in the past. Forms of social protection that strikes the right balance between protection and disincentives will have to be developed. The instruments in the social protection arsenal that are presently available to most Member States and which come closest to serving the purpose would seem to be a form of carefully scrutinised access to disability pensions, combined with access to protected jobs possibly with in-work benefits. Organising access to minimum or basic pensions without undermining work incentives in earnings-related pensions will likewise be challenging. However, incentive problems with respect to minimum income provisions for older people and supplementary allowance are likely to be far smaller as these are likely to be needs-, income- or means-tested.

In summary, what would be called for in order to mitigate the risks inherent in higher pensionable ages is a combination of better and more determined underpinning in labour markets of permanently rising pensionable ages and social protection measures for those groups and individuals, who cannot fully follow / live up to the rise in the pensionable age and the extension of contributory periods by working longer.

Pension policy makers in Member States that have 'linked' pensionable ages to developments in life expectancy should take into account the fact that adequate pensions in the future depend on the ability of labour markets to employ people far beyond recent effective exit ages and traditional pensionable ages. At the same time as this report has focused on the various dimensions of pension adequacy over the longer term, its analysis has pointed to the counterpart challenge for Member States of developing more capacious and better functioning

workplaces and labour markets for women and men aged 55 and over as part of their wider labour market reforms.

Unless employment policy makers, working with the social partners, make determined efforts to improve age management practices in workplaces and labour markets, and prepare workers better for longer working lives (including through health and safety and skills maintenance/upgrading) there is a real risk that labour markets will be unable to align with pension arrangements as pensionable ages rise. As pensionable ages rise, the need for some form of premature retirement benefit, and for minimum and basic pensions, is also likely to increase. Hence pension policy makers may need to devote more attention and greater resources to poverty protection functions in the future.

Two main messages to policy makers thus emerge from the analysis with respect to the challenges to age management in workplaces and labour markets and the risks to pension adequacy from recent pension reforms:

- Employment policy makers and the social partners should prepare for rising pension ages and the phasing out of early retirement and take determined measures to align working lives with reformed pensions through changes in age management in workplaces and labour markets. Together they are well-placed to establish more capacious and better functioning labour markets for people aged 55+. De facto extension of the working age can help counteract the decline in labour supply emanating from population ageing and ensure opportunities for a larger share of people to acquire pensions that offer *adequate income maintenance* in old age.
- Social protection policy makers should prepare for the fact that not all groups and individuals can work to higher ages and have long and uninterrupted careers. While a large majority may be able to meet the new requirements – or at least be enabled and motivated to do so – there will be some who be unable to do so. For these it will be necessary to continue some form of 'work-to-pension-bridges' in social protection, and to provide some poverty avoiding pension benefits as well.

6. CONCLUSION

Providing people with income in old age that allow them a decent living standard and protect them from poverty is the very purpose of pension policy. Pension adequacy is thus an important policy goal in its own right. At the same time it is but one among several objectives in well-performing social market economies, and these objectives need to be achieved in a balanced, mutually supportive way. In particular, as pension expenditure represent a large share of total public spending, it is important to ensure that spending on public pensions does not undermine the sustainability of public finances and the investment in human capital on which the future ability to deliver adequate pensions ultimately depends.

The aggregate results of pension developments in EU countries and their impact on public expenditure and on incomes in old age are monitored in two tri-annual reports, which complement one another in focus and methodologies. These are the *Ageing Report* by the Economic Policy Committee and the present *Pension Adequacy Report* by the Social Protection Committee. Where the *Ageing Report* looks at risks to future fiscal sustainability stemming, among others, from public pension schemes, the *Pension Adequacy Report* examines the present and future adequacy of pension benefits with respect to the incomes of retired people.

In recent years, Member States have adopted a series of reforms aimed at managing public spending on pensions in order to safeguard their future sustainability in view of rising old age dependency ratios. Thanks to these reforms, projections from the 2015 *Ageing Report* now suggest that Member States may be able to contain the impact of population ageing to such an extent that public pension expenditure as a share of GDP would be no higher in 2060 than in 2013 for EU28 as a whole. This indicates that most Member States have made major progress in their efforts to avoid public finances being destabilised by increasing pension costs.

However, risks for the future sustainability of public finances do not only stem from a lack of pension reforms aimed at curbing future spending trends. There is also a risk of future policy reversals if reforms leave an increasing number of older women and men without adequate incomes. The 2015 *Pensions Adequacy Report* examines the extent to which there are current risks to income adequacy in old age and whether pensions will be able to meet the needs of older people in the future. Hence, the findings of this report complement the *Ageing Report's* analysis of pensions-related risks for future fiscal sustainability.

Overall, the analysis of pension adequacy in this report shows that, in their reform efforts, Member States face important common challenges and concerns, which can benefit from an overall approach. At the same time, though, the risks to current and future pension adequacy in Member States have many country-specific aspects resulting from the way national pension system are designed and the way they interact with economic and labour market developments. While volume I of the report is devoted to a comparative analysis of pension adequacy in EU-28, a detailed discussion of developments in each of the 28 Member States is therefore also provided in volume II.

Both volumes demonstrate that there are important gender differences in pension adequacy, both currently and in projections for the future, and that adequacy risks tend to have gender specific dimensions.

Based on its analysis of the *current living standards* of older men and women and the *present role of pension systems* in securing adequate living standards in old age, the report concludes that, on average, older Europeans are well-protected and that pension systems, in particular public pension schemes, have ensured that the majority of older people aged 65+ in most EU countries are protected against the risk of poverty and deprivation and can enjoy living standards in line with the rest of the population.

Currently, older people are no more at *risk of poverty* than other age groups. Indeed, the examination of developments since 2008 shows that, in almost all Member States, older people have been better protected against the social impact of the recession and public finance crisis than other age groups. However, while pension systems for the EU as a whole provide sufficient protection against poverty risks, the analysis also reveals that several Member States still need to tackle poverty risks in old age and, in some countries problems of severe material deprivation are particularly pressing. Moreover, among the older population in many Member States older women aged 75+ remain particularly exposed to poverty risks, notably when living alone.

While pensions are the main source of income for older Europeans, living standards in old age also depend on *other factors, such as* home ownership and financial wealth, access to other benefits and services, and employment opportunities. In these respects the report finds that older people are in a better position than the working age population in terms of home ownership and financial wealth. Yet, within the older population there are significant gender differences in home ownership and in exposure to severe housing deprivation in many Member States. Access to health care for older people is on par with that of the rest of the population, while in many Member States older people would benefit more from subsidised pharmaceuticals and aids. By contrast older workers and people above the pensionable age tend to have far fewer employment opportunities than prime age and younger workers in most Member States.

Whereas *employment rates of older workers* and the duration of working lives are substantially lower for women in nearly all Member States, and a smaller share of women than men work up to and beyond the standard pensionable age, the situation is improving much faster for women than for men. Hence, the share of women who will have built their own pension entitlements by the time they reach pensionable age is increasing steadily. Nevertheless, many more women than men have low paid jobs and work part-time and interrupt their careers for reasons of care duties, with the result that they are still likely to end up with lower pensions in future decades.

Today, in all Member States the average pension income of a woman is lower, often substantially so, than that of a man, with a weighted average *Gender Gap in Pensions* of around 40 percent for the EU as a whole. This gap reflects both gender differences in employment and the extent to which pension systems do, or do not, mitigate these differences.

As the gap ranges from 4 percent to 46 percent across Member States, it cannot be regarded as inevitable. It results from historical legacies and present practices and can be addressed by policy measures. Yet, tackling it may for several Member States present a considerable longer term challenge. Indeed, reducing the Gender Gap in Pensions is likely to require a combination of determined equal opportunity policies across several fields before people

reach pensionable age, with effects over the long term, and adjustments to pension systems, which can have more immediate effects.

In contrast to earlier reform waves, the *reforms since 2008* have not pursued a shift from public pay-as-you-go to privately managed, pre-funded, pension schemes. In fact, a number of Member States have partially or fully reversed earlier reforms that consisted in channelling part of the statutory pension contributions from pay-as-you-go schemes into a funded tier of mandatory private pensions, although some others have been able to find ways to continue such schemes, often at less ambitious savings rates. At the same time, other Member States with well-established occupational and personal pension schemes have sought to restore and consolidate them, including by improving their ability to handle volatilities in financial markets and low long-term interest rates.

Most pension reforms are only set to result in significant *savings on public pensions spending* over the long run as usually they have long phase-in times and transitional arrangements to protect acquired rights. However, some Member States that have been particularly hard hit by the crisis have felt the need to reduce pensions in payment and/or lower incomes for older people through tax increases or temporary or permanent changes to the indexation of benefits. In countries with high unemployment, many pensioner households may also have suffered a deterioration of their financial situation as a result of sharing their resources with the younger generations in the family when these, because of the crisis, had difficulties making ends meet.

In its assessments of the ability of pension systems to fulfil their income maintenance function, the report uses the hypothetical case methodology of *Theoretical Replacement Rates* (TRRs). These indicate the extent to which pensions received ‘replace’ prior incomes from work. In order to catch the effects of recent reforms the set of career scenarios and pension system features normally covered by the TRR calculations has been further enlarged.

These new TRR calculations help illustrate how important minimum income provisions and survivor benefits may be in the avoidance and mitigation of poverty risks for low-earners. A new career case has been introduced concerning ‘forced’ or ‘involuntary’ early retirement, which illustrates the potential consequences for people of having to stop working five years before the pensionable age, and having to rely on unemployment insurance or disability benefits as a bridge until they qualify for an old age pension.

Potential future poverty risks for low-earners - especially if they end up with short careers - have been calculated by comparing likely pension entitlements to likely average wages in 2053. At the same time, a further career case has been included, which uses the same assumptions about career lengths and exit ages as the Ageing Report, in order to provide closer comparability between the results from the two reports.

For people retiring in 2013 the *current TRR* results reveal substantial differences between Member States. After a 40 year career on average earnings until the national standard pensionable age, the net pension income ranges from 50 to nearly 115 percent of average earnings before retirement.

The future evolution of pension entitlements has been assessed by calculating *prospective theoretical replacement rates* for people who started working in 2013 at the age of 25 and who would expect to retire from their working careers under the terms of today's pension

legislation, including enacted reforms, and under projected economic and demographic circumstances

These prospective TRRs typically reflect the reformed pension systems in full maturity and, while those for 2053 differ substantially across Member States (as they do in 2013) they are falling in the majority of cases. As a result, for a 40-year career on average earnings until the country-specific pensionable age, net TRRs in 2053 are projected to range from 40 to 90 per cent.

TRRs are also calculated for workers earning either significantly less, or significantly more, than the average, revealing that the TRRs tend to be relatively higher overall for those with low earnings, and relatively lower for workers with high earnings, reflecting the redistributive character of many public pension schemes.

Public pay-as-you-go pension schemes remain the main providers of pensions across the EU although occupational pension schemes have gained coverage and contribute more than 30 percent to the pension incomes of hypothetical average earners in five Member States. However the coverage and share in pension income of such supplementary schemes is significantly higher among high and average earners than among low earners.

Member States have developed different approaches to the prevention of people receiving only very low incomes in old age. Four different types of **minimum income provisions for older people** can be distinguished: universal flat-rate pensions; contributory minimum pensions; specific social assistance for older people; and general social assistance.

Only few minimum income provisions will lift older people without any other resources above the at-risk-of-poverty threshold. In a number of Member States, the minimum amount guaranteed does not even reach half of this threshold. Though benefit supplements such as housing allowances may also be available and raise the final income, poverty mitigation more than poverty avoidance seems to be the function of several of these provisions.

Moreover, in many countries the income that is available to a person with low earnings and a 30 year working career will remain below the poverty threshold despite minimum income provisions. Pension entitlements are found to be above the national at-risk-of-poverty (AROP) threshold in nine Member States, and slightly below it in another three. In eight Member States, however, the theoretically calculated pension benefits are clearly below the AROP threshold despite a minimum income mechanism being in place. Even in those countries where the benefits clearly exceed the threshold, it is the design of the pension system more than supplements from minimum income provisions that keep older people with this career profile above the poverty threshold.

However, the fact that guaranteed minimum income levels in old age are below the poverty threshold does not automatically translate into large numbers of older people living below that threshold. Member States with low minimum incomes can also have low at-risk-of-poverty rates.

The increased labour market participation of women, together with the effects of the reforms of the pension system, would tend to lower dependency on basic safety nets in old age, but other factors – notably the economic crisis and high long-term unemployment, particularly among younger people - risks leaving many more people with major gaps in their contribution

history, which may well translate into increased reliance on minimum income provisions several decades from now.

Almost all Member States have measures aimed at compensating for the lost income of a deceased spouse. In most of the EU, *survivor pensions* are set play an important role in providing pension income for the surviving spouse also in the future, but the generosity and eligibility conditions vary widely. Compared to the benefits based on a survivor's own income from a full career with low wage, these benefits lead to higher pensions in 22 Member States, in four of them by more than 50 percent.

However an assessment of the income shock and associated poverty risks caused by the death of a spouse needs to focus on the difference between the equivalised household income of the couple, and the income of the surviving spouse. This equivalised disposable income of a widow, compared to what she would have received had the spouse not died, is projected to fall by more than 30 percent in 10 Member States, and by more than 20 percent in a further eight.

TRRs depicting the *relative importance of pay-as-you-go and prefunded* schemes in the future package of pension incomes for average earners show an increase in the role of prefunded schemes in 15 Member States. In 8 countries this is due to the expansion of mandatory private pensions, whereas in 7 occupational schemes are gaining a larger role. The enhanced role of pre-funding is primarily due to the maturation of these schemes, whether public or occupational. At the same time, replacement rates from public pension schemes are projected to decrease in nearly all Member States over the next 40 years, with a decline by more than five percentage points in 16 countries and by 15 or more percentage points in six Member States.

All pension arrangements entail exposure to internal and external risks and, while reforms aim to remove or reduce some of the risks in present arrangements, they may also introduce new risks.. Thus this report has sought to *detect the new risk profile emerging from reforms*, and suggest ways in which they can be tackled while also identifying where appropriate safeguards might be needed.

Comparisons of prospective TRRs for 2053 with those from 2013 show that *income replacement rates* from public pension schemes after a full career are set to decline in many Member States. The TRR projections highlight the particular *risks from incomplete careers* because of a shorter career of just 30 years or due to involuntary early retirement two to five years before the standard pensionable age. These results correspond with the decline in the benefit ratio (average pension benefit as share of average wage) and the increasing gaps between exit and pensionable ages in several Member States, as identified in the projections of the Ageing Report.

The *two main sets of risks* for future pension adequacy arising from recent reforms are seen as those that emanate from the *reduction in the relative value* of pension benefits due to tighter links with contributions and weaker valorisation and indexing, and those that result from *career patterns that fail to match* rising pensionable ages and the lengthening contribution periods.

When considering measures to mitigate the risks to pension adequacy from *reduced indexation, dropping replacement rates and declining benefit levels*, one tends to be

confronted with the trade-offs between adequacy and sustainability concerns. Reforms that seek to ensure financial sustainability simply by lowering pension benefits can make it more difficult to provide effective protection against poverty and guarantee income security in old age through public pensions. If Member States are to avoid the relative value of pension benefits falling well below acceptable levels, they will inevitably need to monitor developments and create appropriate fiscal space to enable benefit levels to be raised.

By contrast many recent reforms that have focused on promoting longer working lives through *increases in pensionable ages* and through restrictions in access to early retirement options would seem to hold greater possibilities for win-win scenarios. To the extent that working lives do increase, such reforms offer the possibility of overcoming the adequacy and financial sustainability trade-off by lowering costs, developing extra revenues, thereby creating the basis for pension benefits that are higher than they would otherwise be.

A better balance of years in retirement and years in work would allow for higher pensions by generating more resources and avoiding increased inactivity. However, these changes also expose pension adequacy to developments beyond the control of pension policy makers since these reforms make pensions *more dependent on labour market opportunities* for longer and less interrupted working careers of women and men.

This report has therefore also addressed the risks to future pension adequacy emanating from the obstacles to longer working lives at the workplace and in labour markets, and considered how these potential problems can be tackled and mitigated through a better *combination of employment and pension policies*.

As more, better and longer employment becomes the core route to pension adequacy in the future, the agenda for adequate income maintenance in old age will increasingly *overlap with the general agenda* for employment, incomes and social protection in working age. Policies that currently seek to improve the employment situation of underemployed groups such as youth, non-EU migrants, the low-skilled, and women with particular caring duties, are also policies that can help reduce the risks of inadequate pension entitlements due to short careers and limited pension coverage.

However, even if these policies are reasonably successful, they are unlikely to remove the need for safeguards in pension systems that can protect people from poverty risks in old age. Moreover, extending working lives towards the end of people's careers, presents a challenge for the general policy agendas for people of working age. The report therefore argues that addressing the risk to future pension adequacy also *calls for specific policy measures* with regard to workplaces and labour markets as well as pension systems.

In so far as longer and less interrupted working and contributory careers with rising pensionable ages and longer contribution periods are increasingly becoming a precondition for pension adequacy, priority must be given to *increasing the effective retirement age* and enabling as many women and men as possible to work up to the standard pensionable age. Pension reforms need to be underpinned by workplace and labour market measures that enable and encourage women and men to have longer and less interrupted working careers and thus defer retirement and pension take-up and meet the requirements for a full pension. As replacement rates decline in some Member States even for full careers, it would furthermore be important to ensure opportunities for people to recoup some of this loss by

building extra entitlements through complementary retirement savings and/or by working beyond the standard pensionable age.

To enable longer working lives, the health and skills of men and women need to be maintained as they age, and older workers need to be encouraged and enabled to move into jobs that are well-suited to their abilities and strengths. *Flexibility in working arrangement* (e.g. working hours, working time, degree of autonomy in work organisation, job rotation etc.) including changes to improve the reconciliation of work and family have proved particularly useful in enabling and encouraging labour force participation to higher ages. Making it possible to reconcile longer working lives with family obligations also entails ensuring access to affordable care for children and older dependents.

There is also a great need to *improve the functioning of late-career labour markets* so much better opportunities for people aged 55 and above can be ensured. It is for employment policy makers to work with the social partners to ensure that, as they age as older workers, women or men do not just have the possibility of staying longer in the same job. They should also be able to take a new job with another employer, and to find jobs with working conditions and working times that match their abilities, preferences and needs. Appropriate employment policies could facilitate this, while pension systems could allow it without penalties or even promote it, thereby creating additional opportunities for improving incomes in old age.

When considering the need for special safeguards for pensions in the future it is important to recognise that opportunities for earning a sufficient and secure income for a normal retirement period are linked to a person's employability and *chances of finding and holding a job of good quality*. Moreover, in a number of Member States, building adequate pension entitlements also presupposes access to supplementary retirement schemes. The purpose of employment and pension policies is to ensure that such opportunities become available to a broad majority of people. Still the ability and chance to put such opportunities to good use - including building rights to adequate pension income - tend to be unevenly distributed across the population.

The analysis shows the importance of ensuring that public pension schemes contain *appropriate safeguards* to address the needs of women and men who are less able to use these opportunities. Such mechanisms could include minimum pensions, and minimum income provisions for older people, as well as other redistributive means such as credits for periods during which people are unable to build full entitlements because of involuntary absence from work due to caring duties, sickness or unemployment.

In the future, attention will need to be paid to the situation of older women and men who, for personal or work related reasons, are *unable to remain in the labour market* up to the steadily rising statutory pension age, or up to an age where they can enjoy an adequate retirement income. When early labour market exits cannot be prevented, they should be covered by social protection mechanisms, which are well targeted to those who face serious labour market obstacles, while avoiding that incentives to increase the effective retirement age are undermined.

As highlighted above, *policy makers in pensions and employment have a mutual interest* in delivering on longer working lives. In pensions this is needed to secure future adequacy. In employment it is necessary to counteract the decline in labour supply from a shrinking

working age population. To deliver on longer working lives, policy makers and social partners need to address both the demand and the supply side of late-career labour markets by simultaneously widening late-career employment opportunities and adapting retirement times and practices.

This Pension Adequacy Report has shown the potentials of joint analysis of pension adequacy challenges and how they can be addressed, but it has also highlighted some limits in analytic capacity, which can be addressed through further cooperation at the EU level. The work programme behind this report was built around a multi-dimensional approach to the analysis of the adequacy of pensions as a source of income in old age. Most of the work has been realised, but there are themes and issues which ended up receiving a lighter treatment than originally planned, with aspects of some key risks (e.g. the share of people unable to work to higher pensionable ages), proving impossible within the timeframe and methodologies of this report, including because of knowledge gaps.

In view of the findings of this 2015 Pension Adequacy Report, and in preparation for the future monitoring and reporting of adequacy aspects of pensions, it would be appropriate for the SPC to look more closely at some of those population groups identified as at particular risk of suffering from insufficient incomes in old age (e.g. women, youth, non-EU migrants, the low-waged), and to consider how future adequacy and poverty risks can be addressed through positive measures with respect to employment as well as through mitigating provisions in pension or other social protection schemes.

It would be particularly useful if the SPC and EMCO jointly could review the economic, work, health and social variables that affect late careers and the transition from work to retirement policies, and to develop a catalogue of policies and measures that could help enhance the employment opportunities of older workers.

There is also a need for a further analysis of the redistributive social elements of public pension schemes in order to detect how well they take account of the inequalities in health and in labour market opportunities that affect different groups of women and men. This could include the links between contributions and benefits, pension credits, minimum income provisions, provisions for people forced to leave the labour market early (notably through invalidity and unemployment benefits) and derived rights (survivors' pensions), with a special focus on pensioners living alone.

The report also points to the need for a closer examination of how Member States can best ensure opportunities for women and men to recoup some of the decline in replacement rates through longer working lives or through complementary retirement savings. In this connection it would also be important to look at how Member States, where pension adequacy is increasingly dependent on supplementary retirement schemes, can promote such schemes in the most cost-effective ways.

Since this report is particularly concerned with the pension prospects of people currently entering the labour market, it has used a 40 years horizon in its projections. However, while such projections can provide important information about possible long term effects of present pension reforms, policy makers also need information on prospects in the near future. In this respect the policy relevance of pension adequacy scenarios for the future could be importantly enhanced if the analytical capacity for anticipating adequacy and financial

sustainability challenges over the medium term (10 to 15 years) were increased. This could be done through the use of administrative data, modelling tools and surveys such as EU-SILC, EHIS¹⁴³ and SHARE¹⁴⁴ with the aim of enabling Member States to implement more timely and appropriate corrective reform measures in accordance with their specific national economic, fiscal and wider social circumstances.

Finally it should be said that work towards this report has been greatly facilitated and improved through cooperation with the OECD and dialogue with the ILO and the World Bank. Since countries outside the EU face similar problems with regard to ensuring the future adequacy of pensions in ageing societies, it is important for the SPC to continue its collaboration with these international organisations when exploring the most appropriate policy responses to the challenges to pensions in ensuring adequate incomes in old age within the EU.

¹⁴³ European Health Interview Survey (EHIS)

¹⁴⁴ Survey of Health, Ageing and Retirement in Europe (SHARE)

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Annex 2. List of definitions and abbreviations

Defined benefit (DB) schemes – pension schemes where the benefits accrued are linked to earnings and the employment career (the future pension benefit is pre-defined and promised to the member). It is normally the state (in public DB schemes) or scheme sponsor (in occupational DB schemes) who bears the investment risk and often also the longevity risk (see also: Defined contribution (DC) schemes).

Defined contribution (DC) schemes – pension schemes where the level of contributions, and not the final benefit, is pre-defined: no final pension promise is made. DC schemes can be public, occupational or personal: contributions can be made by the individual, the employer and/or the state, depending on scheme rules. The pension level will depend on the performance of the chosen investment strategy and the level of contributions. The individual member therefore bears the investment risk. PAYG-financed defined contribution schemes are known as notional defined contribution (NDC) schemes (see also: Defined benefit (DB) schemes).

Funded scheme – a pension scheme whose benefit promises are backed by a fund of assets set aside and invested for the purpose of meeting the scheme's liability for benefit payments as they arise. Funded schemes can be either statutory, collective or individual (see also: Pay-As-You-Go schemes).

Individual pension scheme – access to these schemes does not depend on an employment relationship. The schemes are set up and administered directly by a pension fund or a financial institution acting as pension provider without the involvement of employers. Individuals independently purchase and select material aspects of the arrangements. The employer may nonetheless make contributions to individual pension schemes. Some schemes may have restricted membership.

Legislated pensionable age – legislated age at which a member of the pension scheme is eligible to receive full pension benefits.

Occupational pension schemes – a pension plan where access is linked to an employment or professional relationship between the plan member and the entity that sets up the plan (the plan sponsor). Occupational pension schemes may be established by employers or groups of employers (e.g. industry associations) or labour or professional associations, jointly or separately, or by self-employed persons. The scheme may be administered directly by the sponsor or by an independent entity (a pension fund or a financial institution acting as pension provider). In the latter case, the sponsor may still have responsibility for overseeing the operation of the scheme.

Pay-As-You-Go (PAYG) schemes – pension schemes where current contributions finance current pension expenditure (see also: Funded schemes).

Pension pillar – different types of pension schemes are usually grouped into two, three, four or more pillars of the pension system. There is however no universally agreed classification. Many pension systems distinguish between statutory, statutory funded, occupational and individual pension schemes.

Standard pensionable age (SPA) – (i) the earliest age at which an individual with a 40-year career can retire without any exit penalty in 2053 (used in the calculations of the Theoretical Replacement Rates, case 1b); or (ii) the earliest age at which an individual who is born in 1988 and commences his/her career in 2013 at age 25 can retire without any exit penalty (used in the calculations of the prospective Theoretical Replacement Rates for all cases except case 1b).

Statutory pension scheme – social security and similar programmes administered by the general government (that is central, state, and local governments, plus other public sector bodies such as social security institutions), access to which is based on legislation. Public pension plans can be financed from social security contributions or general taxation and have traditionally been of the PAYG type.

Statutory funded pension schemes – funded pension schemes, access to which is based on legislation. In statutory funded schemes, part of participants' social security contributions are converted into funded assets, typically administered by authorised private fund managers. These schemes can be mandatory or voluntary.

Supplementary pension schemes – pension schemes which generally provide additional retirement income to the statutory pension schemes (see also: Individual pension schemes; Occupational pension schemes).

Theoretical Replacement Rate (TRR) – generally refers to an indicator showing the level of pension income after retirement as a percentage of individual earnings at the moment of take-up of pensions or of average earnings. Replacement rates measure the extent to which pension systems enable typical workers to preserve their previous living standard when moving from employment to retirement.

Abbreviations

AR	Ageing Report
AROP	At-risk-of-poverty rate
AROPE	At-risk-of-poverty or social exclusion
ARR	Aggregate replacement ratio
AWG	Ageing Working Group (of the EPC)
AWL	Average duration of past average working life
BR	Benefit ratio
CEE	Central Eastern European countries
CSM	Cohort simulation model
CSR	Country Specific Recommendation
DB	Defined benefits
DC	Defined contributions
EC	European Commission
ECB	European Central Bank
EPSCO	Employment, Social Policy, Health and Consumer Affairs Council
EMCO	Employment Committee
EMU	Economic and Monetary Union
ENEGE	European Network of Experts on Gender Equality
EPC	Economic Policy Committee
EU	European Union
EUR	Euro
EUROMOD	Tax-benefit microsimulation model for the European Union
EU-SILC	European Union Statistics on Income and Living Conditions
GaRR	Gross aggregate replacement ratio
GDP	Gross Domestic Product
GGP	Gender gap in pensions
HFCS	Eurosystem Household Finance and Consumption Survey
ILO	International Labour Organisation
JAF	Joint Assessment Framework
LE	Life expectancy
LFS	Labour Force Survey
LFS AHM	Labour Force Survey ad-hoc module
LTC	Long-term care
MIPOP	Minimum income provision for older people
MISSOC	Mutual Information System on Social Protection
NDC	Notionally defined contributions
OECD	Organisation for Economic Co-operation and Development
OMC	Open Method of Coordination
p.p.	Percentage points
PAR	Pension Adequacy Report
PAYG	Pay-as-you-go pension scheme
PPP	Purchasing power parity
RMIR	Relative median income ratio
SME	Small and medium-sized enterprise
SPA	Standard pensionable age
SPC	Social Protection Committee
SRA	Statutory retirement age
TRR	Theoretical Replacement Rate

Member States

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

Annex 3. Methodological background: calculation of theoretical replacement rates (TRR)

Theoretical replacement rates (TRR) are defined as the level of pension income the first year after retirement as a percentage of individual earnings at the moment of take-up of pensions. The exercise on TRR gives therefore a picture of pension systems' *adequacy*, when adequacy is understood as to what extent the level of pension benefits replace individual previous' earnings. In that sense TRR can be considered a proxy to the standard of living that people can achieve in retirement compared to their own situation when working.

TRR are case study based calculations, that is, they are calculated for an assumed hypothetical worker in a *base case* and a given set of *variant cases*. The base case should be treated as a priority, taking also into account that the provision of elements highlighting the representativeness of the base case is an essential aspect to complete the information provided by the calculation of TRR. Calculations for variant cases provide very useful information on how the TRR vary for different departures from the main baseline assumptions, and thereby on the adequacy effects of reforms that entail changes on the relevant key parameters.

TRR can measure **current and future adequacy**. *Current* TRR describe the situation of people who retire today (in this exercise, people who retired in 2013 in the base case), while *prospective* TRR describe the foreseen situation of people retiring in the future (in this exercise, people retiring in 2053 in the base case). In that sense, prospective TRR should allow an assessment of future adequacy of pensions that takes into account assumed future economic and demographic circumstances as well as changes that have been decided in many countries as a result of recent reforms. This is important both at a general level for policy-making and for individuals' retirement planning, who need to anticipate the possible situation of their future income.

Prospective TRR rely on specific assumptions on the key economic and demographic parameters that are relevant for the calculation of future earnings and benefit entitlements. Such parameters are aligned to the ones used by the Ageing Working Group (AWG) of the Economic Policy Committee (EPC).

1. General specifications of the calculations

The definition used for TRR refers to the replacement of income obtained when people retire: it is at the moment of take-up, the ratio of pension income on the first year of retirement divided by work income on the last year before retiring:

$$\text{Definition of the TRR} = \text{pension income (at take up)} / \text{work income (last year)}$$

The numerator “pension income at the moment of take up” refers to income in the form of pensions from all mandatory, typical and relevant pension schemes, as well as other social benefits, as applicable to the selected case (e.g. housing benefits, holiday allowance). Housing supplements can be included in the calculations, depending on each Member State framework, as means-tested benefits. Benefits in kind should not be considered in the calculations, as they are not part of the disposable income.

The denominator “work income on the last year before retiring” should include earned income (including overtime pay, bonuses, 13th month, etc.) and social benefits as applicable to the selected case. The denominator “work income on the last year before retiring” should be adjusted for one year of inflation assumed at 2 percent.

1.1. Current and Prospective TRR (2013 and 2053 respectively in the base case)

Current TRR are to describe the situation of people who retire today, while prospective TRR will describe the situation of people who start working today and will be retiring in the future.

Results for current TRR present the pension outcome for people retiring today, under the relevant pension legislation (i.e. the worker started working in 1973 and retired in 2013 in the base case, under whichever rules applied during his career).

Results for prospective TRR present the pension outcome for people retiring in the future under the pension legislation enacted by 2013, including transitional rules to be implemented gradually that may be legislated in enacted reforms. This includes the currently legislated indexation rules for different benefits. The calculations for prospective TRR typically reflect reformed pension systems in full maturity.

1.2. Gross and Net TRR

The calculations take into consideration social security contributions to statutory and supplementary pension schemes or funds. Taxes and means-tested social benefits are also included in the calculations. This makes it possible to determine the contributions of the different components of the pension systems to the pensioner's income replacement at the point of retirement.

In particular, the *gross replacement rate* is defined according to the pre-taxed income (after employer contributions, but including employee contributions).

The *net replacement rate* is calculated as net of income taxes and employee contributions and including means-tested benefits. The comparison between gross and net allows assessing how different tax treatments of income from work and pensions may affect the income replacement provided by pension provision, or in other words, the effect of tax systems in pensions' adequacy.

1.3. Steps of calculations

Table 1 clarifies the successive steps in the calculations from gross to net replacement ratios and the relevant break-downs of the replacement rates.

Table 1: Steps of the TRR calculations

Steps of the calculations		Wage income full year before retirement	Pension income full year after retirement
	Compensation per employee	A	
–	Employer contribution to the first pillar pension scheme (B_1), to the other pension schemes (B_2) and other employer's social contributions (B_3).	B_1	
		B_2	
		B_3	
=	Gross earnings ($C=A-B_1-B_2-B_3$)	C	
	Pension income from first pillar pension schemes – J_1 , of which PAYG (J_1^A) of which funded (J_1^B) and from other pension schemes - J_2		$J_1^A + J_1^B = J_1$
	Total pension income ($J = J_1 + J_2$)		J_2
			J
%	1st pillar (statutory pensions) gross replacement rate - G_1 , (of which PAYG - $G_1^A=J_1^A/C$ of which funded schemes - $G_1^B=J_1^B/C$)		$G_1=J_1/C$
	Other pension schemes gross replacement rate – G_2		$G_1^A=J_1^A/C$ $G_1^B=J_1^B/C$
	Total Gross replacement rate ($G = G_1 + G_2$)		$G_2=J_2/C$
		$G=J/C$	
–	Employee and pensioner contributions to pension schemes: first pillar - D_1 ,	D_1	K_1
	other pension schemes - D_2 ,	D_2	K_2
–	Social insurance contributions other than for pension schemes	F	M
–	Taxes	G	N
+	Means-tested benefits		O
=	Net wage and pension income ($I=C-D_1-D_2-F-G$) ($P=J-K_1-K_2-M-N+O$)	I	P
%	Total Net replacement rate ($N=P/I$)		$N=P/I$
	of which means tested benefits in pp of total net replacement rate		O/I

2. Specifications of the base case

In the base case, TRRs are calculated for an assumed hypothetical worker with a given earnings and career profile and a corresponding affiliation to pension schemes. The base case individual is chosen in order to reflect as closely as possible current actual situations and institutional frameworks. However, given the diversity of situations across Member States, the base case may not necessarily be representative of workers in all Member States and therefore, TRRs need to be analysed in the light of background information aimed at showing in particular how “representative” the hypothetical worker is in a specific Member State (see section 5 below).

Table 2 summarises the main assumptions for the base case.

Table 2: The main assumptions for the base case

Professional status	Workers covered by the most general scheme (i.e. private sector scheme: if there are different schemes by professions/sectors, assumptions of the work sector are necessary. If considered relevant, Member States may also calculate replacement ratios for public sector employees, self-employed or other professional groups)
Career length	40 years
Age at retirement	Variant I: age 65; Variant II: national sex-specific standard pensionable age
Type of employment	Full-time work
Marital status	Single person (calculated for both men and women)
Year of retirement	Current replacement rates should be calculated for retirement in 2013 (pension in 2013 with respect to work earnings in 2012 adjusted for one year of inflation at 2%) ¹⁴⁵ . Prospective replacement rates should be calculated for retirement in 2053.
Coverage of pillars in pension income	First pillar, supplementary (occupational or personal) provision and means-tested supplements as applicable to the selected case (see below)
Earnings level	100% of average earnings of the corresponding year
Earnings profile	Constant relation to current average earnings (100%) over the whole period of employment

Coverage of pillars in pension income of the theoretical individual

Calculations include all (and only) pension schemes that are mandatory, typical or with wide-reaching coverage in a country. For each country the main schemes for private-sector employees should be modelled. Special schemes for civil servants, public-sector workers and special professional groups are excluded.

Statutory pensions include classical pay-as-you-go schemes (Defined-benefit (DB) or Notional defined-contribution (NDC)), and the mandatory Defined-contribution (DC) funded tier of the statutory scheme existing in some Member States.

Resource-tested benefits for which retired people may be eligible are also to be modelled. These can be means-tested, where both assets and income are taken into account, purely income-tested or withdrawn only against pension income. The calculations should assume that the base case individual takes up all the entitled benefits. The income test has to be taken as binding.

An increasing number of countries have a broad coverage of occupational pensions, either through collective agreements or through the employer, with an increasingly important role in providing retirement income. Therefore for those Member States where these pensions, that can be either DB or DC type, play a significant role they are to be included in the base case calculations.

Individual schemes in principle should NOT be included in the calculations as these are typically voluntary and not so widely developed. Only if they are part of official pension provisions and of substantial significance (such as, for example, in the case of the German Riemer scheme), these should be included. Such insertion must be fully justified on the basis of the current and perspective coverage of such pension arrangements among workers. Saving arrangements that do not tie up savings till retirement age can never be considered.

Table 3 summarises the types of schemes included in the calculations.

¹⁴⁵ Except in case a Member State needs to refer to a different moment of time.

Table 3: The types of schemes included in the calculations

	Covered by TRR calculations	Type of scheme
Statutory schemes	YES	Minimum pension provision
		Means tested benefits for pensioners, such as housing
		Universal flat rate linked to residency or to social insurance contributions
		Earnings related PAYG (with or without reserve fund)
		Earnings related, totally funded (by social contributions) – funded tier of general statutory schemes. Partly funded schemes.
Occupational schemes	YES	Mandatory for employer (sectoral or cross-sectoral) or resulting from collective agreement (which makes membership mandatory)
		Resulting from collective agreement (membership not mandatory but coverage is wide)
		Possibility to subscribe to pension scheme through one's employer
	Only if justified (broad coverage)	Resulting from collective agreement (membership not mandatory)
		Contractual or unilateral by employer (including book reserve or group plans)
Individual schemes	Only if justified (broad coverage)	Voluntary individual schemes (no employment link is necessary to become member), that can be adhered collectively (for instance through associations or Unions)
		Individual contracts with pension funds, life insurance companies or pension savings institutions that deliver annuities
	NO	Long term savings not specifically for pension purposes

3. Specifications of variant cases

Variant TRR cases	Characteristics
<i>Increases in pension ages</i>	
Increased SPA: career from age 25 to SPA	<p>In the base case calculations a 40 year career is typically calculated with a person retiring at either the national standard pensionable age¹⁴⁶ or age 65. With the “increase in pension ages” variant, the impact of retirement age reforms can be analysed. For this variant the entry age will remain constant with the retirement age reflecting the standard pensionable age at the time.</p> <p>A worker retiring at the national standard pensionable age – starting point of his career is 25 as in the base case, thus the career length will change as the retirement age changes).</p>
AWG career length case	<p>In the base case calculations a 40 year career is typically calculated with a person retiring at either the national standard pensionable age or age 65. However this career length may not reflect the situation that occurs within a particular country. For this variant the career length will be the difference between national effective exit age and national effective entry age.</p> <p>A worker retiring after an average AWG career – national specific entry and exit ages as calculated for the EPC-AWG; varying exit ages for current and prospective TRRs).</p>
<i>Different career lengths</i>	<p>In the base case calculations a 40 year career is typically calculated with a person retiring at the national standard pensionable age. With “different career length” variants, the dynamics of work incentives can be studied by comparing a base case worker who retires at national standard pensionable age with one that retires either 2 years earlier or later thus decreasing and increasing respectively the</p>

¹⁴⁶ The standard pensionable age is defined as the earliest age at which the individual with 40-year career can retire without any exit penalty.

Variant TRR cases	Characteristics
	seniority/number of contributory years of the worker.
Longer working life I: career from age 25 to 67	A worker retiring two years later at age 67 with 42 years of seniority (starting point of the career is 25 as in the base case, thus retirement in 2015 and 2055 for current and prospective TRR respectively).
Shorter working life I: career from age 25 to 63	A worker retiring two years earlier at age 63 with 38 years of seniority (starting point of the career is 25 as in the base case, thus retirement in 2011 and 2051 for current and prospective TRR respectively).
Longer working life II: career from age 25 to SPA+2	A worker retiring two years after national standard pensionable age (starting point of the career is 25 as in case 2a).
Shorter working life II : career from age 25 to SPA-2	A worker retiring two years before national standard pensionable age (starting point of the career is 25 as in case 2a).
Variant cases with career breaks	It is important to study with TRR to what extent social protection systems protect not only the current loss of income due to career breaks (for care responsibilities or in the event of unemployment), but also protect future incomes in the form of pension entitlements. This is becoming increasingly important as the number of contributory years needed for a full pension is being extended in many Member States.
Career break due to unemployment: 1 year, 2 years, 3 years	Career breaks for shorter (0 to 3 years) periods of unemployment: In this case the typical earner will be considered to be an average earner (both male and female) retiring at the country-specific standard pensionable ages and entered the labour market at age 25. Three consecutive years of unemployment are assumed to take place, when the individual is allowed highest full unemployment benefits that are entitled by legislation during the entire unemployment period. Although several countries have early-retirement schemes, the effects of such schemes are not taken into consideration in these calculations.
Career break due to child care: 1 year, 2 years, 3 years	The assumption for this case is that the typical earner is considered to be a female retiring at the country specific female standard pensionable age and entered the labour market at age 25. The exercise assumes childcare covering periods of 0 to 3 years of absence. For the modelling it is assumed that two children are born two years apart. Since a constant relative position in the earnings distribution is assumed throughout one's career, it does not matter when in the career childcare absences are modelled for the results, but typically the children are assumed to be born at the age of 30 and 32. The assumption is that highest full benefits can be received by the individual. The child care credits are typically placed for two children born.
Short career (30 year career)	Ten non-contributory years out of the labour market: this variant is defined as an average earner worker, both male and female, who retires at national retirement age and entered the labour market at age 25, as with the base case. 20 years of work until age 45; career break until 10 years prior to SPA (if the SPA in 2053 is equal to 67, a 12 year career break until age 57 is assumed); 10 years of work until the SPA. During the 10 year break the worker is assumed to not contribute to the pension system at all and not receive any social benefit or contribution credits, but remains resident in the Member State.
Forced early retirement due to unemployment	Early retirement due to 5 year period of unemployment: In this case the typical earner will be considered to be an average earner (both male and female) leaving the labour market 5 years prior to national standard pensionable age and entered the

Variant TRR cases	Characteristics
	labour market at age 25. Five consecutive years of unemployment are assumed to take place, and the individual claims the pension at the earliest possible point through early-retirement schemes. However the replacement rate is calculated at the national standard pensionable age, indexing benefits in payment where required.
Forced early retirement due to disability	In this case the typical earner will be considered to be an average earner (both male and female) leaving the labour market 5 years prior to national standard pensionable age and entered the labour market at age 25. Disability is classed as 100% and the individual is eligible for the maximum level of credit. The individual claims the pension at the earliest possible point through any early-retirement schemes. However the replacement rate is calculated at the national standard pensionable age, indexing benefits in payment where required.
<i>Other cases</i>	
Pension rights of surviving spouses	The assumption for this case is that both partners retire at the country specific national standard pensionable ages and entering the labour market at age. The exercise assumes the man was at average earnings throughout his career while the woman was at low earnings. For the modelling it is assumed that the man dies immediately after reaching retirement age. The difference between this indicator and the base case scenario for female low earners will measure the credit given to the surviving spouse to supplement low income.
Inflation: replacement rate 10 years after retirement	A pension – wage ratio after 10 years of retirement should also be presented, as a complement to the base case. This should be calculated considering the value of an individual’s pension 10 years after retirement, divided by the income of another average-earner worker retiring 10 years later than the previous one after a career from age 25 up to the national standard pensionable age (thus, the two retirees are in different cohorts, with 1973/1983 and 2013/2023 as the relevant entry ages for the calculation of current and prospective replacement rates, respectively). This will help to provide an assessment of the evolution of the relative position of the individual, typically reflecting pension indexation.

Different career lengths for different earning profiles

The analysis of variant cases should be considered with respect to low earners and career length. This will allow to study if the incentives to work longer are comparable for different wage levels. This can be done by simulating the effects of shorter/longer careers for the lower income earners, thus contributing to reflections on the adequacy impacts of working longer for the low income group (definitions as in the above-mentioned variant cases, and in all cases starting point of the individual’s career as in the base case):

- a) **a low income worker retiring two years later at age 67 with 42 years of seniority** (starting point of the career is 25 as in the base case, thus retirement in 2015 and 2055 for current and prospective TRR respectively).
- b) **a low income worker retiring two years earlier at age 63 with 38 years of seniority** (starting point of the career is 25 as in the base case, thus retirement in 2011 and 2051 for current and prospective TRR respectively).
- c) **a low income worker retiring two years after national standard pensionable age** (starting point of the career is 25 as in case 2a).
- d) **a low income worker retiring two years before national standard pensionable age** (starting point of the career is 25 as in case 2a).

4. Data and assumptions

In addition to the specifications listed above for the base case and variant cases, the following data are typically needed for the modelling of current and prospective TRR calculations:

- average earnings of the base case theoretical individual
- wage growth
- GDP growth
- inflation rate
- rates of return and annuities
- tax and social insurance data
- demographic variables (life expectancy / mortality tables)

Input data on these variables are needed for the whole 40 year period of the individual's career: either historical data referred to the past 40 years (for the calculation of current TRR) or assumptions on the relevant variables for the next 40 years (for the calculation of prospective TRR).

4.1. Current TRR calculations: based on past historical data

Calculations of current TRR are based on historical data for all the macro economic and demographic variables listed above. Country delegates use EU-level statistics such as the AMECO macro-economic databank of DG ECFIN¹⁴⁷, EUROSTAT data¹⁴⁸ or national sources to extract the necessary input data for the modelling.

The average earnings of the base case theoretical individual can be calculated either as (i) "Compensation of employees (before employers' social contributions) divided by the number of salaried employees in each country" or else as (ii) "wages and salaries (after employers' social contributions) divided by the number of salaried employees in each country". In any case, employers' social security contributions should be netted out for the calculation of gross TRR (see section 1 above), thus if option (i) is taken, employers' social contributions have to be deducted from the aggregate "compensation of employees". Furthermore, in the denominator, it would be more appropriate to use data on *full-time equivalent* wage and salary employees, since the structure of employment in terms of hours worked differs greatly across countries.

As for the reference population, it is suggested to use economy-wide averages, with no breakdown by gender or sector. The purpose, in fact, is not to reflect very accurately average earnings or cross-sectoral differences in average earnings in a given country at a given point in time, but to have a consistent image of cross-country differences in levels and past trends of earnings. However, if the pension scheme to which the calculations refer only concerns a particular section of the economy for which average earnings are significantly different from the economy-wide average, then it is possible to use earnings related to that section of the economy, provided they are available based on national accounts definitions.

4.2. Prospective TRR calculations: based on assumed data for the future

The calculation of prospective TRR asks for assumptions on future values of all the above-listed macroeconomic and demographic variables. In that sense, the assumptions agreed in the AWG are used to calculate projected TRR:

- (i) average earnings (without employers' social security contributions) in 2013;
- (ii) assumed annual average earnings' growth in real terms 2013-2058;
- (iii) assumed annual GDP growth in real terms 2013-2058;

¹⁴⁷ http://ec.europa.eu/economy_finance/db_indicators/ameco/index_en.htm

¹⁴⁸ <http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themes>

- (iv) assumed annual inflation 2013-2058;
- (v) assumed real interest rates 2013-2058.

The AWG assumes year-on-year figures for earnings' growth and GDP growth for the time span 2013-2053, while it assumes a path of linear convergence in both real interest rates (convergence to the 3% rate by 2017, and constant rate thereafter) and inflation rates (convergence to the 2% rate by 2017 and constant rate thereafter). With the current format of the OECD APEX model, it is not possible to use different assumptions for each year. Therefore, for the calculation of the 2053 prospective replacement rates, APEX has used an *average* for the entire 40 year period for the four economic parameters¹⁴⁹.

The following clarifies further the use of some of the variables in the modeling exercise of prospective TRR.

a) Inflation rate

Assumptions about indexation of pensions are made according to national legislation. Concerning discretionary increases of pensions, in calculating the pension – wage ratio after 10 years, only legislated or automatic increases of pensions should be considered, not discretionary ones. If one Member State feels it relevant to also consider some discretionary increase, this should be declared and done only if the same discretionary increase is expected to be considered in the pension expenditure projection exercise.

b) Tax and social insurance

Like in previous exercises, in the absence of a clear legislative commitment to conduct a different policy, Member States should raise income tax and social insurance thresholds in line with earnings so as to avoid a reduction in net replacement rates resulting from an increasing tax burden or a gradual reduction in the scope of social insurance. Departures from this assumption have to be duly justified.

c) Rates of return and Annuities

It should be assumed that when defined contribution benefits are received upon retirement they are paid out as an annuity. Annuities are calculated according to government policies. The interest rate assumed to calculate the annuity is 0.8% lower than the assumed rate used during the accumulation phase in order to account for the cost of buying the annuity, administrative and managing expenses. Therefore for the base case the assumed rate is 3%, giving an annuity rate of 2.2%. The cases for the lower and higher rates of return are adjusted accordingly. The Annuity coefficients used in the calculations take into account changes in life expectancy and are based upon the demographic projections by Eurostat.

d) Life expectancy

Eurostat's demographic projections based on EUROPOP2013 are used, as the case for the AWG projections.

¹⁴⁹ The difference in using an average for wage and GDP growth as opposed to the year-on-year figures depends entirely on the pension system. If the system is points orientated based on the number of years contributions, for example, then it is irrelevant. If it is based on final salary or yearly contributions then the difference is marginal and will depend entirely on the level of increase in wages. For example an increase of 2% in year one and 3% in year two gives an actual increase of $1.02 \times 1.03 = 1.0506$ whereas an increase of 2.5% in each year (average) gives an increase of $1.025 \times 1.025 = 1.050625$.

Annex 4. Background information on the pension schemes covered

Table 1: Pension schemes used in the calculations of the TRRs (ISG)

Member State	Pension schemes (Country-specific)	Covered by TRR	Funding source	Scheme-specific assumptions								
				Contribution rates			Valorisation of pensionable earnings		Indexation of pensions in payment			
				2013	2053		Assumptions used for TRR projections	Legislated/ad-hoc	Assumptions used for TRR projections	Leg./ad-hoc	Assumptions used for TRR projections	Leg./ad-hoc
					Assumptions used for TRR projections	Legislated/ad-hoc						
BE	Public pensions	Yes - employees private sector	Mixed	16.36	16.36	Leg.	Cfr. WGA		Constant prices (as imposed)			
	Occupational pensions	Yes	Contributions	4.25	4.25	Ad-hoc	Cfr. contributions and assumed ROI		Constant prices (as imposed)			
	Private pensions	No										
BG	Public pensions: Earnings related PAYG, DB, administrated by National Social Security Institute	Yes	Mixed	17.8 % for persons born before 01.01.1960 (EE – 7.9%; ER – 9.9%); 12.8% for persons born after 31.12.1959 (EE – 5.7%; ER – 7.1%); 12% State	17.8 % for persons born before 01.01.1960 (EE – 7.9%; ER – 9.9%); 12.8% for persons born after 31.12.1959 (EE – 5.7%; ER – 7.1%); 12% State	Leg.	No valorisation of pensionable earnings. Instead, in the pension formula an individual coefficient is applied which is the ratio of an individual's average insurable income and the national average insurable income.	Leg.	50% CPI + 50% wages	Leg.		
	Earnings related, funded tier of statutory scheme, DC - Universal Pension Funds (UPF)	Yes	Contributions	5% for persons born after 31.12.1959 (EE – 2.2%, ER – 2.8%)	7% since 2017	Leg.						
	Occupational pensions	No										
	Private pensions	No										

Member State	Pension schemes (Country-specific)	Covered by TRR	Funding source	Scheme-specific assumptions								
				Contribution rates			Valorisation of pensionable earnings		Indexation of pensions in payment			
				2013	2053		Assumptions used for TRR projections	Legislated/ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc
					Assumptions used for TRR projections	Legislated/ ad-hoc						
CZ	Public pensions: Basic pension insurance	Yes	Contributions	28	28	Leg.	Average nominal wage growth	Leg.	CPI + 1/3 real wage growth	Leg.		
	Occupational pensions	No (do not exist)										
	Private pensions	No										
DK	Public pensions	Yes	Tax						Automatic. Calc. based on wages. "Satsregulering"	Legislated		
	ATP	Yes	Contributions: Private 1/3-Employer 2/3	3240 DDK	3240*regulated with earnings growth to 2053	Ad hoc follows wages (set by negotiations)			Follows wages	Ad hoc (set by negotiations)		
	Occupational pensions	Yes	Contributions: Private 1/3-Employer 2/3	13	13	Ad hoc (negotiations – social partners)			Follow wages	Ad hoc (negotiations – social partners)		
	Private pensions	No										
DE	Public pensions	Yes	Contributions	9.35% employer; 9.35% employee	9.35% employer; 9.35% employee	Leg.	Wage growth – sustainability factor	Leg.	Wage growth – sustainability factor	Leg.		
	Occupational pensions	No										
	Private pensions	No					Market rate of return	Ad-hoc	Market rate of return	Leg.		
EE	Public pensions: state pension (1 st)	Yes	Contributions,			Leg.	Wage growth	Leg.	20% CPI + 80% social tax revenues	Leg.		

Member State	Pension schemes (Country-specific)	Covered by TRR	Funding source	Scheme-specific assumptions								
				Contribution rates			Valorisation of pensionable earnings		Indexation of pensions in payment			
				2013	2053		Assumptions used for TRR projections	Legislated/ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc
					Assumptions used for TRR projections	Legislated/ ad-hoc						
	pillar)		state budget							growth		
	Mandatory supplementary pension (2 nd pillar)	Yes	Contributions	The employee pays 2% from the gross wage and the employer another 4% (as part of the 20% pension insurance contribution)	The employee pays 2% from the gross wage and the employer another 4% (as part of the 20% pension insurance contribution)	Leg.	Market rate of return	Ad-hoc	Market rate of return	Ad-hoc		
	Occupational pensions	No										
	Private pensions - voluntary funded pension (3 rd pillar)	No	Defined contributions	The sums of the contributions made to the supplementary funded pension can be determined by the person and the amount of the contributions can be changed at any time.								
IE	Public pensions	Yes	State	Full yearly average of 48 + contributions assumed	Increase in line with wages	Ad-hoc	Calculated by average earnings and poverty threshold	Ad-hoc	Earnings	Ad-hoc		
	Occupational pensions	Yes	Contributions	10% Contribution rate	Increase in line with wages	Ad-hoc	Value of contributions	Ad-hoc	Earnings	Ad-hoc		
	Private pensions	No										
EL	Public pensions	Yes	Contributions	Main pension: 20% = 6.67% employees + 13.33% employers. Auxiliary pension: 6% = 3% employees + 3% employers								
	Occupational	No										

Member State	Pension schemes (Country-specific)	Covered by TRR	Funding source	Scheme-specific assumptions								
				Contribution rates			Valorisation of pensionable earnings		Indexation of pensions in payment			
				2013	2053		Assumptions used for TRR projections	Legislated/ad-hoc	Assumptions used for TRR projections	Leg./ad-hoc	Assumptions used for TRR projections	Leg./ad-hoc
					Assumptions used for TRR projections	Legislated/ad-hoc						
	pensions											
	Private pensions	No										
ES	Public pensions (General Regime)	Yes	Contributions	Not relevant, since it is Defined Benefit. To obtain net TRR, an employee contribution of 6.35% is considered.	Same as for 2013	Leg.	CPI indexation up to two years before retirement. Indexed according to ISG assumptions.	Leg.	CPI indexation. Indexed according to ISG assumptions (2% from 2015).	Ad-hoc ¹⁵⁰		
	Occupational pensions	No										
	Private pensions	No										
FR	Public pensions: Private pensions scheme (CNAV)	Yes	Taxes / Contributions	Employers: 8.40% up to the SSC ¹⁵¹ , plus 1.60% on the full wage; Employees: 6.75% up to the SSC, plus 0.10% on the full wage	Data of 2017. Constant contribution rate	Ad-hoc	Prices	Leg.	Prices	Leg.		
	Occupational pensions: Complementary pension scheme (ARRCO, AGIRC)	Yes	Contributions	7.5% up to the SSC, plus 20.3% between one and three SSC. No distinction between employers and employees contributions ¹⁵²	Data of 2015. Constant contribution rate	Ad-hoc	Prices	Leg.	Prices	Leg.		

¹⁵⁰ According to the law 23/2013, the indexation system has changed since January, 2014. Previously was used the CPI indexation and now is applied a new Pensions Adjustment Index (IRP), which is calculated according to different factors: number of contributory pensions, the variation of the average pension amount and the balance between revenues and expenses of the Social Security system. The index value will be in a range between a minimum of 0.25% and a maximum of the Consumer Price Index + 0.50%. This new IRP is applicable since 2014.

¹⁵¹ SSC: “social security ceiling”, wage ceiling which determines the contribution rate level. In 2013, the SSC is 3086 euros per month.

¹⁵² In the TRR of ISG, it is favored an individual rights perspective. Consequently, the complementary pension system includes: ARRCO, AGIRC, not AGFF, CET.

Member State	Pension schemes (Country-specific)	Covered by TRR	Funding source	Scheme-specific assumptions								
				Contribution rates			Valorisation of pensionable earnings		Indexation of pensions in payment			
				2013	2053		Assumptions used for TRR projections	Leg./ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc
					Assumptions used for TRR projections	Legislated/ ad-hoc						
	Private pensions	No										
HR	Public pensions	Yes	Contributions and general budget	Employer: none Employees: 20% - if not participate in the II pillar; 15% - if participate in the II pillar	Employer: none Employees: 20% - if not participate the II pillar; 15% - if participate in the II pillar	Leg.	30% CPI and 70% wage growth	Leg.	30% CPI and 70% wage growth	Leg.		
	Occupational pensions	No										
	Private pensions (Mandatory fully funded DC scheme)	Yes	Contributions	Employees: 5%	Employees: 5%	Leg.	Market rate of return	Leg.	30% CPI and 70% wage growth	Leg.		
IT	Public pensions: - DB (old scheme)	Yes	Contributions	33% in total Employers: 23.81%; Employees: 9.19%	33% in total Employers: 23.81%; Employees: 9.19%	Leg.	2% of life-long average earnings	Leg.	Inflation	Leg.		
	- NDC (new scheme)						Average annual nominal GDP growth rate in current prices from the last 5 years					
	Occupational pensions	No										
	Private pensions	No										
CY	Public pensions: Social Insurance Scheme	Yes	Contributions	13.6 ¹⁵³	20.6	Leg.	Wage index	Leg.	Wage indexation for basic part and CPI indexation for supplementary part. Freeze of indexation until 31.12.2016.	Leg.		

¹⁵³ The contribution percentage is equally distributed to employer and employee. In addition to the contribution rate of 13.6% for 2013 and 20.6% for 2053, there is a general government contribution of 4.3% and 6.1% for 2013 and 2053 respectively.

Member State	Pension schemes (Country-specific)	Covered by TRR	Funding source	Scheme-specific assumptions								
				Contribution rates			Valorisation of pensionable earnings		Indexation of pensions in payment			
				2013	2053		Assumptions used for TRR projections	Legislated/ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc
					Assumptions used for TRR projections	Legislated/ ad-hoc						
	Occupational pensions	No										
	Private pensions	No										
LV	Public pensions: NDC	Yes	Contributions	18%	14%	Leg.	Contribution wage sum index	Leg.	No indexation until 2012. Extra indexation in 2013 for small pensions. ¹⁵⁴	Leg.		
	Occupational pensions	No										
	Private pensions	No										
	Mandatory DC funded scheme	Yes	Contributions	2%	6%	Leg.	Market rate of return					
LT	Public pensions (Social insurance pensions)	Yes	Contributions	Employers - 23.3%; Employees - 0.5 %	Employers - 22.8%	Leg.	AWG assumptions for real growth of average wage	Ad-hoc	AWG assumptions for real growth of average wage	Ad-hoc		
	Occupational pensions	No										
	Private pensions (Quasi-mandatory private scheme)	Yes	Contributions	Employees – 2.5%	Employers - 0.5%, Employees - 3% + 2%, State - 2% of country's average wage	Leg.	AWG assumptions for real interest rate	Ad-hoc	Not indexed	Ad-hoc		
LU	Public pensions: General and public pension scheme	Yes	Taxes and contributions	24% (including tax-funding of 1/3 of contributions)	30%	Ad-hoc ¹⁵⁵	100% prices and 100% wages	Leg.	< 2020: 100% prices and 100% wages; > 2020: 100% prices and 50%	Leg.		

¹⁵⁴ From 2014 - CPI and 25% of contribution wage sum growth, as well as a ceiling of indexed part of pension's amounts defined. In 2014 the ceiling on indexed part =285 EUR, but starting from 2015=50% of previous year's average contribution wage in state. However, pensions for persons with I group of disability, for politically repressed persons and for liquidators of the Chernobyl nuclear disaster will be indexed in full amount.

¹⁵⁵ Assumption based on 2014 AWG baseline scenario for private sector

Member State	Pension schemes (Country-specific)	Covered by TRR	Funding source	Scheme-specific assumptions								
				Contribution rates			Valorisation of pensionable earnings		Indexation of pensions in payment			
				2013	2053		Assumptions used for TRR projections	Leg./ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc
					Assumptions used for TRR projections	Legislated/ ad-hoc						
	Occupational pensions	No							wages			
	Private pensions	No										
HU	Public pensions: PAYG DB: mandatory social insurance pension scheme)	Yes	Contri- butions	Employers: 27%; Employees: 10% (the contribution rate of the employers doesn't affect TRR)	Employees: 10% (the contribution rate of the employers doesn't affect TRR)	Leg.	Valorisation multipliers are set in legislation in every March. The valorisation rates are based on increase of net average monthly salary.	Leg.	Indexation is set in legislation ¹⁵⁶	Leg.		
	DC private pension system ¹⁵⁷	No										
	Occupational pensions	No										
	Private pensions	No										
MT	Public pensions: Two-Thirds pension scheme	Yes	Contri- butions	10% employee; 10% employer; 10% the state subject to ceiling	Same as in year 2013	Leg.	Inflation	Leg.	70% inflation and 30% wage growth	Leg.		
	Occupational pensions	No										
	Private pensions	No										
NL	Public pensions	Yes	Taxes and contri- butions	Taxes: 25% Contributions: 75%					Inflation	Ad- hoc		

¹⁵⁶ From 2012 pensions are annually adjusted to projected consumer prices.

¹⁵⁷ From October 2010 mandatory payment of the employees' contributions into the pension funds ceased, the whole contribution flows to the Pension Insurance Fund.

Member State	Pension schemes (Country-specific)	Covered by TRR	Funding source	Scheme-specific assumptions								
				Contribution rates			Valorisation of pensionable earnings		Indexation of pensions in payment			
				2013	2053		Assumptions used for TRR projections	Leg./ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc
					Assumptions used for TRR projections	Legislated/ ad-hoc						
	Occupational pensions	Yes	Tax exemption, contributions and returns on investment	Tax exemption: 10% Contributions: 20% returns on investment: 70%					Inflation	Ad-hoc		
	Private pensions	Occupational - yes	Tax exemption and contributions	Unknown					Inflation	Ad-hoc		
		Private pensions individual - no										
AT	Public pensions	Yes	Contributions	22.8% (Employer 12.55%; Employee 10.25%)	22.8% (Employer 12.55%; Employee 10.25%)	Leg.	1.30% (assumption in line with the Ageing Report, EPC)		2.00%	Leg.		
	Occupational pensions	No										
	Private pensions	No										

Member State	Pension schemes (Country-specific)	Covered by TRR	Funding source	Scheme-specific assumptions							
				Contribution rates			Valorisation of pensionable earnings		Indexation of pensions in payment		
				2013	2053		Legislated/ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc
					Assumptions used for TRR projections	Legislated/ ad-hoc					
PL	Public pensions	Yes	Contributions to old-age pension insurance (19.52%) are financed in equal parts (9.76%) by employee and employer . Subject to ceiling.	19.52%	19.52%	Leg.	Mixed	Leg.	CPI + 20% real wage growth	Leg.	
	National Scheme:			-	-		-				
	ZUS			12.22%	12.22%		Nominal value of gross written premiums				
	Sub-account			4.50%	7.30%		Average annual GDP growth rate in current prices from the last 5 years				
	Founded Scheme (OPF)			2.80%	-		Real (market) interest rate				
	Occupational pensions	No									
	Private pensions	No									
PT	Public pensions	Yes	Contributions	34.75% (23.75% employers; 11% employees)	34.75% (23.75% employers; 11% employees)	Leg.	Reference earnings are projected according with labour productivity growth and adjusted according to the Consumer Price Index (CPI)	Leg.	According with CPI and GDP growth	Leg.	
	Occupational pensions	No									
	Private pensions	No									
RO	Public pensions	Yes	Contributions	a) 31.3% for normal working conditions, of which 10.5% for the employee and 20.8% for the employer; b) 31.3% for difficult	a) 26.3% for normal working conditions, of which 10.5% for the employee and 15.8% for the employer; b) 31.3% for difficult	Leg. (Law 263/2010)			a) Starting on 1/1/2012, the pension point value will be annually indexed at 100% of inflation rate plus	Leg. (Law 263/2010)	

Member State	Pension schemes (Country-specific)	Covered by TRR	Funding source	Scheme-specific assumptions								
				Contribution rates			Valorisation of pensionable earnings		Indexation of pensions in payment			
				2013	2053		Assumptions used for TRR projections	Leg./ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc
					Assumptions used for TRR projections	Legislated/ ad-hoc						
				b) 36.3% for difficult working conditions, of which 10.5% for the employee and 25.8% for the employer; c) 41.3% for special working conditions, of which 10.5% for the employee and 30.8% for the employer.	working conditions, of which 10.5% for the employee and 20.8% for the employer; c) 36.3% for special working conditions, of which 10.5% for the employee and 25.8% for the employer.					50% of real increase of the average gross wage of the previous year. If one of these is negative, only the positive value will be considered. b) Starting on 2021, the pension point value will be annually indexed with 100% inflation rate plus 45% of the real increase of the average gross wage of the previous year. The percentage attached to the real increase of the average gross wage will be gradually reduced by 5% each year; starting on 2030, the pension point value will be indexed annually by 100% inflation rate.		
	Occupational pensions	No										
	Private pensions	No										

Member State	Pension schemes (Country-specific)	Covered by TRR	Funding source	Scheme-specific assumptions								
				Contribution rates			Valorisation of pensionable earnings		Indexation of pensions in payment			
				2013	2053		Assumptions used for TRR projections	Legislated/ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc
					Assumptions used for TRR projections	Legislated/ ad-hoc						
SI	Public pensions	Yes	Contributions	8,85% employer; 15.50% employee	8.85% employer; 15.50% employee	Leg.	Wage indexation ¹⁵⁸	Leg.	60% wages and 40% consumer price index	Leg.		
	Occupational pensions	No										
	Private pensions	No										
SK	Public pensions (Mandatory PAYG, earnings related scheme (2010 and 2050))	Yes	Mixed (contributions + state budget)	28.75%	24.75-22.75%	Leg.	Wage growth	Leg.	Combination wage growth and price index in the transitional period: 2013 - 50% to 50%; 2014 - 40% to 60%; 2015 - 30% to 70%; 2016 - 20% to 80%; 2017 - 10% to 90% and thereafter 100% CPI for households of pensioners. ¹⁵⁹	Leg.		
	Occupational pensions	No										
	Private pensions (Mandatory fully funded, DC scheme)	Yes	Contributions	n.a.	4-6%	Leg.	Market rate of return	Ad- hoc: AWG assumption (3% for	Price index	Assumption used by OECD in the APEX		

¹⁵⁸ Changes notable in the TRR (2013 comparing with 2010) due to pension reform ZPIZ-2 and austerity measures: Valorisation of the past earnings is linked to the growth of average wage (100%), and exactly in the year 2013 the rule of indexation changed from 100% wage indexation to the indexation 60% of growth of wages and 40% of growth of consumer price index. Austerity measures: indexation of pensions are frozen till the end of 2015.

¹⁵⁹ In the transitional period from 2013 to 2017 pensions are indexed by fixed amount.

Member State	Pension schemes (Country-specific)	Covered by TRR	Funding source	Scheme-specific assumptions								
				Contribution rates			Valorisation of pensionable earnings		Indexation of pensions in payment			
				2013	2053		Assumptions used for TRR projections	Legislated/ad-hoc	Assumptions used for TRR projections	Leg./ad-hoc	Assumptions used for TRR projections	Leg./ad-hoc
					Assumptions used for TRR projections	Legislated/ad-hoc						
								baseline)	model ¹⁶⁰			
FI	Public pensions: Earnings-related pension	Yes	Contributions	Private-sector contributions under the Employees Pensions Act (TyEL) in 2013, pension contributions on average (% of wages) 22.8%. Employee's share 5.15% aged under 53 and 6.50% aged 53 and over.	Employee's share 6.25% aged under 53 and 7.95% aged 53 and over.	Leg.	Wage coefficient (20% price, 80% wage)	Leg.	Earnings-related pension index (80% price, 20% wage)	Leg.		
	National pension	Yes	State finances national pension scheme			Leg.			50% price, 50% wage	Leg. (indexed to prices)		
	Occupational pensions	No										
	Private pensions	No										
SE	Public pensions	Yes	Contributions + taxes (guaran-	7% employer; 10.21% employee	7% employer; 10.21% employee	Leg.	Wage growth; Market rate of return	Leg.	Wage growth – 1.6 p.p; Market rate of return	Leg.		

¹⁶⁰ According to passed annuity amendment indexation of life annuities is voluntary (person could decide). Nowadays the percentage of indexation is 2% (according the main goal of ECB). The percentage level could be changed by National Bank of Slovakia, but NBS should take into account the main goal of ECB. When the saver chooses the life annuity with the indexation the percentage of indexation is the same for the whole pay out phase, it is not changing during the years.

Member State	Pension schemes (Country-specific)	Covered by TRR	Funding source	Scheme-specific assumptions								
				Contribution rates			Valorisation of pensionable earnings		Indexation of pensions in payment			
				2013	2053		Assumptions used for TRR projections	Leg./ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc	Assumptions used for TRR projections	Leg./ ad-hoc
					Assumptions used for TRR projections	Legislated/ ad-hoc						
			tee pension)									
	Occupational pensions	Yes	Contri- bution	n.a.	4.5 %	Ad-hoc	Market rate of return	Ad- hoc	Market rate of return	Ad- hoc		
	Private pensions	No										
UK	Public pensions	Yes	Contri- butions	25.8% ¹⁶¹	25.8%	Leg.	Average wage growth ¹⁶²	Ad- hoc	3.87% ¹⁶³	Ad- hoc		
	Occupational pensions	Yes	Contri- butions	8%	8%	Ad-hoc	Various ¹⁶⁴	Ad- hoc	Prices	Ad- hoc		
	Private pensions¹⁶⁵	No										

¹⁶¹ The contribution to the statutory scheme stands at 25.8% (13.8% from employers and 12% from employees). However income below the primary/secondary threshold is exempt and different rates would apply to any income above the Upper Earnings Limit. The contribution covers some social benefits other than pensions such as the National Health Service.

¹⁶² For the current Additional State Pension, increases would be linked to average wage growth. The current Basic State Pension is determined by the number of contributing years, as will be the New State Pension.

¹⁶³ Based on the Ageing Working Group's long-term economic assumptions when the AWG assumptions are applied.

¹⁶⁴ Occupation pensions are treated as defined contribution schemes, and valorisation is based on fund growth. This is linked to bond and equity returns, prices and other growth indices. The modelling also includes assumptions about a lifestyling shift to bond assets in later life.

¹⁶⁵ Normally referred to as 'Personal pensions' in the UK.

Table 2: Coverage information, 2013

Member State	Coverage rate		
	Coverage of statutory pensions (% of persons enrolled in the labour force)	Active membership of occupational (or private in general) pension schemes (as % of the labour force)	Means-tested benefits (such as housing) (as % of population 65+)
BE	100	75.0	
BG	100	n.a.	n.a.
CZ	100	n.a.	2.0*
DK	100	90-95 *	26 **
DE	85	70.0	3.0
EE	100		General social assistance scheme, no specific benefit for old-age.
IE	88.4	51.0	0.0
EL	100	Very low rate	
ES	82	43.47 *	19.5
FR	80	n.a.	4.2
HR	80.31*		
IT	87.9*	n.a.	6.4**
CY	100	39.8	40.9
LV	100*		
LT	100	76.0	n.a.
LU	100		1.0
HU	90,64*		
MT	100	n.a.	5.0
NL	100	90-95	2.0
AT	100		9.3
PL	53,5*	6.2	
PT	80*	62.0**	n.a.
RO	100		
SI	100	*	
SK	90.6	53.3	1.9
FI	100	About 5.0*	9.6**
SE	100	90.0	14.0
UK	100	85.0	19.6

* Notes:

CZ: Estimate based on number of households with 65+ head receiving benefits. Does not reflect 65+ persons living together in households.

DK: *Depending on definition. Vary between subgroups. Relative lower rates for self-employed persons aged less than 25-30 years, and to some extent also for part-time employed. **Number of pensioners receiving Individual Housing Benefits: a special scheme for old age pensioners where benefits are calculated on the basis of objective criteria.

IE: Estimate based on Class a Social Insurance contributors in 2013 as a percentage of CSO QNHS Q3 2013 Labour Force (20-64 year olds). CSO QNHS Q4 2009 showed 51% of persons in LF had a private pension.

ES: Active members of occupational and private schemes as % of the labour force is 43.47% in 2013, compared with 46.95% in 2010.

HR: Statutory pensions are considered to be the public PAYG system (I pillar) and mandatory fully-funded DC privately managed system (II pillar). Coverage rate refers to an average number of insured persons in 2013 as a percentage of the labour force (15-64).

IT: *Number of insured persons in the statutory pension system (INPS) as percentage of labour force aged 15–64. Professionist workers are excluded. **Number of mean-tested benefits as percentage of population +65 (Source: INPS – Rapporto annual 2013).

LV: The statutory pension scheme covers all contributors.

HU: *Number of insured persons in the statutory pension system as percentage of economically active population aged 15–64. The statutory pension scheme covers all contributors.

PL: Number of insured persons in the statutory pension system (excluding individual farmer's scheme and uniform's services) as percentage of economically active population aged 15–64.

PT: *Number of workers contributing to statutory pensions as a percentage of employed population (Eurostat, 30.09.2014); **Active members of occupational and private schemes as a % of employed population (Eurostat, 30.09.2014).

RO: 5,224,882 - number of pensioners; 5,612,413 - number of contributors.

SI: Voluntary and private pension insurance in Slovenia exists under different insurance contracts. The data collectors are not state institutions which poses some risk to calculate the right values.

FI: *This percentage represents occupational private pension contracts. In addition, about 20% have individual pension contracts. **9.6% of the 65+ population actually receive housing benefits even though in principle all pensioners are entitled to them if income and housing cost requirements are met.

Table 3: Macro-economic historical data for Theoretical Replacement Rates

	Gross average earnings (after employers' social security contributions) in national currency, 2013	Net average earnings in national currency, 2013	Average annual earnings growth		Average annual GDP growth		Average annual inflation		Average annual interest rates	
			1973 - 2013	2013 - 2053	1973 - 2013	2013 - 2053	1973 - 2013	2018 - 2053	1973 - 2013	2024-2053
BE	39,870 EUR	23,590 EUR	4.5%	1.12		1.77		2.0		3.0
BG	10,762 BGN	8,436 BGN	10.0%	2.47	3.6%	1.54	5.5%	2.0	3.6%	3.0
CZ	300,936 CZK	231,996 CZK	6.40%	1.63	n. a.	1.62	4.67%	2.0	n. a.	3.0
DK	411,534 DKK	:	2.73% (1993-2013)	1.44	1,6%	1.89	2.1% (1993-2013)	2.0	4.71% (1993-2013)	3.0
DE	30,755 EUR	20,494 EUR	2.05% (1992-1913); 3.0% (1973-1913)	1.45	1.29% (1992-1913); 1.8% (1973-1913)	0.98	1.84% (1992-1913); 2.6% (1973-1913)	2.0	4.72% (1991-1913); 6.1% (1973-1913)	3.0
EE	11,388 EUR	9,084 EUR	n.a	2.17	n.a	1.46	n.a	2.0	n.a	3.0
IE	36,771 EUR	24,742 EUR	2.1%	1.40	3.835	1.58	5.882	2.0	2.5%	3.0
EL	:	:	:	0.99	:	0.92	:	2.0	:	3.0
ES	22,653 EUR	17,887 EUR *	*	1.33	9.8%	1.46	6.8%	2.0		3.0
FR	33,359 EUR	26,133 EUR	5.7%	1.17		1.59		2.0		3.0
HR	96,390 HRK *	66,941 HRK	4.1% (1999-2013)	1.69	n. a.	1.48	3.1% (1999-2013)	2.0	n. a.	3.0
IT	29,097 EUR	19,889 EUR	2.91%*	1.08	2.58%*	1.33	6.97%*	2.0	n.a.	3.0
CY	25,728 EUR	23,083 EUR	3.8%	1.08	3.6%	1.88	4.6%	2.0	n.a.	3.0
LV	7,128 EUR	5,006 EUR	n.a.*	2.69	n.a.*	1.64	n.a.*	2.0	n.a.*	3.0
LT	7,750 EUR*	6,009 EUR	n.a	2.60	n.a	1.24	n.a	2.0	n.a	3.0
LU	48,570 EUR	35,621 EUR	1.45%	1.06	7.49%	2.68	3.48%	2.0	n.a.	3.0
HU	2,768,568 HUF	1,813,416 HUF	11.30%	1.93	1.6%	1.65	10.2%	2.0		3.0
MT	19,377 EUR*	15,320 EUR	3.6%	1.37	2.1%*	1.81	3.5%	2.0	n.a.	3.0
NL	31,861 EUR	22,431 EUR	n.a.	1.21	n.a.	1.23	n.a.	2.0	n.a.	3.0
AT	24,863 EUR	21,192 EUR	4.4%	1.27	5.5%	1.52	3.4%	2.0	n.a.	3.0
PL	43,801 PLN	31,322 PLN	6% (1999-2013)	2.21	7% (1999-2013)	1.78	3.59% (1999-2013)	2.0		3.0
PT	16,250 EUR	12,031 EUR	1,33%	1.50	2.4%	1.04	10.2%	2.0	n.a	3.0
RO	25,956 RON	18,948 RON		2.35		1.75		2.0		3.0
SI	18,278 EUR*	11,964 EUR	3.5%*	1.45	0.72%*	1.33	2.7%*	2.0	2.7%*	3.0
SK	9,888 EUR	8,355 EUR	6.4%	2.22	3.4%	1.73	5.2%	2.0		3.0
FI	36,871 EUR	26,236 EUR	6.7%	1.20		1.40	5.0%	2.0		3.0
SE	336,981 SEK	255,750 SEK	5.8% (nominal)	1.50	not used	2.11	4.7% (nominal)	2.0	11.9% (average nominal asset return)	3.0
UK	27,493 GBP	21,513 GBP	7.31%	1.18	7.5%	1.73	6.3%	2.0	7.4%	3.0

Notes:

: - data not provided by the Member State (**EL**), n.a. – not available.

BG: Gross average earnings in 2013 cover wage bill per employee in BGN at current prices based on SNA (ESA 95), however national accounts data do not provide information related to net average earnings. From the point of view of consistency of all required variables, historical data refer to the period 2000-2013.

ES: There's no equivalent series of average earnings since 1973. Net Average Earnings once deducted social contributions and taxes.

HR: Average earnings in 2013 are presented according to national statistics data and they are different from data used by Ageing Working Group. Macroeconomic data in the period 1973-2013 are not available due to lack of consistency and reliability in long term data series caused by changes in definitions of key variables and episodes of hyperinflation in the past.

IT: Average annual earnings and GDP growth refer to the period 1995-2013 where statistical bases are omogeneous (source: ISTAT – data base). Historical data average could mismatch with previous bases.

LV: According to Latvian design of the NDC scheme's transition provisions, insurance period until the year 1995 (inclusive) is credited with an initial capital, calculated using an average contribution wage of individual in 1996-1999 (four years). Average annual growth of the average contribution wage 1996 - 2013 (included): 9.3%. Average annual growth of contribution wage sum 1996-2012 (indexes for time period 1996-2012 are used for indexation of NDC capital for retirees in 2013): 9.8%.

LT: Average earnings in 2013 are presented according to national statistics data and they are different from data used by Ageing Working Group. Macroeconomic data in the period 1973 - 2013 are not available due to lack of consistency and reliability in long term data series caused by changes in definitions of key variables and episodes of hyperinflation in the past.

MT: Source: ESA 2010, data in real terms. The ESA 2010 is available for the period 1995-2013 with respect to current prices and the period 2001-2013 for real prices. The historic data for period 1973-1994 are not available. MT has taken 2012 averages as full calendar year prior to retirement in 2013.

AT: Average earnings in 2013 are presented according to national statistics on average contribution basis for pension insurance (ASVG) and they are different from data used by Ageing Working Group.

SI: Historical data refer to period 2005-2013 (SIT vs EUR exchange rate has been fixed in 2005). The main reason is a good compatibility of all required data in this period. Average annual interest rate is based upon Basic Interest Rate. *Data source: Statistical office of R Slovenia (SORS).*

Table 4: Assumed Standard Pensionable Ages (used in the TRR calculations)

	1) Standard pensionable age used in calculations base case variant II (case 1b) (1)				2) Standard pensionable age used in calculations for all other cases (2)				3) Standard pensionable age used in calculations for case 9) on early retirement due to unemployment (3)	
	2013		2053-		2013		2053-		2053-	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
BE	65		65		65		65		65	
BG	63.7	60.7	65	63	63.7	60.7	65	63	n.a.	
CZ	62.5		68.3		62.5		68.3		68.3	
DK	65		67							
DE	65.2		67							
EE	63	62	65		63	62	65	65	62	62
IE	65		68		65		68		68	
EL	62		62		60-65	62-67	62-67		62	
ES	65		65		65		65		64	
FR	65		67		65		67		67	
HR	65	60.8	67		65	60.8	67		62	
IT	66.3	62.3	70.3		66.3	62.3	70.3		70.3*	
CY	65		68.5		65		68.5		68.5*	
LV	62		65		62		65		65	
LT	62.7	60.6	65		62.7	60.6	65		60	
LU	57		57		60		60		60	
HU	62		65		62		65		65	
MT	62		65		62		65		65	
NL	65.1		67		65.1		67		67	
AT	65	60	65		65		65		65	
PL	65.1	60.1	67		65.1	60.1	67		62	
PT	65		68.4		65		68.4		63.4	
RO	64.8	59.8	65	63	64.8	59.8	65	63	60	
SI	60		60		65		65		65	
SK	62		66		62		66		64	
FI	65		65		65		65		65	
SE	65		65		65		65		65	
UK	65	61.3-61.8	68		65	61.3-61.8	68		*	

Notes:

(1) Only for case **1b**): Standard pensionable age (SPA) - the earliest age at which an individual with a **40-year career** can retire without any exit penalty in 2053.

(2) Standard pensionable age (SPA) (for calculations of the future TRRs for all cases except case **1b**) - the earliest age at which an individual who is born in 1988 and commences his/her career in 2013 at age 25 can retire without any exit penalty

(3) The age at which an individual with a full career up to 5 years prior to SPA would actually claim a pension rather than rely on unemployment/social benefits

** Country specific comments:*

BE: The SPA for BE is 65 in all cases, both in 2013 and 2053 as the legislation applicable on 1.1.2013 doesn't foresee measures influencing the penalisation.

BG: According to the current pension legislation, two qualifying conditions are required for eligibility for an old age pension in 2053 – 65 (63) years attained age for male (female) and 40 (37) years length of service for male (female). Under the assumptions for case 9, an old age pension could be drawn out at age 67 when at least 15 years length of service is required.

ES: For this persons retirement benefit there are different options. The worker can rely on unemployment benefit for a maximum of two years, and then, he/she can either wait till he/she reaches the legal retirement age (in this case it would be 65 years) or apply for early retirement at the age of 62 in 2013 (in this case, his/her benefit would be reduced a 22.50%) and 64 in 2053 (the benefit will be reduced a 21%).

IT: *The SPA (old age pension) in 2013 is 66 years and 3 months for men (all sectors) and women of the public sector. For female employees and the female self-employed, the SPA is temporarily lower (respectively, 62 years and 3 months and 63 years and 9 months, in 2013), until to 2018. A contribution requirement of 20 years is also required. Early retirement, regardless of age, is allowed with 42 years and 5 months of contribution for men and 41 years and 5 months for women, in 2013 (both increased by 1 month in 2014). The newly insured after 1995 may also retire earlier than the SPA, up to a maximum of 3 years, with 20 years of contributions and a pension of at least 1,200 euro per month in 2012 (2.8 times the old-age allowance, in 2012, indexed with the five-year average of nominal GDP). From 2013, the SPA, the contribution requirements for early pensions regardless of age and the age requirement for early pensions under the NDC regime are all indexed to changes in life expectancy at 65, every three years up to 2019 and every 2 years as of 2021 (next update is 4 months, in 2016). According to the official demographic projections (Istat, main variant, base year 2011), the cumulative increase of the eligibility requirements is 4 years and 1 month, in 2053.

CY: *It is assumed that the individual receive social welfare benefit up to SPA of 68.5.

PL: current TRR with SPA calculated only for case 1b and 2a.

PT: Comment on case 1b: According with legislation approved December 2013, Portugal had increased the pensionable age to 66 (enters into force in 2014), and from that year on the retirement age will be linked to life expectancy.

Comment on case 9: Accordingly with legislation a person which had become unemployed at the age of 57 or more; had complete the contributory period; exhausted the unemployment benefit; still unemployed, could claim the old age pension at the age of 62.

The PSA included in the table, follows the information provided under the table1) included in the ISG document: SPC/ISG/2014/6/2.2, from 17 of June.

SI: The most important criterion is the pensionable age set to 40 years in SI legislation. In Case 1b a person started working at age 20. If he started working at the age of 25, he cannot exit at 60 (cannot do that with penalties either). But, at the age of 65 he can exit provided that his pensionable age is at least 15 years. See legislation ZPIZ-2 Article 27.

UK: In 2013, different Standard pensionable ages applied in the UK for men and women. Standard pensionable ages for men and women began to be gradually harmonised in 2010. Full harmonisation will be achieved by 2018 at which point both men and women will have the same Standard pensionable age. In 2013, part way through this process, men reached their Standard pensionable age at 65 years, whilst women reached Standard pensionable age between 61.3 years and 61.8 years, depending upon their date of birth. Prior to an individual reaching the Standard pensionable age there is no early access to the State Pension in the UK. Individuals in these circumstances may qualify for other forms of support.

Table 5: Description of minimum income provision for older people

MS	Name of MIPOP	Description
AT	Compensation supplement to pension <i>Ausgleichszulage zu Pensionen aus der Pensionsversicherung (=“Ausgleichszulage”)</i>	Tax financed top-up provided from the statutory pension system (that is mainly contributory) under the means test (for eligibility and amount) applied against income (pension, total personal income and household income) that results in tapered withdrawal. The compensation supplement (<i>Ausgleichszulage</i>) is due in the amount of the respective difference (for single pensioner to €857.73 per month and for a pensioner living in the same household with spouse to €1,286.03 per month). No minimum age but minimum period of insurance of 15 years is required.
	Means-tested minimum income scheme <i>Bedarfsorientierte Mindestsicherung</i>	Tax financed general social assistance scheme for the entire population, no age condition, residency status required. Modernized version of the former social assistance (<i>Sozialhilfe</i>) which was in force until 2011. The aim of means tested minimum income scheme is to provide a decent life for people who are not able to meet their daily living costs or those of their family members with their own resources. Means tested for eligibility and amount against total personal and household income, assets test applies.
BE	Guaranteed minimum pension for the full career – for employed <i>Gewaarborgd minimum pensioen voor een volledige loopbaan voor werknemers/Pension minimale garantie pour une carrière complète de travailleur salarié</i>	Contributory minimum pension benefit conditional upon the minimum contribution period requirement of 2/3 of the full insurance period of 45 years, with professional activity completed of at least 1/3 in full time employment. provided at age 65 with 35 years of insurance period, or at age 61 with 39 contribution period (further increase to age 63 with 42 years of contribution period in a transitional period ending in 2019) or full minimum pension with 45 years contribution period. The amount is proportionally decreased in line with the real career length compared to a full career (45 years). It is not behaving like a top-up amount to a defined minimum. Not means tested.
	Minimum entitlement per career year – for employed <i>Minimumrecht per loopbaanjaar/Droit minimal par année de carrière</i>	Low wage earners with at least 15 years of 1/3 in full time employment are entitled to a minimum for each career year calculated on the basis of a minimum guaranteed pay for the complete career as far as the annual pension for a complete career does not exceed certain maximum for a single person and for a household. No means test.
	Guaranteed minimum pension in case of a mixed career <i>Gewaarborgd minimumpensioen voor een gemengde loopbaan/Pension minimale pour carrière mixte</i>	Self-employed persons are entitled to minimum pension under the same age and period requirements as employed but different annual pension ceilings test applies for a single person and for a household). In case of mixed career (employment and self-employment) the combined pension cannot exceed the employed workers pension for the same career length. In case of entitlement to the guaranteed minimum pension the amount will be limited to the guaranteed minimum calculated for employed persons. No means test.
	Guaranteed income for elderly persons (IGO-GRAPA) <i>Inkomensgarantie voor Ouderen (IGO) – Garantie de ressources aux Personnes Âgées (GRAPA)</i>	Tax financed specific social assistance for older people, who have no pension rights based on occupational activity or whose pension rights are very low and therefore have insufficient means of subsistence. Provided from age 65 under the residence status condition, no period requirement. Means tested for eligibility and amount against the total personal and household income, including assets test.
BG	Minimum pension (full contributions to the PAYGO pension scheme) <i>ПЕНСИЯ ЗА ОСИГУРИТЕЛЕН СТАЖ И</i>	Contributory minimum pension provided at age of 63 years and 8 months with the insurance period of 37 years and 8 months (men) or 60 years and 8 months (women) with the insurance period of 34 years and 8 months. No means test. It is not behaving like a top-up amount to a defined minimum.

MS	Name of MIPOP	Description
	<i>ВЪЗРАСТ</i>	
	Minimum pension (15 years of contributions to the PAYGO) <i>ПЕНСИЯ ЗА ОСИГУРИТЕЛЕН СТАЖ И ВЪЗРАСТ ЗА ЛИЦАТА, ПРИДОБИЛИ 15 ГОДИНИ ОСИГУРИТЕЛЕН СТАЖ</i>	Contributory minimum pension based upon the 15 years minimum insurance period provided at age 65 years and 8 months (men and women). No means test. It is not behaving like a top-up amount to a defined minimum.
	Social old-age pension <i>СОЦИАЛНА ПЕНСИЯ ЗА СТАРОСТ</i>	Tax financed specific social assistance provided from pension system as an alternative to minimum pension to persons of 70 years of age (men and women) who did not earn a pension. No residence/ insurance period requirement. Means tested for eligibility (against total personal income and income per member of household) but no means test for the amount of benefit.
	Social assistance <i>СОЦИАЛНО ПОДПОМАГАНЕ</i>	Tax financed benefits from the general social assistance scheme, in cash or in kind, supplementing or providing an income to guarantee the basic living needs or meet incidental needs of individuals and families. Provided to persons having exhausted all other possibilities for self-support and support by their relatives. Residence status required but no age or qualifying period condition. Means tested for eligibility and amount.
CY	Minimum pension <i>(GSIS)</i>	Contributory pension benefit guaranteed under the General Social Insurance Scheme (GSIS) - defined benefit point system. Provided at age 65 (men and women) with insurance period of 14.85 insurance points in the basic insurance (1 insurance point: equal to 52 times the weekly basic amount = €9,068) – the same for the minimum and maximum MIPOP amount. No means test.
	Social pension <i>Κοινωνική Σύνταξη</i>	Tax financed specific social assistance for older people. Pension for residents who have no or have low pension income in old-age. Financed by the Consolidated Fund. Means tested against the beneficiary's pension income. Provided at age 65 for both men and women, with the residence period in Cyprus of 20 years after age 40, or 35 years after age 18. Means tested for eligibility and amount against the pension income.
	Scheme supporting pensioners' households with low income <i>Σχέδιο ενίσχυσης νοικοκυριών συνταξιούχων με χαμηλά εισοδήματα</i>	Tax-financed, means-tested cash benefit scheme addressed to pensioners' households whose total annual income is below the poverty threshold. It covers households having their legal residence in Cyprus and including at least one pensioner (old-age, invalidity, widow/er). The amount of the grant to pensioners depends on the number of people in the household and the level of the household income.
	Guaranteed Minimum Income (GMI)	Effective from 1 July, 2014, the Guaranteed Minimum Income (GMI) scheme was introduced and replaced the previous general social assistance benefit with the aim to supplement the minimum living costs (basic needs including housing and taxes) of all persons that find themselves unable but willing to earn an adequate level of income. The GMI scheme is a means-tested benefit targeting families with income that is not adequate to cover their basic needs. The basic allowance is based on the level of Minimum Consumption Basket (which includes nutrition, clothing and footwear, water supply, electricity, etc.), that was established using the reference budget method.
CZ	Allowance for Living <i>Pomoc v hmotné nouzi</i>	Tax financed general social assistance scheme. Guaranteed minimum support benefits are provided in the System of Assistance in Material Need (SAMN) - a general social assistance scheme for people with insufficient income, with residence status but with no age or period requirements. Allowance for Living is a recurrent benefit provided to a person or a family in case of insufficient income to ensure basic needs. Other types of benefits are additional benefits (for housing, immediate assistance, etc). Means tested against total personal income, household income and assets for eligibility. Means test has no impact to the amount of benefit.

MS	Name of MIPOP	Description
		CZ does not apply any type of specific MIPOP scheme.
DE	Means-tested benefits from social assistance <i>Grundsicherung im Alter und bei Erwerbsminderung</i>	General social assistance benefit provided to all residents after age 18, including older persons as of the statutory retirement age or in case of receiving a disability pension if they have no other or not enough subsistence means. The age eligibility criteria for older people is the statutory retirement age with no period requirements (being still the general social assistance benefit). Benefits are means tested for eligibility and amount against pension income, total personal income and assets. DE does not apply any type of specific MIPOP scheme.
DK	Public old-age pension <i>Folkepension</i>	Universal flat rate pension based upon the residence period in Denmark. Full pension for 40 years residence period, pension for shorter period granted on a proportional basis, minimum residence period required is 3 years. Public old-age pension is a basic, tax-financed pension meant to secure all citizens a reasonable minimum income when they retire, payable from age 65 (age will increase to 67 in a transitional period from 2019-2022). It consists of a basic pension, a pension supplement and a supplementary pension amount. Public old-age pension is not dependent on the pensioner's previous attachment to the labour market or previous earnings, but only on the pensioner's present income and marital status (different amount for singles and couples). No assets test for the basic amount and the pension supplement. Basic pension is means tested for the amount - against beneficiary's personal income from work, with tapered withdrawal impact on the amount of benefit, while the pension supplement and the supplementary pension amount is means tested against total couple household income, including private pensions with tapered withdrawal impact on the benefit amount. The supplementary pension amount is tested against the household assets for eligibility.
	Cash assistance <i>Kontanthjælp</i>	Cash assistance is a specific social assistance benefit for older people alternative to public pension. It is provided at retirement age to persons who do not qualify for the public old-age pension and have no other income. Residence period is not required. It is means tested both for eligibility and the amount against personal pension and other income, including the household income and assets. The means test has the effect of tapered withdrawal.
EE	National pension <i>Rahvapension</i>	The national pension is a specific social assistance for older people as alternative to contributory pension. It is a tax-financed universal scheme guaranteeing a national pension for persons who have attained 63 years of age and who did not earn an old-age pension, provided under the condition of having completed the residence period in Estonia of at least five years immediately before making a pension claim. Means test does not apply and the marital/cohabitation status does not have the impact on the amount.
	Subsistence benefit <i>Toimetulekutoetus</i>	Tax financed general social assistance cash benefit administered by local municipality governments. The right to receive subsistence benefit is given to a single person or a family whose monthly net income, after the deduction of the pre-defined amount for housing, is below the subsistence level. No age or period requirement.
EL	Minimum pension <i>ΚΑΤΩΤΑΘΗ ΣΥΝΤΑΞΗ</i>	For persons insured since 1/1/1993: The minimum pension equals 70% of the minimum wage of a married worker. It is revised according to the State's income policy.
ES	Minimum pension <i>Pensiones mínimas</i>	Tax financed top up to the defined minimum amount of contributory pension. No age or period condition. Means tested against the total personal income (singles and couples) for eligibility and amount.

MS	Name of MIPOP	Description
	Non-contributory old-age pension <i>Pensiones no contributivas de jubilación</i>	Taxed financed minimum pension in fixed amount, provided at age 65 with residence/insurance period of 10 years. Means tested for eligibility against the income per household members.
	Non-contributory incapacity pension <i>Pensiones no contributivas de incapacidad</i>	Taxed financed fixed amount, residence/insurance period requirement of 5 years and a certain level of incapacity to work. Means tested for eligibility against the income per household members. Paid also in old age. Paid until age 65, when the pension benefit turns into Non-contributory old-age pension without changing the amount.
FI	National Pension <i>Kansaneläke</i>	Tax financed universal flat rate pension for persons of 65 years of age, based upon residence period completed after the age of 16. Minimum residence period of at least 3 years, 40 years for full pension. Early pension at age 63, with penalty of 0.4% respectively for each month between the effective retirement and the statutory retirement age. Pension deferred beyond age 65 is increased proportionally. Means tested against the pension income that has the reducing impact to the amount of pension or above a certain level of income the pension is not paid. For years of residence below 80% of the period between the ages of 16 and 65, the pension is adjusted in proportion to the length of residence. The amount of pension depends also on the family situation - living in the same household in a relationship (marriage/cohabitation/registered partnership) - different amount for singles and couples.
	Guarantee Pension <i>Takuueläke</i>	Tax financed universal flat rate pension. The basic conditions are the same as for the National Pension (age and period, including the early pension). Means tested against the total personal pension income (earnings-related pension + National Pension). Eligible are also immigrants at age 65 with residency status who do not receive national pension. Other pension income is deducted from the full amount of the guarantee pension. The guarantee pension is not reduced by earnings, capital income or assets. Its amount is also not affected by the care-allowance for pensioners, the housing allowance for pensioners or the informal care allowance. Marital status does not have impact on the amount of benefit.
	Social Assistance <i>Toimeentulotuki</i>	General social assistance is provided by municipalities. No age or period requirement. The aim of the benefit is to ensure at least the minimum subsistence for the person (family). The assistance is provided if a person (family) is temporarily without sufficient means to meet the necessary costs of living. The benefit is financed by local taxes and state subsidies.
FR	Minimum contributory pension <i>Minimum contributif (MICO)</i>	Contributory top up to a pension. Different top up if the contributory period is under or over 120 quarters of the year (over 120 quarters a bonus is applied - MICO with bonus is called MICO majoré). Means tested for eligibility and the amount against the pension income, personal and household income.
	Solidarity allowance for elderly <i>Allocation de solidarité aux personnes âgées (ASPA)</i>	Tax financed specific social assistance for older people in the form of the independent benefit for those with no pension entitlement or the top up to old-age pensions for those with the lowest pensions up to a minimum amount. Provided at statutory pensionable age with at least minimum insurance period or at age 65 (67 depending on the generation) regardless of the insurance period. Means tested for eligibility and the amount against pension income, total personal and household income.
HR	Minimum pension <i>Najniža mirovina</i>	Contributory minimum pension from PAYGO pension scheme under the same age and insurance period requirements as for normal old-age, invalidity or survivors' pension. Top up to the value of pension per qualifying year of working history. Minimum value of pension per qualifying year is defined as 0.825 % of the average gross salary of all employees in Croatia in the year of 1998, indexed to the level of the year of entitlement (valorization). Minimum qualifying period for old-age pension is 15 years. No means test.

MS	Name of MIPOP	Description
	General social assistance <i>Socijalna pomoc</i>	Tax financed general social assistance scheme covering the entire population and providing benefits in kind and differential cash benefits. Entitlement is means tested and conditional upon inability to secure one's subsistence through own work, rights arising from work or insurance, income from property or other sources (including benefits), receipts under other regulations, assistance of the persons obliged to support the person concerned. Residence status required. Means tested for eligibility and amount.
HU	Minimum old-age pension <i>Öregségi nyugdíjminimum</i>	Contributory top up to the amount of minimum pension provided by the PAYGO scheme at the statutory pensionable age with minimum 20 years of insurance period if the pension base is below the minimum wage. No means test.
	Old-age allowance <i>Időskorúak járadéka</i>	Tax financed income support that ensures minimum income in old age if the person did not earn a pension or has earned a very low pension. The amount of old-age assistance is defined as a top up to the current income up to 80, 95 or 130 per cent of the minimum old age pension, respectively. It is provided at the statutory retirement age under a residence status. The means test applies for eligibility against total personal and household income, no assets test.
IE	State Pension (non-contributory)	Tax financed specific social assistance for older people who habitually reside in Ireland and are aged 66 or over and who do not have the required level of social insurance payments or credits for the full contributory State pension. Means tested against total personal income, household income (not including State pension of their spouse) and assets of certain value (not including their home).
IT	Minimum pension supplement <i>Integrazione al Trattamento Minimo</i>	Mixed type of benefit: partly contributory and partly tax financed. Age conditions for maximum benefit are the same as those required for the old-age pension - 66 and 3 months for men and 63 years and 9 months for women, with the 20 years insurance period for both sexes; also conditional upon residency for the receipt of the benefit. Means tested against beneficiary's personal and household income (incl. couple household income). If the highest threshold applies the benefit is reduced and behaves as top up to maximum threshold. In case of lower thresholds the income has no impact on the amount of the minimum pension top up (the whole benefit is granted).
	Minimum pension – Social increase <i>Maggiorazione Sociale</i>	Mixed type of benefit: partly contributory and partly tax financed. Age requirement is set to 70 years of age with 129 weeks covered by contributions. Possible gradual age reduction until 65 with 1170 weeks covered by contributions (60 years of age in case of invalidity). Residency status required. Means tested for eligibility and the amount against total personal and household income, including the assets test.
	Social Allowance (MIPOP) <i>Assegno Sociale</i>	Completely tax financed specific social assistance benefit. Provided at age 65 and 3 months (men and women) with 10 years residence period (men and women) in Italy. Means tested for eligibility and the amount against total personal and household income.
LT	Social assistance pension <i>Šalpos pensija</i>	Tax financed specific social assistance for older and disabled people, aimed at ensuring a minimum standard of living. Eligible are persons who have reached retirement age 63 (men) or 61 (women), disabled or retired mothers with multiple children and disabled or retired persons taking care of their disabled relatives. Provided as independent benefit to those who did not earn a pension based upon contribution periods or as a top up to such a pension. Means tested for eligibility and amount against beneficiary's pension income from the Social Insurance Fund (<i>Valstybinis socialinio draudimo fondas</i>) and income from work. Residency status required. Social assistance pensions are paid by municipalities.
	Cash general social assistance <i>Piniginė socialinė parama</i>	Tax financed general social assistance benefit. No age or period condition, residency status required. Provided to families and single residents who are incapable of providing themselves with sufficient resources for living. Comprises both cash social assistance benefit and the additional benefits for housing, heating, etc. Means tested for eligibility and amount against the beneficiary's total personal income, household income and certain assets (in individual or family ownership).

MS	Name of MIPOP	Description
LU	Minimum pension <i>Pension Minimale</i>	Minimum pension provided from the general pension scheme. Age requirement is 65 (men and women) with an insurance (contributory and non-contributory) period of 20 years, 60 (men and women) with 40 years of insurance periods, or 57 (men and women) with 40 years of contributory periods. For 40 years of insurance, it amounts to 90% of social minimum income. In the first case, for each missing year, it is reduced by 1/40 of that amount, down to the minimum eligibility threshold of 20 years. It is not means tested.
	Guaranteed minimum income <i>Revenu minimum garantie</i>	Tax and lottery financed general social assistance benefit provided from age 25 (before that age to persons incapable of work or raising a child or taking care of disabled person) that aims to ensure sufficient means for a decent standard of living and measures of professional and social integration, under the condition of residency status. The guaranteed minimum income consists of either an integration allowance (indemnité d'insertion) or a supplementary allowance (allocation complémentaire). Means tested for eligibility and amount against beneficiary's pension and total personal and household income, and assets are converted into a life annuity for the purpose of means testing. Residence requirement of 5 years inside the period of the last 20 years before the claim.
LV	Minimum old-age pension <i>Minimālā vecuma pensija</i>	Contributory top up to minimum pension from the general pension system, no means test. Until 2001 the minimum pension amount was equal to state social security benefit. Since 2002 the value of this pension has varied from 110% - 170% respectively to the insurance period from less than 20 to 41 years and over. Provided at age 62 and 3 months (men and women) with the minimum insurance period of 15 years. Residence requirement for the receipt. No means test.
	Guaranteed minimum income <i>Pabalsts garantētā minimālā ienākuma līmeņa nodrošināšanai</i>	Tax financed general social assistance but administered and paid out by local municipalities and from the municipal budget. Benefits are granted on the basis of a discretionary decision on the entitlement; means tested for eligibility against the income and assets test. The benefit is a top up amount, calculated as the difference between the GMI level set by the Cabinet of Ministers or the municipality and the claimant's average monthly income over the last three months. The benefit is granted in cash or in kind. The amount depends on the household composition. No age or period requirement, residency condition applied for the receipt of the benefit.
MT	National Minimum Pension <i>Pensjoni Minima Nazjonali</i>	Contributory top up to minimum pension or a minimum pension benefit from the general pension system, not means tested, covering the active population (employees and self-employed). Minimum qualifying conditions of at least 15 weekly contributions (paid or credited) per year from age 19, or from age 18 for persons born after April 1958 with at least ten years of employment or self-employment prior to retirement. To qualify for the maximum rate claimant must have an average of 50 or more weekly contributions (paid or credited). A national minimum pension is awarded if the claimant's income from employment during the last 11, 12 or 13 years was equal to the National Minimum Wage. All pensioners are entitled to a Government Bonus in June and December every year and an additional special bonus is paid per week.
	Non Contributory Age Pension <i>Pensjoni tal-Eta' mhux kontributorja</i>	Tax financed specific social assistance for older people who habitually reside in Malta. Covers persons over the age of 60 having completed a 5 years residence/insurance period. Awarded to persons who are not entitled to the national minimum pension due to a low contribution participation and low income from employment, if any. It is also awarded to single persons, mainly to single women who did not earn a pension and have no other income. Means tested against pension, personal and household income, and assets. Minimum qualifying conditions entail that the claimant must not be in possession of bank capital that exceeds certain amount (€23,000 if married and €14,000 if single) but the house of residence is disregarded. All pensioners are entitled to a Government Bonus in June and December, an additional bonus per week.
NL	General old-age pension <i>AOW: Algemene Ouderdomswet</i>	Tax and contributions financed universal flat rate old-age pension for all residents aged 65 years and 2 months and over. The flat-rate pension benefit guarantees 70 percent of the net minimum wage, which is slightly above the minimum subsistence level guaranteed by WWB (<i>Minimum level welfare benefit</i>). The statutory retirement age will increase to 67 in 2023. Full residence period between age 15 and

MS	Name of MIPOP	Description
		65 is 50 years (every year of residency between ages 15 and 65 generates 2% of state pension benefit). No means test. Marital or partnership status has impact on the amount of benefit.
	Minimum level welfare benefit <i>WWB: Wet Werk en Bijstand</i>	Tax financed general social assistance for persons of 21 years or over, including retirees. No period condition, residency status required. Means tested for eligibility and amount against pension income, personal and household income and assets.
PL	Minimum old-age pension <i>Emerytura minimalna</i>	Contributory top up to minimum pension amount. Provided at the statutory retirement age with the insurance period of 25 years (men) and 20 years (women). No means test for eligibility. Means tested for the amount against the beneficiary's income from work.
	Minimum disability pension <i>Emerytura minimalna</i>	The same type of benefit as the minimum old-age pension. The additional requirement is disability with at least 5 years insurance period, no age requirement. Paid also in old-age.
	Minimum Survivor's pension <i>Emerytura minimalna</i>	The same type of benefit as the minimum old-age pension. No insurance period requirement. Provided at age 50 if the spouse of the deceased is incapable of work or raising children under age 18. Paid also in old-age.
	Permanent benefit for incapacity to work <i>Zasilek staly</i>	Tax financed general social assistance that covers also older people. Residency status and citizenship required. Permanent benefit is an allowance granted to persons incapable of work, due to her/his age or disability. The incapacity of work due to age is legally assumed to arise at the statutory retirement age. Means tested for eligibility against family income and provided in a differential amount (top up).
PT	Minimum pension <i>Pensão mínima do regime general</i>	Contributory minimum pension from the general pension system. The minimum pension amount is set at minimum statutory values and indexed according to the social support index IAS (<i>indexante dos apoios sociais</i> = €419.22). The amount of minimum pension is gradually increased depending on the contribution period completed, from 61.86% of IAS for up to 15 years contribution period until 90.41% of IAS for insurance period of 31 years or over. The age requirement is set to 66 years (men and women) and minimum insurance period at 15 years while maximum at 31 years. No means test.
	Social old-age pension <i>Pensão social de velhice</i>	Tax financed specific social assistance for older people without sufficient resources and who are not entitled to a contributory pension . Age condition 66 years, no insurance period requirement, residency status required. Maximum amount for those of 70 years of age. Means tested for eligibility against personal and household income. No means test for the amount.
	Invalidity social pension <i>Pensão social de Invalidez</i>	The same type of benefit as the social old-age pension. Provided to persons over 18 years of age who are not compulsorily covered by a contributory scheme and being permanently incapable for any gainful activity, or who did not complete enough contributions to social security scheme in order to qualify for the disability pension under the general scheme. Maximum benefit at age 70.
	Solidarity supplement for the elderly <i>Complemento Solidário para Idosos</i>	Tax financed specific social assistance for older people, including those who are not entitled to a non-contributory pension. The supplement is intended to fight against poverty among the elderly and to top up their income. Age requirement 66 years for men and women, residence period of at least 6 consecutive years before the claim. Means tested for eligibility and amount against the pension income, personal and couples income.
	Social Integration Income <i>Rendimento Social de Inserção (RSI)</i>	Tax financed general social assistance supporting people and families who are in a situation of serious economic distress and at risk of social exclusion. It consists of a cash benefit to meet their basic needs and of a contract of integration to help them integrate socially and professionally. Provided from age 18 to persons having completed a 1 year residence period in Portugal (3 years if foreign citizens). Means tested against pension, personal and household income and assets, with the impact of tapered withdrawal in case of exceeding the thresholds.

MS	Name of MIPOP	Description
RO	Social Indemnity for Pensioners <i>Indemnizatie sociala pentru pensionari</i>	Tax financed top-up to a certain minimum amount of pension provided from the contributory pension system. Awarded from the age of 60 (women) or 65 (men). Tested against the amount of pension and the sum of all social security benefits. No further means test. No difference between the amount for singles and couples.
SE	Guaranteed pension <i>Garantipension</i>	Tax financed universal flat rate pension for persons of 65 years of age with minimum residence period of at least 3 years. Full pension for 40 years residence period. The guaranteed pension is reduced depending on the residence period completed, for persons with an earnings-related pension; for higher incomes, it is decreased by 48 percent. The amount of the full pension is fixed, being different for singles and for couples. Means tested against the beneficiary's pension income for eligibility and amount.
	Maintenance support for the elderly <i>Äldreförsörjningsstöd</i>	Tax financed specific social assistance for older people who did not complete residence period before age 65 (residence period 0), being single, having rent/housing cost SEK 6,200 per month or more. Means tested against all income (pension, personal and household) and assets. May be reduced based on other income up to the entire amount of the benefit (100%). Housing benefit is included in the amount of the Maintenance support for the elderly.
SI	Minimum Pension <i>Najnižja pokojnina</i>	Since 1 January 2014 the beneficiaries of Old-age Pension (<i>starostna pokojnina</i>) are guaranteed the minimum pension (<i>najnižja pokojnina</i>) in the amount of 26% of the minimum Pension Rating Basis. The Basis is determined by the Pension and Invalidity Insurance Institute of Slovenia (<i>Zavod za pokojninsko in invalidsko zavarovanje Slovenije</i>). Eligibility requirement - 15 years of insurance. It is tested against the amount of the 1 st pillar pension.
	Supplementary allowance <i>Varstveni dodatek</i>	Tax financed specific social assistance for older people intended to cover costs of living incurred over a long period of time, not being the part of the minimum costs of living. Provided to persons of age 65 or over but no age condition in case of permanent incapacity for work or permanent unemployment. No period requirement, residency status condition applies. Means tested for eligibility and amount against the income per member of the household. Although mainly categorised as the general social assistance, the part of supplementary allowance that is provided to persons at age 65 or over may be considered as a kind of specific social assistance for older people.
	Cash Social Assistance <i>Denarna socialna pomoč</i>	General social assistance providing funds for basic costs of living in a shorter period. There are two types of CSA: regular (periodic) CSA and emergency (one off) CSA. The latter type is granted only in exceptional circumstances, in case of a temporary material deprivation. No age or period requirement, residency condition applies. Means tested for eligibility and amount against total personal and household income, including assets test, but also based on discretionary assessment.
SK	Benefit in material need <i>Davka v hmotnej nudzi</i>	Tax financed specific social assistance for older people from the Assistance in Material Need consists of the following parts: the Benefit in Material Need (different amount for singles and for couples), Housing Allowance and Protection Allowance. The benefit is regarded as a total amount and the parts of the benefit related to the housing and protection are not considered to be additional benefits. Provided at statutory pensionable age (62 for men and 61.5 for women in 2014), no period eligibility condition. Means tested against the pension and other personal income (disregarded part for pension - 25% of pension for up to 25 years insurance period, increasing per 1% for every additional year of the insurance period for example 40% for the 40-years insurance period; disregarded income – 25% from gainful activity). There is no maximum amount of disregarded part in case of pension.
UK	State Pension Credit	Tax financed specific social assistance for older people in a form of a top up to a person's pension income. Age requirement is rising from 60 to 65 (alongside the rise in Women's State Pension Age) until 2018, with the further increase to 66 for men and women between December 2018 and October 2020. Entitlement is conditional upon actually living in GB (England, Scotland and Wales) and beneficiaries having the right to reside, and being habitually resident, in the United Kingdom (UK), the Channel Islands, the Isle of Man or the Republic of Ireland

MS	Name of MIPOP	Description
		(this is known as the common travel area). Means tested against pension, personal and household income.

Notes:

1. This table was the base for the table 3.6 in Chapter 3, subsection on "Minimum income provision" and contains edited information provided by Member States. The emphasis of the questionnaire was to collect the data on schemes targeted only to older people and for the general social assistance benefits only in case that there was no scheme targeted to older people in a Member State (in principle, these are only Germany and Czech Republic). Still, Member States that nevertheless wished to report on their general social assistance scheme could do so and therefore this information is also included in this table. It is not to be concluded that all other Member States don't have the general social assistance scheme (the information could be found in the MISSOC comparative tables).

2. In this table the Member States are listed in alphabetical order.

Annex 5. Structural factors in the development of longer working lives

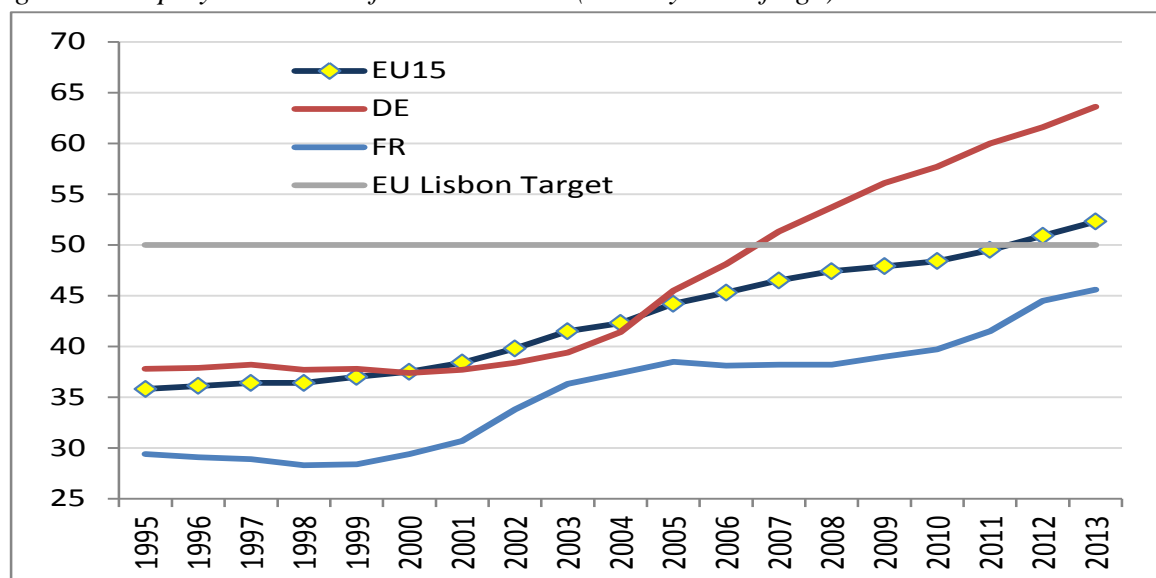
Content:

1. Age-composition effect
2. Gender composition effect
3. Sector of employment effect
4. Educational achievement level effect

The long-standing decline in the average EU employment rate for older workers (aged 55- 64 years) bottomed out at levels way below 40 percent just before the turn of the millennium. The Lisbon-Strategy, 2000-2010, inaugurated a number of objectives related to longer working lives. By 2010 the employment rate of workers was to be raised to 50 percent and the age at which people on average stopped working increased by 5 years. The ambitious target for older workers was set to contribute to the general employment rate objective of 70 percent for people aged 15-64. It is a matter of fact that neither target were achieved – total employment fell well behind as Europe dipped into the crisis in 2008. However, in the case of older workers employment rates (and effective exit ages) continued to rise and aggregate progress over the 10-year period was considerable.

As most Member States had adopted pension reforms and improved incentives for older workers to stay active, observers have tended to portray these policy changes as the main drivers of the rise in employment rates and exit ages. Yet, as this paper will argue, other changes of a more structural nature played a key role in developments.

Figure 1: Employment rates of older workers (55-64 years of age) in %



Source: Eurostat LFS

In the EU15, the shift in the older workers' employment rate from 37 percent in 2000 to 48 percent in 2010 was equivalent to 9 million more people in employment. In other words: some two thirds of the overall improvement in the general employment rate came on the account of older workers. In contrast to other age-groups, older workers' employment has been increasing even during the crisis and is still going up. Variation across Member States is

strong, though. For example: whereas in Germany, following a steep increase over the last 10 years, some three quarters of people between 55 and 64 years now are in employment, progress in France appears comparably modest.

This paper discusses the relative role of some 'non-policy' factors in the observed developments. It tries to quantify to what extent structural factors, i.e. cohort size and composition effects in the group of 55-64 year olds, may have contributed to the remarkable progress in older workers employment in some countries whilst rather decelerating progress in others. It also looks ahead to find out to what extent countries would have to reckon with such structural factors in the future also and to assess to what extent they may continue to effect developments in the employment rate of older workers. To what degree and for how long can policy makers as they try to underpin pension reforms and deliver on longer working lives through age management changes in work places and labour market expect to be helped (or impeded) by further changes in the composition of older workers? In short: will the wind of structural change be on their backs or in their face?

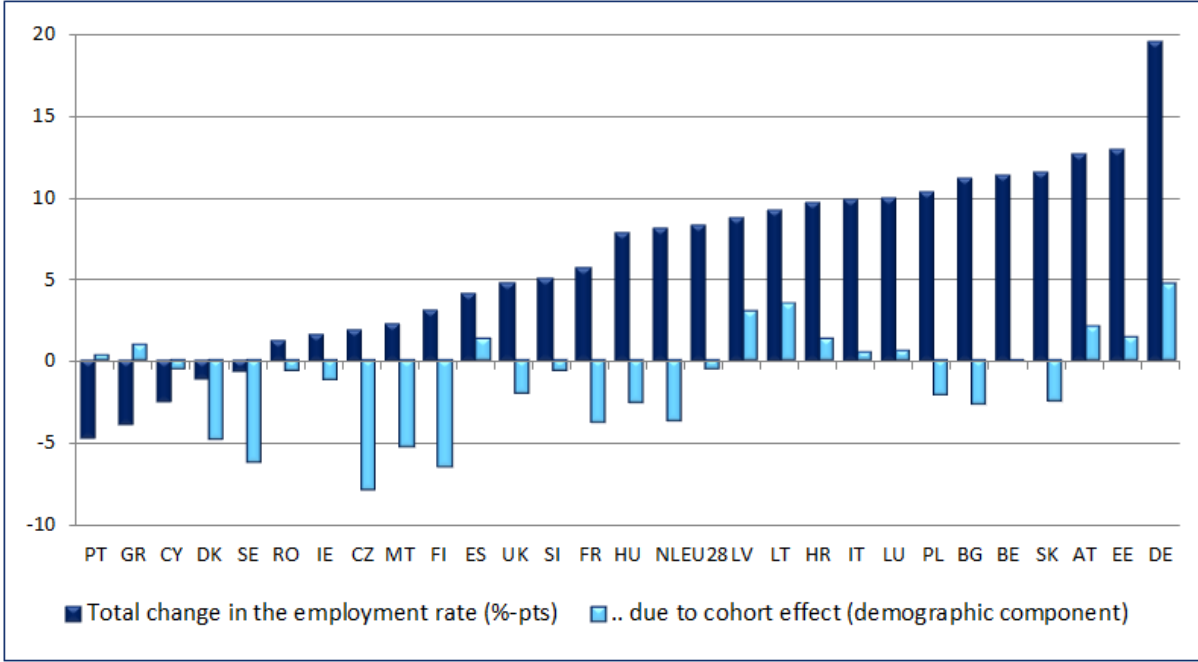
1. Age-composition effect

The most obvious of such structural factors is demographics. Consider the age-range 55-64 years, where one finds big differences between the employment rates of cohorts aged 55-59 and cohorts 60-64. If, for a transitional period cohorts passing through the 55-59 age-range become substantially larger, then the share of younger cohorts within the group of older workers becomes larger and this would cause the older-workers' employment rate to go up. Such a shift would not imply a genuine increase in the employment rate for every single age-cohort but be due only to the transitional change of the age-composition towards younger ages within the older workers group of 55-64 year old. The overall shift in the employment rate for this 10 year age group would reflect the fact that the employment rate of younger age-cohorts is higher than for the ones at the end of the cohort-range, because the probability of retirement increases with rising age.

Figure 2 looks at the development of employment rates over the past 11 years since 2002. In order to better reflect recent policy developments, which address the labour market potential of older workers, it expands the age-range in question, considering as 'older workers' those aged between 50 and 69 years of age.

Countries are ordered with regard to the observed increase in the employment rate of the age cohort 50 to 69 years which was remarkable in Germany (some 20%-pts.). On the other hand, in the Nordic countries which all have above-average employment rates in absolute terms, the increase since 2002 has been either very moderate or even negative. One can easily show that the seemingly less favourable development in these countries was in fact due to the structural cohort effect.

Figure 2: Demographic component in employment (50-69 year-olds)



Source: DG EMPL calculations based on Eurostat Europop 2013 population projection, Main scenario, and Eurostat LFS

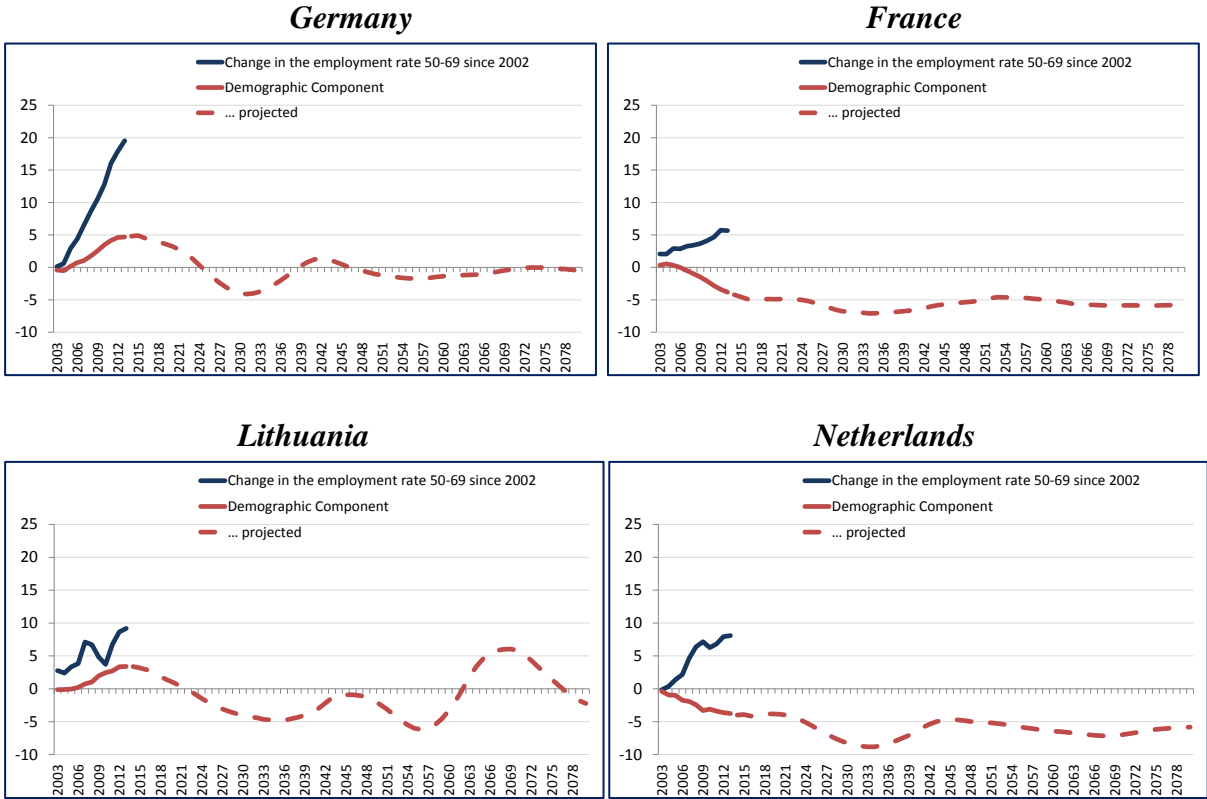
If one keeps the age-specific employment rates for every single-age cohort between 50 and 69 years constant at 2002 levels, this would leave any change in the overall employment rate for the total age-range 50-69 to structural changes of the age-composition within that range. The red bars indicate what the age composition effect contributed to the overall change in the employment rate observed between 2002 and 2013. It shows that Germany was helped by demographic 'wind on its back' as a quarter of the overall increase in the older-workers' employment rate has been due to the cohort age composition effect. France, on the other hand, could have seen a considerably stronger increase without the demographic wind in its face. In countries like Sweden and Denmark the head-wind was so strong that it turned an upward shift in the older-workers employment rate into a decline.

This age component is a transitional phenomenon of shorter duration, though. As particularly large cohorts from the peak of the post WWII baby-boom pass through the age-range of 50-69, one can expect that the structural effect related to cohort size will level out. Its projection is very simple if one takes on board Eurostat's Europop 2013 demographic projections (main scenario). Again, applying constant 2002 employment rates to each of the single ages in the cohort 50-69 as projected by Eurostat will give the change in the overall employment rate in this age range, which is due to the structural shift in the age composition of the group.

Figure 3 shows the change in the employment rate for the age range 50-69 observed since 2002 (blue curve). The red curve depicts the cohort effect, dashed where projected for the future. The chart illustrates that the German 'back-wind' will stop in the middle of next decade and then even turn negative for a number of years. That is, was Germany to keep its current impressive employment profile of older people, it would have to make an extra effort to the extent the back-wind disappears and then turns before eventually levelling out. The Baltic countries show a similar, even more pronounced profile. While in France the 'demographic

head-wind' is bound to stop soon, the Netherlands will continue to face some age composition 'hampering' until the mid-2030s.

Figure 3: Demographic component in employment (50-69 year-olds)



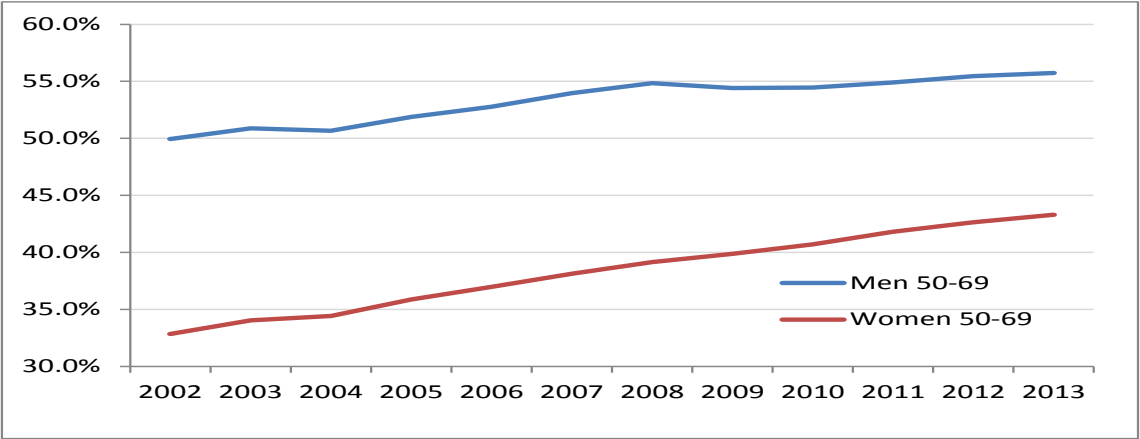
Source: DG EMPL calculations based on Eurostat Europop 2013 population projection, Main scenario, and Eurostat LFS

The analysis shows that the impact of policies on changes in the employment rates of older people need to be interpreted with due caution as transitional structural cohort-phenomena have been producing and will continue to produce some noise in the data.

2. Gender composition effect

This section tries to shed some light at the gender dimension behind the recent shift in the employment rates of older workers.

Figure 4: Employment rate of people aged 50-69 by gender, EU-28

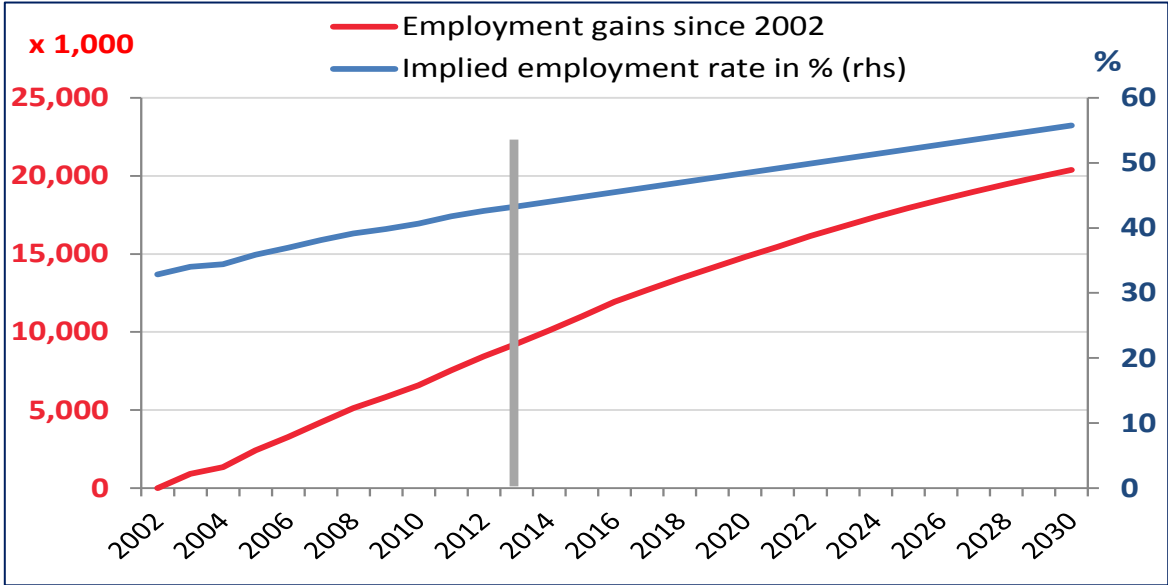


Source: Eurostat LFS

In fact, looking again at the age-group between 50 and 69 years by gender, we observe that women had a significantly greater share than men in the overall employment shift since 2002 (+7.6 vs. +7.2 million). The gap between female and male employment rates in that age group has narrowed from 17 to 12%-pts as shown in Figure 4. Figure 5 depicts what would be the potential of further older women's employment gains if the gender employment gap continued to narrow. Assuming it will close to zero by 2030, the EU could by then generate a further employment shift of around 11 million from now on, equivalent to 8 percent of the 2030 population aged 50 to 69 years.

Figure 5: Women aged 50-69 – employment potential, EU28

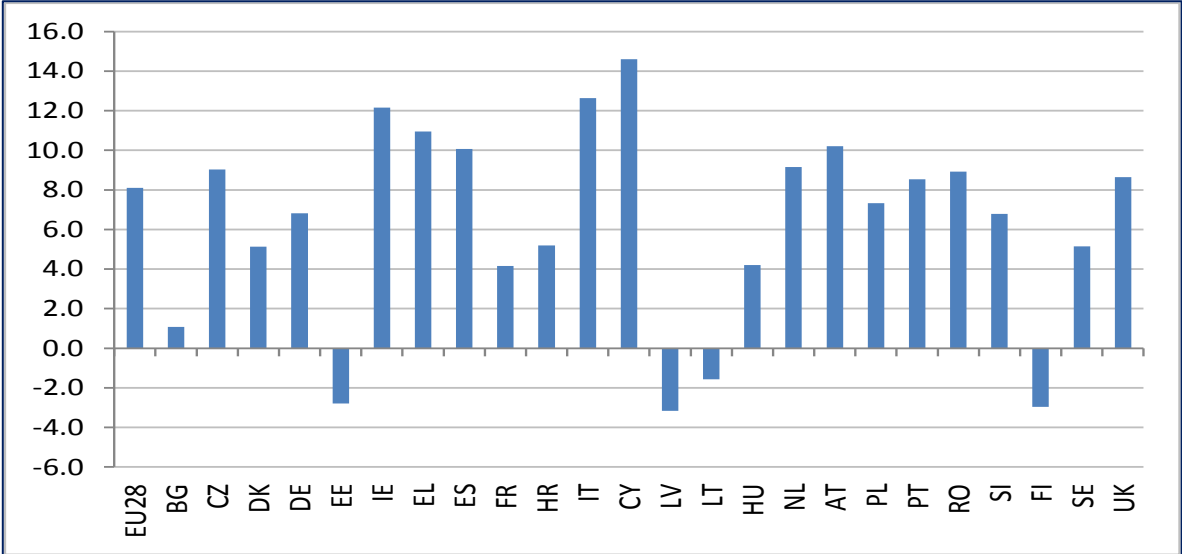
Assuming they catch up with (today's) male employment rates by 2030



Source: Eurostat LFS; DG EMPL calculations.

Figure 6: Women aged 50-69 – further employment potential by country

Assuming they catch up with (today's) male employment rates by 2030



Source: Eurostat LFS; DG EMPL calculations.

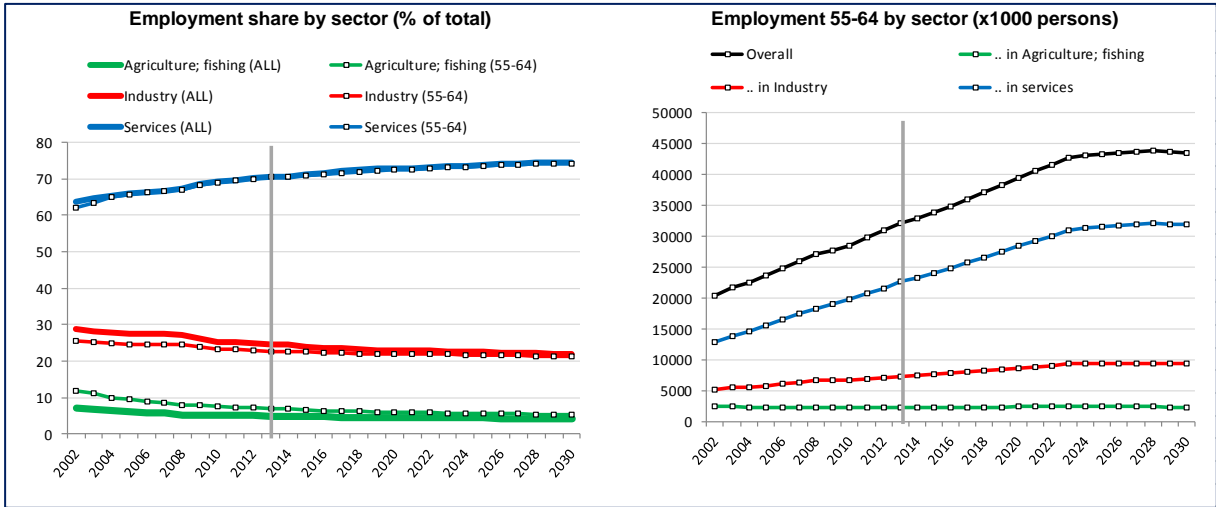
Figure 6 summarises the overall employment effect of such a female 'catch-up' scenario for the age group 50-69 years. It illustrates the implied employment impact from now until 2030

in percent of the population aged 50 -69 years. In the Baltics and Finland the impact is negative. This is because (1) today's gender difference in the employment rates is low in these countries¹⁶⁶ and (2) the decline of the population in that age group will pull down female employment.

3. Sector of employment effect

In the services physical working conditions generally present fewer barriers to the extension of working lives than in primary occupations and extractive and manufacturing industries. The rise in the employment rates for older workers have thus been facilitated by the fact that the share of services in the total employment of people aged 55-64 has increased by more than 10 million since 2002.

Figure 7: Older workers and structural change in employment



Source: Eurostat LFS for both charts; Europop 2013 population projection (main scenario), AWG 2015 Ageing Report for overall employment 55-64 as shown in the right chart; DG EMPL calculations

Figure 7 shows that the total employment gains for older workers came almost exclusively from a rise in service sector employment. One can assume that, following the pattern of the past, the trend towards services in the EU will continue, albeit at slower pace than in the recent past.

The left part of Figure 7 illustrates the respective employment shares in services, industry, and agricultural production since 2002. For the EU as a whole the employment share in services is at similar level and has changed in parallel to total employment. On the other hand, with older people's industrial employment still increasing in absolute numbers, the structural shift away from industrial production went more slowly for older workers than for total employment, whereas their employment decline in farming was much more pronounced as retirement of farmers is not being compensated for by new entrances into that profession.

A simple log-linear regression, based on the 2002-2013 observations of the employment shares shown in Figure 7, would cause the employment share of services to further climb towards levels of around 75 percent for both total and older workers employment; the shares of industrial and agricultural employment would reduce moderately. If one applied these

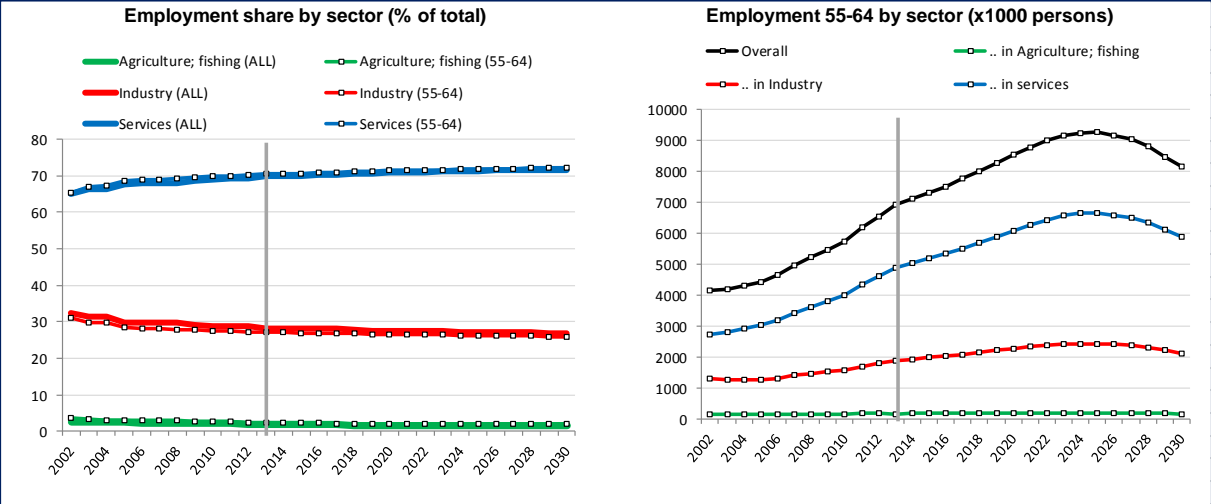
¹⁶⁶ Following a strong reduction of the gender-difference in Finland over the last 10 years, Finnish women even show a lightly higher employment rate than men (53.8 percent vs. 53.6 percent).

employment shares to total employment as projected according to the assumption made in the Ageing Working Group’s 2015 Ageing Report on older workers’ employment rates, this would imply 9 million additional older people working in the services sector between now and 2030 in the EU.

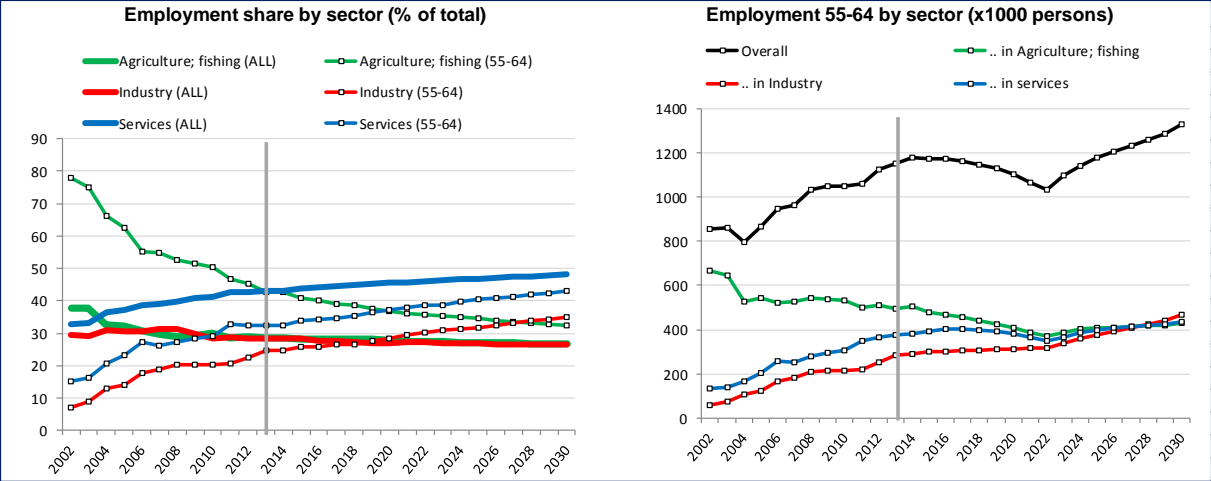
However, both the recent past situation and the future employment prospects vary considerably across Member States as countries are in very different stages of the transition from agricultural towards industrial and modern services employment. Figure 8 illustrates that with the examples of Romania and Germany.

Figure 8: Older workers and structural change in employment

Germany



Romania



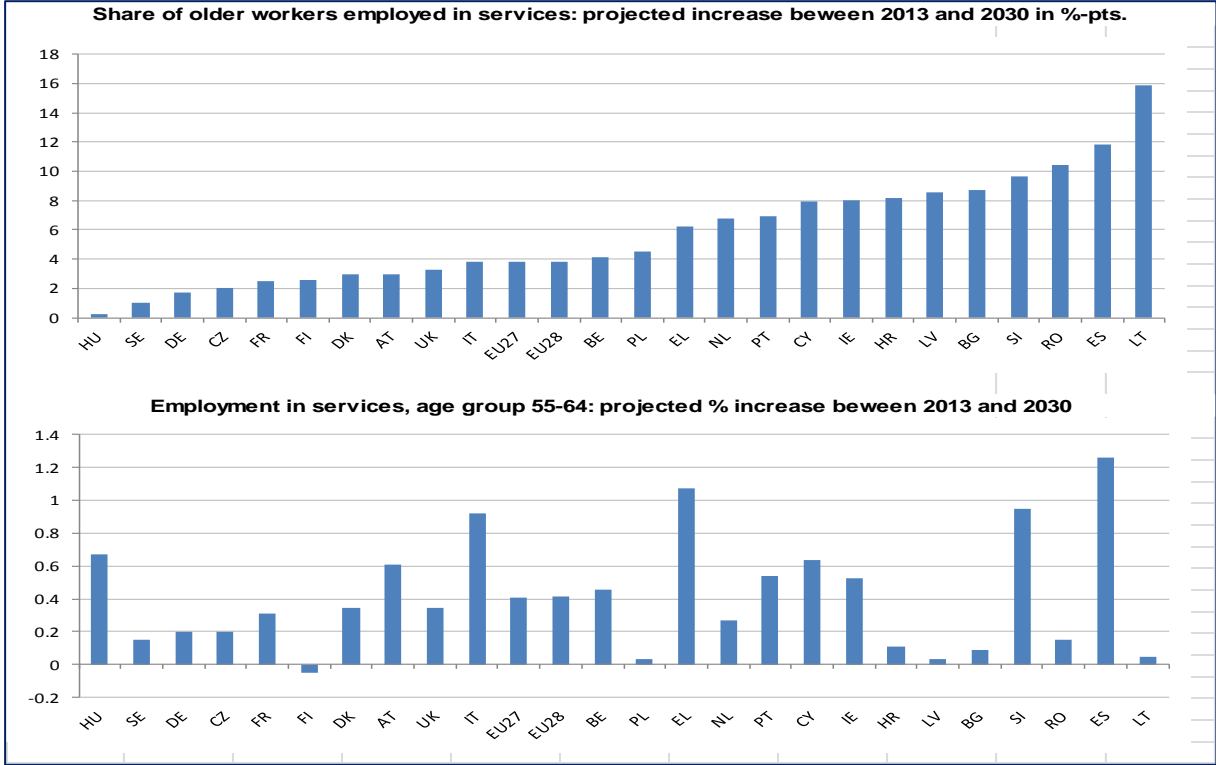
Source: Eurostat LFS for both charts; Europop 2013 population projection (main scenario), AWG 2015 Ageing Report for overall employment 55-64 as shown in the right chart; DG EMPL calculations

By the turn of the century, 80 percent of older workers in Romania were employed in primary occupations notably in the agricultural sector. Evers since, the sectoral transition has been extremely fast as the country joined the EU and modernised both industrial production and the service sector, which both saw a steep increase of older workers employment. Contrary to the trend in total industrial employment which has been suffering strongly throughout the crisis, in the case of older workers there has been a continuous positive trend: the number of people aged 55-64 in employment has been almost quadrupling since 2002.

Likewise, older workers’ service employment today is almost three times its level back in 2002. One can expect that such pronounced structural shifts both towards older workers employment and away from farming will continue in the future. Log-linear trend regression of the 2002 – 2013 trend (see lhs) would suggest the share of older workers employed in farming in Romania to further decline from today’s 43 percent to 32 percent by 2030, and the employment shares of services and industry surpassing farming in the course of the next decade. Despite this structural shift, prospects for growth in the share of older workers employment over the next 10 years will be moderate also in the services and manufacturing sectors - simply because coming demographics will temporarily reduce their numbers.

The situation is radically different in countries, which are further on the time-scale of structural change. For example, with the employment shares relatively stable both for total employment and older workers, Germany’s total older workers’ employment prospects are largely dominated by the projected development of working-age population, as shown on the right side of Figure 6.

Figure 9: Older workers and structural change in employment



Source: Eurostat LFS for both charts; Europop 2013 population projection (main scenario), AWG 2015 Ageing Report for overall employment 55-64 as shown in the right chart DG EMPL calculations

However, one common observation across EU countries is that the service sector seems to have been and will continue to be the engine of future employment of older workers. In order to illustrate the extent of the structural change towards services, Graph 9 applies the same simple projection technique employment shares to all Member States. The upper part shows the relative change in the employment share of older workers in services. The lower part shows the percentage increase of older workers’ services employment in absolute terms.

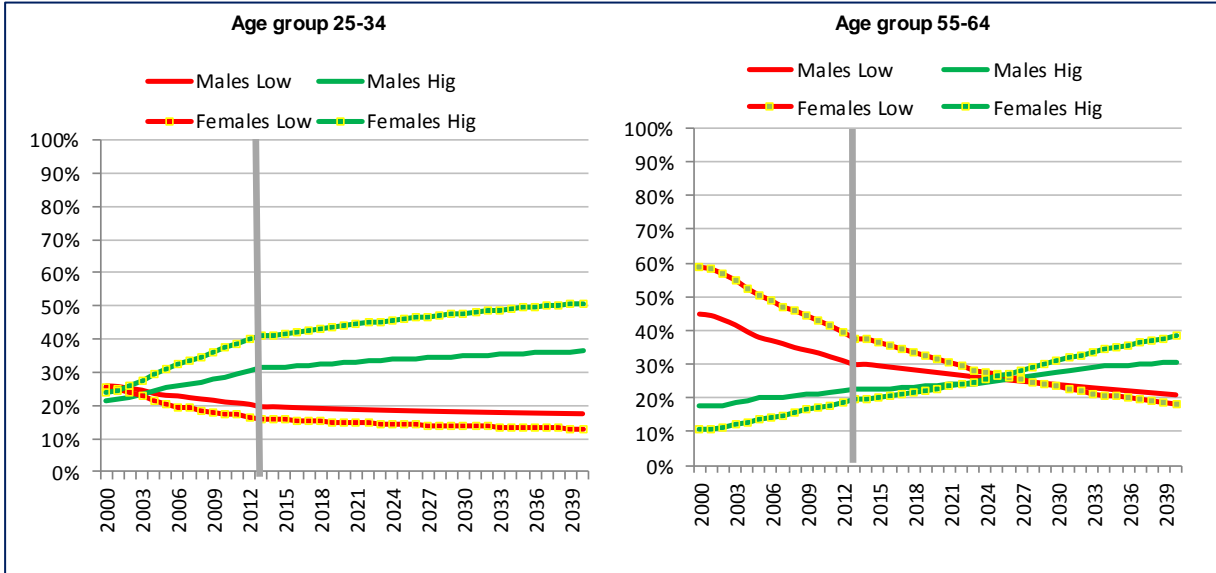
Countries in the catching-up process tend to see a stronger relative change towards services. However, in a number of Eastern European countries this does not imply strong absolute employment gains for older workers in services because the structural development towards

services will be distorted by pure demographics in the sense that the decline of the working-age population also will affect older cohorts.

4. Educational achievement level effect

The EU has seen a continuous shift towards higher educational attainment levels. Those shifts still affect mainly the younger age-groups and will ‘eat’ into older cohorts as time proceeds. Graph 10 shows the share of young men and women (aged between 25 and 34 years) with a low (below upper secondary) and a high (tertiary) educational degree. The change had a strong gender dimension to the extent the shift towards high educational degrees was much stronger for women than it was for men. The log-linear trend regression based on the annual observations of the shares from 2000 – 2013 for young people (25-34 years) suggests that the trend will continue, more slowly, also over the coming decades – as shown on the lhs of Figure 10.

Figure 10: Share of low- and high educated people by age and gender, EU28

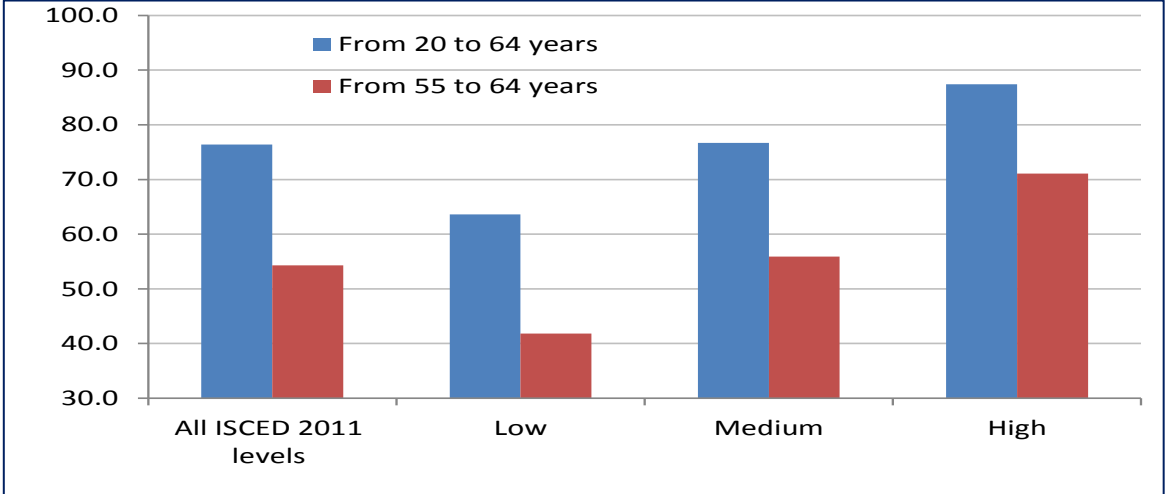


Source: Eurostat LFS for both charts; DG EMPL calculations

Even if one assumes no further educational progression in ages beyond 34, the rhs of Graph 10 illustrates that progress achieved at younger ages will strongly affect older workers' educational composition at a later stage. The share of low-educated men and women in Europe has been declining by one third over the period between 2000- 2013. The share of high-educated among older workers aged 55-64 is still low, particularly for women – but it was women who saw a doubling of the share with high educational achievement levels in the course of the last 13 years, rising to almost 20 percent by 2013. Given the rise in younger cohort's educational achievement levels, the share of older female workers with high education is expected to further double until 2040, whereas by 2040 the share of low-skilled among women aged 55-64 would be a mere 20 percent - i.e. only half today's level. The rise in men's educational achievement levels will be far more moderate.

Looking solely at the labour market performance by educational attainment level, such structural change towards high-educated people across all age groups has had and will continue to have strong implications – including for the activity and employment rates of older workers.

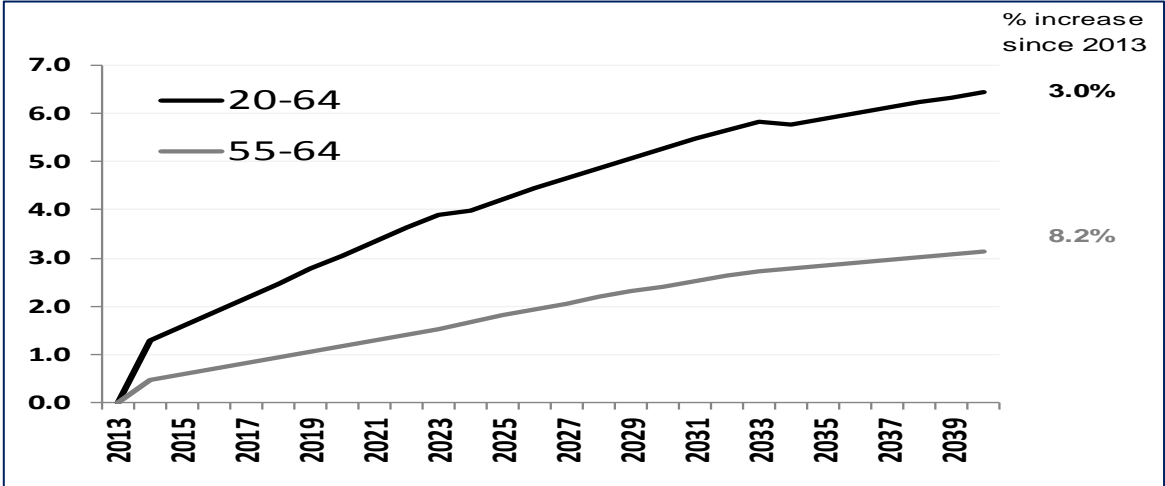
Figure 11: 2013 activity rates by educational attainment level and age, EU28



Source: Eurostat LFS

With the activity rate for high-educated people aged 55-64 being 30%-pts. above the level of same-age low-educated, the upward educational shift will continue to bring pronounced activity gains.

Figure 12: Impact of educational progression on active population, millions, EU-28

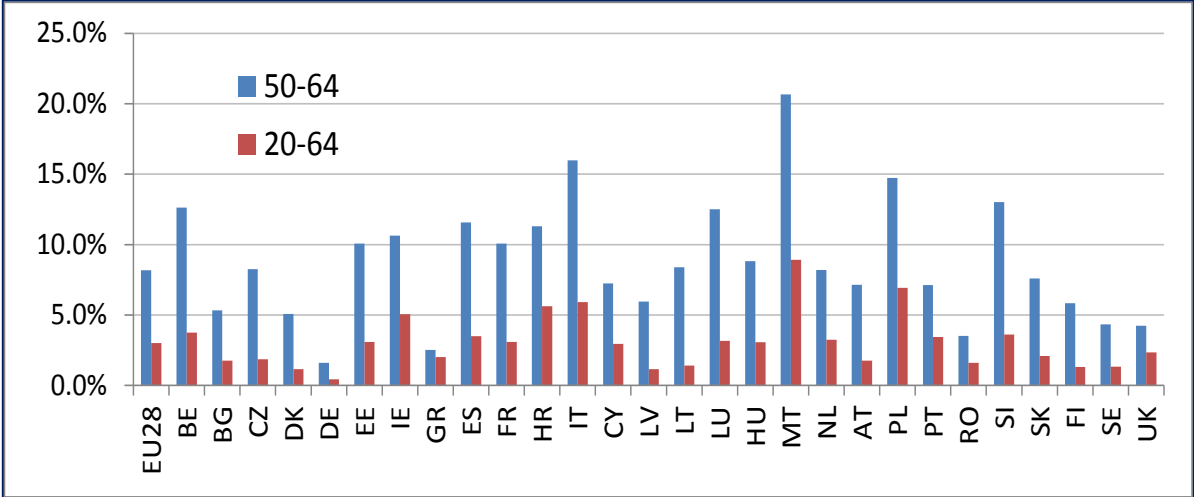


Source: Eurostat LFS for both charts; DG EMPL calculations

In the whole of the EU28 until 2040 it will bring almost 3 million more older workers into activity if the strong differences in the labour market performance by educational attainment level also will hold in the future. That is, the number of active people aged 55-64 years would shift by more than 8 percent due to the supply-side effect of higher education – the relative shift being much stronger than for all age groups in total.

Figure 13 summarizes the results for all EU countries. The blue bars indicate the impact of educational progression on the total active population, i.e., the percentage change of active population due to the educational shift from 2013 to 2040, the red bars reflect the same relative change for older workers only.

Figure 13: Impact of educational progression on active population, millions, EU-28



Source: Eurostat LFS for both charts; DG EMPL calculations

Since, according to Figure 11, the educational progress has a disproportionately stronger impact on the labour market participation of older workers, the relative activity gains are more significant in all EU countries.

Annex 6. Statistical Annex

Table A2-1: Relative median income ratio and Inequality of income distribution - Income quintile ratio (S80/S20), in 2005, 2008 and 2013

Member State	Relative median income ratio									Inequality of income distribution					
	2005			2008			2013			2005	2008	2013	2005	2008	2013
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Population aged less than 65 years			Population aged 65 years or over		
EU-28	:	:	:	:	:	:	0.93	0.96	0.91	:	:	5.2	:	:	3.9
BE	0.73	0.74	0.73	0.74	0.75	0.74	0.76	0.79	0.75	4.1	4.1	3.9	3.0	3.1	3.1
BG	0.84	:	:	0.66	0.69	0.64	0.76	0.81	0.72	:	6.8	7.0	:	4.0	4.6
CZ	0.83	0.85	0.81	0.79	0.80	0.78	0.85	0.88	0.83	3.9	3.6	3.6	2.3	2.3	2.4
DK	0.70	0.72	0.70	0.70	0.72	0.70	0.76	0.80	0.74	3.5	3.6	4.4	2.5	2.9	3.2
DE	0.94	0.97	0.91	0.87	0.89	0.87	0.89	0.90	0.88	3.8	4.9	4.8	3.5	4.0	3.8
EE	0.73	0.76	0.70	0.62	0.66	0.59	0.69	0.74	0.64	6.4	5.0	5.9	3.3	3.3	3.1
IE	0.66	0.67	0.65	0.74	0.75	0.73	0.94	0.97	0.91	5.1	4.5	4.6	3.4	3.8	4.1
EL	0.79	0.83	0.78	0.86	0.89	0.84	1.04	1.04	1.05	5.9	6.2	7.5	5.0	4.5	3.9
ES	0.77	0.79	0.76	0.79	0.81	0.78	1.00	1.05	0.96	5.7	5.9	6.8	4.6	4.2	4.5
FR	0.90	0.93	0.88	0.95	1.00	0.92	1.02	1.06	0.99	3.9	4.4	4.5	4.5	4.4	4.1
HR	0.74	:	:	0.75	:	:	0.88	0.96	0.83	:	:	5.4	:	:	5.1
IT	0.85	0.88	0.84	0.88	0.91	0.85	0.96	1.00	0.94	5.8	5.3	6.2	4.5	4.4	4.4
CY	0.57	0.59	0.55	0.59	0.63	0.57	0.77	0.80	0.75	4.0	4.0	4.9	4.6	4.6	4.8
LV	0.75	0.77	0.73	0.53	0.60	0.51	0.77	0.84	0.73	7.3	7.1	7.0	4.0	5.6	3.9
LT	0.81	0.90	0.75	0.71	0.80	0.68	0.81	0.87	0.77	7.5	6.2	6.6	3.5	4.1	3.9
LU	0.96	0.95	0.98	0.97	0.96	0.97	1.13	1.14	1.11	4.0	4.3	4.6	3.2	3.0	4.1
HU	1.01	1.07	0.97	1.00	1.07	0.98	1.05	1.12	1.01	4.3	3.8	4.5	2.6	2.6	2.8
MT	0.75	0.79	0.73	0.73	0.73	0.73	0.79	0.81	0.80	3.9	4.3	4.3	3.8	3.7	3.2
NL	0.88	0.89	0.88	0.84	0.85	0.84	0.90	0.92	0.89	4.1	4.1	3.7	3.3	3.2	3.2
AT	0.96	1.04	0.92	0.88	0.96	0.84	0.95	0.98	0.92	3.8	4.2	4.1	3.9	4.2	4.1
PL	1.09	1.20	1.02	0.97	1.05	0.92	0.98	1.06	0.93	7.2	5.4	5.2	3.6	3.4	3.4
PT	0.77	0.77	0.76	0.83	0.89	0.77	0.94	0.98	0.90	7.1	6.2	6.3	5.7	5.4	4.9
RO	:	:	:	0.85	0.93	0.80	1.04	1.12	0.96	:	7.4	7.0	:	4.9	4.5
SI	0.86	0.94	0.80	0.84	0.91	0.79	0.87	0.95	0.82	3.3	3.3	3.6	3.7	3.6	3.5
SK	0.85	0.90	0.82	0.79	0.83	0.77	0.90	0.92	0.88	4.1	3.5	3.8	2.5	2.3	2.3
FI	0.74	0.81	0.71	0.72	0.78	0.69	0.78	0.83	0.74	3.7	3.7	3.6	3.0	3.2	3.3
SE	0.81	0.89	0.76	0.78	0.84	0.73	0.81	0.89	0.76	3.4	3.4	3.8	2.8	3.6	3.4
UK	0.74	0.77	0.73	0.74	0.76	0.73	0.87	0.88	0.87	6.0	5.7	4.8	4.5	4.7	3.8

Data source: Eurostat. Note: Persons aged 65 years and over compared to persons aged less than 65 years; : - not available

Table A2-2: The at-risk-of-poverty rate, severe material deprivation, poverty gap, 2013

Member State	At-risk-of-poverty rate			Severe material deprivation			Poverty gap		The share of people aged 65+ with disposable income below certain percentage of national median disposable incomes			
	65 years or over			65 years or over			From 18 to 64 years	65 years or over	40%	50%	60%	70%
	Total	Men	Women	Total	Men	Women						
EU-28	13.8	11.4	15.6	6.9	5.7	7.9	25.7	15.9	2.5	6.6	13.8	23.4
BE	18.4	17.0	19.5	2.0	1.3	2.6	22.8	10.5	2.3	5.8	18.4	35.1
BG	27.9	21.0	32.6	50.7	45.1	54.5	34.4	20.6	6.2	16.5	27.9	39.1
CZ	5.8	2.7	8.1	5.3	3.2	6.9	17.3	8.3	0.2	1.4	5.8	16.7
DK	10.6	8.7	12.2	1.0	1.3	0.8	28.4	9.7	1.6	2.8	10.6	28.8
DE	14.9	12.7	17.0	3.2	2.7	3.7	22.1	18.4	2.8	8.0	14.9	24.0
EE	24.4	13.3	29.9	6.3	5.8	6.6	28.3	8.1	1.8	5.1	24.4	43.9
IE	10.1	10.0	10.2	3.6	3.0	4.1	18.1	26.1	3.7	6.7	10.1	17.5
EL	15.1	13.7	16.2	13.7	12.1	15.0	33.6	13.7	3.2	6.5	15.1	21.4
ES	12.7	12.1	13.2	2.7	2.5	3.0	31.4	16.6	3.7	6.3	12.7	23.6
FR	8.7	7.4	9.6	2.7	2.4	3.0	17.6	11.6	0.6	3.0	8.7	16.6
HR	23.4	18.6	26.6	16.9	15.0	18.1	30.2	24.1	8.0	14.4	23.4	33.2
IT	15.3	12.4	17.4	10.7	9.5	11.5	31.4	14.4	2.8	6.7	15.3	23.7
CY	20.1	16.2	23.4	9.0	7.6	10.1	18.3	13.2	1.9	7.9	20.1	36.2
LV	17.6	10.4	21.0	26.6	21.8	29.0	32.0	11.9	2.8	6.5	17.6	35.0
LT	19.4	10.9	23.9	18.4	14.4	20.5	27.5	13.6	2.7	8.4	19.4	31.3
LU	6.2	5.6	6.7	0.9	0.7	1.0	17.5	14.7	1.7	2.8	6.2	12.0
HU	4.4	2.8	5.3	16.7	11.7	19.7	22.4	10.9	0.4	1.6	4.4	9.7
MT	14.9	15.8	14.2	7.1	5.8	8.2	19.3	14.6	2.6	6.8	14.9	32.0
NL	5.5	4.8	6.1	0.8	1.1	0.6	19.4	10.0	1.1	2.2	5.5	16.6
AT	15.4	12.5	17.6	1.8	1.8	1.7	23.4	20.7	4.7	9.8	15.4	23.7
PL	12.3	8.5	14.6	11.5	9.2	12.9	24.0	16.7	1.7	6.2	12.3	20.4
PT	14.6	13.7	15.2	9.0	7.3	10.2	31.3	13.4	2.4	6.3	14.6	23.8
RO	15.0	9.7	18.6	27.5	23.8	29.9	33.3	18.3	3.6	8.4	15.0	24.1
SI	20.5	13.2	25.5	6.7	5.7	7.4	21.2	18.9	2.6	11.4	20.5	30.0
SK	6.0	3.3	7.6	9.2	7.8	10.0	24.4	7.9	0.4	1.2	6.0	14.3
FI	16.1	11.4	19.6	1.1	0.8	1.2	18.9	11.3	1.0	5.0	16.1	31.7
SE	16.4	9.2	22.3	0.2	0.1	0.4	23.1	10.2	2.2	5.8	16.4	30.2
UK	16.6	14.6	18.3	2.1	2.1	2.1	22.0	17.7	3.2	9.0	16.6	27.3

Data source: Eurostat.

Table A2-3: The at-risk-of-poverty or social exclusion rate, in 2005 and 2013

Member State	2005									2013								
	0-64			65-74			75+			0-64			65-74			75+		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
EU-28	:	:	:	:	:	:	:	:	:	25.9	25.2	26.6	17.3	15.0	19.2	19.4	15.7	21.9
BE	22.4	21.2	23.6	20.0	20.0	20.0	27.8	25.4	29.2	21.1	20.9	21.3	17.4	15.4	19.2	21.7	21.1	22.2
BG	:	:	:	:	:	:	:	:	:	45.7	45.7	45.8	54.8	48.4	59.8	61.1	54.9	64.8
CZ	20.4	18.9	22.0	13.6	9.3	16.8	16.4	10.4	19.8	15.5	14.3	16.7	10.0	5.8	13.4	11.0	5.6	14.4
DK	17.1	16.1	18.1	12.7	11.1	14.1	23.9	24.4	23.7	20.6	20.6	20.6	7.5	5.5	9.3	17.1	16.2	17.7
DE	19.3	18.2	20.3	13.4	10.0	16.4	17.2	14.2	19.6	21.4	20.1	22.8	18.0	16.2	19.5	13.6	10.7	16.7
EE	25.3	25.3	25.2	27.1	17.4	32.9	32.4	16.6	38.2	22.6	23.3	22.0	28.3	17.1	34.9	27.6	16.2	32.0
IE	24.0	23.5	24.4	30.3	27.8	32.5	37.2	31.9	40.9	31.8	31.0	32.7	14.1	12.8	15.3	12.2	11.9	12.5
EL	27.5	25.8	29.2	34.3	29.2	38.6	43.4	40.8	45.4	38.9	37.5	40.2	20.8	20.8	20.8	25.7	22.6	28.1
ES	23.2	22.5	23.9	27.2	22.8	30.8	33.5	31.4	34.8	30.0	30.5	29.5	14.1	12.2	15.8	14.9	15.7	14.4
FR	18.9	17.8	20.0	17.3	16.0	18.4	19.8	17.7	21.2	19.7	18.7	20.7	8.6	7.7	9.4	12.2	10.5	13.4
HR	:	:	:	:	:	:	:	:	:	29.5	30.1	29.0	28.2	25.1	30.6	36.5	29.4	40.4
IT	25.0	23.2	26.8	24.1	20.4	27.3	26.6	20.8	30.0	29.9	28.9	31.0	21.4	19.1	23.4	23.9	19.3	26.7
CY	21.5	20.7	22.3	46.8	41.5	51.5	65.4	64.6	66.0	28.1	27.5	28.6	19.1	16.1	21.8	36.4	30.4	41.1
LV	44.5	43.0	45.9	53.7	44.8	58.8	57.7	49.0	60.7	34.9	35.1	34.8	36.6	31.0	39.9	35.4	23.9	39.7
LT	40.2	39.5	40.8	43.2	35.9	47.6	50.6	31.8	58.3	30.6	29.2	32.0	29.5	26.0	31.7	34.4	18.0	41.0
LU	18.7	17.1	20.3	8.6	10.1	7.3	7.0	9.1	5.6	20.8	20.2	21.4	5.8	5.7	6.0	8.8	7.3	10.0
HU	33.5	33.1	34.0	23.1	19.7	25.3	25.0	15.1	30.1	36.3	35.8	36.7	20.5	15.6	23.8	16.8	10.1	20.1
MT	19.5	18.0	21.0	27.0	24.4	29.2	27.1	28.1	26.5	24.6	23.6	25.7	20.9	20.0	21.7	20.7	21.6	20.0
NL	18.2	16.8	19.7	6.9	6.4	7.3	5.8	5.8	5.8	17.8	16.5	19.1	4.9	4.6	5.2	7.9	7.1	8.4
AT	17.8	16.5	19.1	11.3	8.2	13.9	20.4	15.4	23.0	19.3	18.2	20.4	15.3	11.3	18.7	17.5	15.9	18.5
PL	46.2	46.0	46.3	38.9	33.6	42.6	40.0	32.8	43.6	26.9	26.8	26.9	21.9	17.5	25.2	17.2	11.9	19.9
PT	24.6	24.1	25.1	27.1	26.0	28.0	41.1	40.6	41.5	29.2	29.3	29.0	17.1	15.7	18.3	23.6	21.5	24.8
RO	:	:	:	:	:	:	:	:	:	41.3	40.9	41.8	31.2	26.9	34.4	39.5	31.5	44.3
SI	17.6	16.7	18.5	20.7	12.8	26.6	28.8	18.1	33.9	19.9	19.9	20.0	18.8	15.8	21.1	28.3	15.9	35.3
SK	32.4	31.2	33.6	27.0	24.8	28.6	32.1	27.5	34.4	20.7	20.3	21.1	11.8	8.9	13.6	16.7	13.3	18.6
FI	16.6	16.7	16.5	14.2	10.0	17.6	27.6	17.4	32.8	15.8	16.5	15.0	10.8	9.5	12.0	24.6	15.8	29.8
SE	15.0	14.6	15.5	8.0	6.1	9.8	14.5	7.2	19.0	16.4	16.1	16.7	9.8	6.9	12.6	25.0	12.7	33.2
UK	24.5	23.7	25.4	22.5	20.3	24.4	29.8	26.6	32.0	26.2	25.1	27.2	15.3	14.2	16.3	21.5	18.9	23.5

Data source: Eurostat. Note: : - not available

Table A2-4: Population by tenure status, 2012

Member State	Owner			Tenant		
	Total	No outstanding mortgage or housing loan	With mortgage or loan	Total	Rent at reduced price or free	Rent at market price
EU-28	72.4	45.1	27.4	27.6	10.0	17.6
BE	74.9	31.9	43.0	25.1	7.5	17.6
BG	88.5	86.4	2.1	11.5	10.0	1.5
CZ	80.6	63.2	17.4	19.4	6.5	13.0
DK	63.9	13.5	50.4	36.1	0.4	35.7
DE	55.7	25.5	30.2	44.3	7.0	37.3
EE	82.3	63.7	18.6	17.7	14.4	3.4
IE	72.2	38.5	33.8	27.8	12.9	14.9
EL	74.8	59.8	15.0	25.2	5.2	20.0
ES	78.3	46.7	31.6	21.7	8.3	13.4
FR	63.9	35.1	28.9	36.1	16.9	19.2
HR	90.1	87.2	2.8	9.9	8.6	1.4
IT	73.9	57.3	16.5	26.1	12.1	14.0
CY	74.7	58.2	16.5	25.3	12.9	12.4
LV	82.9	73.0	9.9	17.1	9.2	7.9
LT	92.2	86.2	6.0	7.8	6.3	1.5
LU	72.1	31.1	41.0	27.9	4.2	23.7
HU	91.0	69.2	21.8	9.0	5.9	3.1
MT	82.5	66.3	16.2	17.5	15.2	2.2
NL	68.5	8.2	60.3	31.5	0.5	31.0
AT	59.6	32.7	27.0	40.4	15.1	25.3
PL	83.4	73.8	9.6	16.6	12.5	4.1
PT	75.4	40.1	35.2	24.6	14.0	10.7
RO	96.5	95.7	0.8	3.5	2.4	1.1
SI	76.6	68.8	7.8	23.4	17.9	5.5
SK	90.1	80.6	9.5	9.9	1.6	8.4
FI	72.7	31.4	41.3	27.3	15.1	12.2
SE	70.5	9.2	61.2	29.5	0.2	29.3
UK	70.9	30.6	40.3	29.1	12.8	16.3

Data source: Eurostat

Table A2-5: Distribution of population by tenure status (population from 18 to 64 years and population aged 65 and over), percentage, in 2013

Member State	Population aged from 18 to 64 years						Population aged 65 and over					
	Total		Men		Women		Total		Men		Women	
	Owner	Tenant	Owner	Tenant	Owner	Tenant	Owner	Tenant	Owner	Tenant	Owner	Tenant
EU-28	71.4	28.6	72.0	28.0	70.8	29.2	77.7	22.3	79.6	20.4	76.2	23.8
BE	75.6	24.4	75.5	24.5	75.6	24.4	76.9	23.1	80.6	19.4	74.1	25.9
BG	85.8	14.2	85.6	14.4	86.0	14.0	90.5	9.5	92.7	7.3	89.0	11.0
CZ	81.1	18.9	81.5	18.5	80.7	19.3	81.8	18.2	85.1	14.9	79.4	20.6
DK	59.8	40.2	60.8	39.2	58.9	41.1	66.9	33.1	73.3	26.7	61.5	38.5
DE	50.1	49.9	51.4	48.6	48.8	51.2	57.3	42.7	60.9	39.1	53.9	46.1
EE	80.7	19.3	79.8	20.2	81.5	18.5	81.2	18.8	84.0	16.0	79.8	20.2
IE	76.0	24.0	76.8	23.2	75.1	24.9	90.4	9.6	89.2	10.8	91.5	8.5
EL	78.5	21.5	78.5	21.5	78.4	21.6	88.8	11.2	90.8	9.2	87.2	12.8
ES	82.4	17.6	82.8	17.2	82.1	17.9	89.9	10.1	91.0	9.0	89.0	11.0
FR	62.8	37.2	63.2	36.8	62.4	37.6	77.9	22.1	82.0	18.0	74.9	25.1
HR	88.5	11.5	88.7	11.3	88.2	11.8	96.4	3.6	96.5	3.5	96.4	3.6
IT	76.4	23.6	76.2	23.8	76.6	23.4	83.8	16.2	85.6	14.4	82.5	17.5
CY	82.9	17.1	81.7	18.3	84.1	15.9	55.2	44.8	60.2	39.8	50.9	49.1
LV	81.2	18.8	82.1	17.9	80.4	19.6	87.5	12.5	89.5	10.5	86.5	13.5
LT	91.8	8.2	91.6	8.4	92.0	8.0	97.1	2.9	97.3	2.7	97.0	3.0
LU	84.6	15.4	84.8	15.2	84.3	15.7	89.8	10.2	90.8	9.2	88.8	11.2
HU	89.9	10.1	90.2	9.8	89.6	10.4	92.8	7.2	94.8	5.2	91.7	8.3
MT	82.3	17.7	82.1	17.9	82.5	17.5	71.3	28.7	72.7	27.3	70.2	29.8
NL	67.1	32.9	68.1	31.9	66.0	34.0	54.4	45.6	59.4	40.6	50.2	49.8
AT	63.5	36.5	64.2	35.8	62.7	37.3	55.1	44.9	58.2	41.8	52.7	47.3
PL	83.6	16.4	84.0	16.0	83.3	16.7	86.8	13.2	88.3	11.7	85.9	14.1
PT	75.8	24.2	76.0	24.0	75.7	24.3	77.1	22.9	79.5	20.5	75.5	24.5
RO	95.4	4.6	95.4	4.6	95.5	4.5	99.2	0.8	99.4	0.6	99.0	1.0
SI	79.4	20.6	79.9	20.1	78.9	21.1	86.2	13.8	89.7	10.3	83.8	16.2
SK	90.6	9.4	90.6	9.4	90.5	9.5	96.9	3.1	97.7	2.3	96.4	3.6
FI	69.8	30.2	69.9	30.1	69.7	30.3	82.9	17.1	86.0	14.0	80.6	19.4
SE	68.7	31.3	68.7	31.3	68.6	31.4	72.1	27.9	77.1	22.9	68.1	31.9
UK	66.8	33.2	67.8	32.2	65.8	34.2	80.2	19.8	81.8	18.2	78.9	21.1

Data source: Eurostat.

Table A2-6: Share of housing costs in disposable household income and housing cost overburden rate, 2013

Member State	Share of housing costs in disposable household income, by type of household				Housing cost overburden rate									
	Less than 65 years		65 years or over		Aged 18-64			65 years or over			By tenure status (total population)			
	One adult	Two adults	One adult	Two adults, at least one aged 65+	Total	Men	Women	Total	Men	Women	Owner, with mortgage or loan	Owner, no outstanding mortgage or housing loan	Tenant, rent at market price	Tenant, rent at reduced price or free
EU-28	35.0	22.5	28.2	18.7	11.3	10.8	11.8	10.3	8.1	12.1	7.7	6.8	25.7	10.6
BE	34.4	19.0	31.1	18.8	9.7	9.4	10.0	11.2	8.2	13.5	3.8	1.6	34.0	12.8
BG	32.8	26.1	43.0	29.0	11.5	11.1	11.8	24.3	18.7	28.2	11.6	13.4	36.3	17.7
CZ	37.7	24.9	35.4	23.8	11.0	9.9	12.1	14.3	9.1	18.2	10.8	6.7	32.7	7.6
DK	42.3	27.0	41.4	30.0	19.7	19.3	20.0	24.5	19.2	28.9	7.5	6.8	38.6	.
DE	39.8	26.7	39.2	27.2	15.8	14.2	17.2	22.5	19.3	25.5	12.2	12.1	22.3	15.8
EE	25.9	17.9	25.7	16.2	7.4	7.4	7.5	5.9	2.9	7.3	9.2	4.8	25.6	10.4
IE*	29.5	17.4	24.6	13.5	5.6	5.6	5.6	3.2	2.8	3.5	1.4	1.7	17.8	6.8
EL	57.4	39.9	44.9	31.9	38.1	36.7	39.5	26.7	21.1	31.3	28.6	32.2	58.3	38.0
ES	32.5	21.9	19.6	13.3	11.1	11.1	11.2	3.9	3.5	4.1	8.2	2.8	42.3	9.5
FR	29.9	17.4	20.8	11.6	6.1	5.9	6.3	3.0	1.3	4.3	1.2	0.7	15.8	8.3
HR	33.7	24.5	29.3	21.2	8.2	8.0	8.4	9.4	6.2	11.5	26.4	6.7	49.8	9.8
IT	25.6	17.8	21.2	14.7	8.9	8.2	9.6	6.1	3.9	7.7	6.7	2.7	32.9	10.4
CY	21.3	14.2	13.4	10.1	3.3	2.7	3.8	1.6	1.0	2.1	5.2	0.5	17.7	0.9
LV	36.3	22.6	33.9	21.2	10.9	10.1	11.6	14.0	8.9	16.4	16.2	9.9	17.1	12.7
LT	30.3	18.1	28.8	18.4	7.6	7.1	8.2	9.8	5.4	12.0	15.1	7.1	23.5	11.1
LU	23.1	13.9	11.3	7.8	6.0	5.7	6.3	2.7	1.8	3.5	1.2	0.5	21.4	4.6
HU	36.6	26.3	30.8	22.1	13.3	12.9	13.8	8.2	5.1	10.0	29.8	6.7	36.2	12.0
MT	18.9	11.8	11.9	9.7	2.4	2.3	2.6	1.9	1.8	2.0	4.6	1.3	28.2	2.3
NL	43.2	27.9	34.3	23.4	17.2	17.2	17.1	11.1	8.2	13.5	13.2	3.7	23.2	0.0
AT	29.8	19.4	26.0	16.8	7.3	7.0	7.6	7.7	5.6	9.3	2.9	2.8	15.5	8.7
PL	36.9	25.4	31.4	22.5	10.3	9.8	10.8	10.0	5.4	12.8	13.8	8.4	28.5	13.0
PT	28.1	19.5	18.4	13.6	8.6	8.1	9.1	3.2	2.7	3.6	6.8	2.5	35.2	6.3
RO	40.8	28.6	36.0	22.7	15.0	14.2	15.8	15.1	11.0	17.8	23.4	14.8	43.4	18.8
SI	26.7	18.7	26.2	16.9	5.9	6.2	5.6	7.1	4.6	8.9	11.6	3.4	25.8	6.8
SK	30.8	22.7	29.2	21.7	7.7	7.1	8.2	8.1	6.1	9.3	26.5	5.7	12.9	11.9
FI	30.6	16.4	25.2	13.6	5.2	5.2	5.3	5.4	4.0	6.4	2.6	2.6	15.0	8.5
SE	35.8	18.6	38.1	19.2	8.0	8.8	7.2	12.7	5.0	19.1	2.9	8.2	17.6	69.2
UK	34.3	20.3	20.9	12.7	9.0	9.4	8.6	3.9	3.8	4.0	4.3	1.5	25.2	8.1

Data source: Eurostat. Note: . - not available

Table A2-7: The severe housing deprivation rate, 2013

Member State	The severe housing deprivation rate					
	From 18 to 64 years			65 years or over		
	Total	Men	Women	Total	Men	Women
EU-28	5.4	5.5	5.2	2.1	1.7	2.4
BE	0.9	1.0	0.8	0.2	0.1	0.2
BG	12.2	12.4	12.1	5.2	4.3	5.9
CZ	3.9	3.7	4.2	1.5	1.3	1.6
DK	3.2	3.4	2.9	0.0	0.0	0.0
DE	1.8	1.7	1.9	0.2	0.4	0.1
EE	5.8	5.6	6.0	3.3	2.2	3.8
IE	1.4	1.4	1.4	0.1	0.3	0.0
EL	7.5	7.9	7.0	4.9	4.2	5.5
ES	1.9	2.0	1.8	0.2	0.2	0.2
FR	2.3	2.4	2.3	0.4	0.7	0.1
HR	9.4	9.1	9.6	5.6	4.3	6.5
IT	9.7	9.9	9.6	3.3	3.2	3.4
CY	1.4	1.7	1.3	0.6	0.4	0.7
LV	16.4	16.6	16.3	8.8	6.8	9.8
LT	8.7	8.4	8.8	4.4	4.2	4.5
LU	1.7	1.8	1.7	0.7	0.8	0.7
HU	16.9	17.1	16.8	8.3	5.6	9.8
MT	1.2	1.4	1.0	0.6	0.9	0.3
NL	1.0	1.2	0.8	0.0	0.0	0.0
AT	3.7	3.4	3.9	1.0	1.5	0.6
PL	9.9	10.4	9.5	7.0	5.5	8.0
PT	5.7	6.0	5.5	2.4	1.6	3.1
RO	21.8	22.8	20.7	13.0	10.8	14.6
SI	6.7	6.3	7.1	2.1	1.1	2.7
SK	4.1	4.2	4.1	1.6	0.7	2.1
FI	0.8	1.0	0.6	0.5	0.4	0.6
SE	1.8	1.7	2.0	0.1	0.1	0.0
UK	2.4	2.6	2.2	0.3	0.2	0.3

Data source: Eurostat.

Table A2-8: The at-risk-of-poverty-rate for owners and tenants aged 65 and over, 2013

Member State	2005						2013											
	Owners			Tenants			Owners						Tenants					
	65 years or over			65 years or over			Aged 18-64			65 years or over			Aged 18-64			65 years or over		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
EU-28	:	:	:	:	:	:	12.7	12.4	13.0	13.1	10.7	15.0	26.6	26.4	26.8	16.6	14.7	18.0
BE	20.6	19.3	21.6	24.5	25.4	24.0	6.0	5.8	6.3	16.9	15.9	17.7	33.5	33.4	33.5	24.0	22.3	25.0
BG	:	:	:	:	:	:	17.0	17.3	16.7	27.8	21.0	32.5	19.4	18.9	19.9	41.0	:	:
CZ	4.7	2.1	6.6	7.4	2.1	10.4	7.1	6.5	7.7	5.7	2.6	8.0	15.8	14.6	17.1	6.5	3.3	8.3
DK	24.0	19.6	28.2	8.0	9.9	7.0	4.0	5.2	2.7	13.5	10.0	16.9	28.5	29.1	27.9	4.9	5.1	4.8
DE	11.5	9.7	13.5	15.6	11.2	18.7	7.9	7.2	8.7	11.0	9.5	12.6	26.5	26.0	26.9	21.3	18.7	23.4
EE	20.4	9.4	25.9	15.9	:	13.0	16.6	16.9	16.4	24.2	13.0	29.7	25.2	23.4	27.0	32.6	24.2	36.4
IE	31.7	26.9	35.5	43.6	47.1	40.7	11.0	11.0	11.0	9.7	9.1	10.2	21.2	22.7	20.0	14.3	18.2	10.0
EL	28.5	25.7	30.7	21.1	18.3	22.9	22.6	22.1	23.1	14.9	13.3	16.3	29.4	28.0	30.8	17.1	20.7	15.0
ES	28.5	25.2	31.0	32.9	30.1	34.6	16.6	16.6	16.6	12.0	11.4	12.5	38.6	39.1	38.0	23.7	24.7	23.0
FR	16.3	14.0	18.1	16.9	19.1	15.8	7.3	6.5	8.1	7.8	6.3	8.9	25.1	24.4	25.8	12.2	12.3	12.2
HR	:	:	:	:	:	:	17.6	18.0	17.2	23.4	18.6	26.5	23.0	24.0	22.1	27.2	:	:
IT	21.8	18.3	24.4	27.7	20.6	32.0	16.0	15.0	17.1	14.7	12.2	16.6	29.9	28.9	30.8	19.4	13.7	23.1
CY	51.4	47.5	54.7	38.9	39.6	38.3	12.3	11.4	13.1	20.1	16.1	23.6	28.6	27.2	30.0	19.9	19.1	20.5
LV	19.9	10.9	24.3	29.7	15.7	35.4	17.2	17.7	16.7	16.8	9.0	20.6	29.0	27.4	30.3	27.8	31.3	26.5
LT	17.0	6.4	22.5	:	:	:	18.5	18.6	18.5	19.3	10.7	23.8	36.5	38.7	35.1	:	:	:
LU	5.4	7.0	4.1	24.7	27.7	22.7	9.3	8.8	9.9	5.4	4.5	6.1	30.7	29.1	32.2	11.6	13.9	10.0
HU	6.6	4.2	7.9	5.0	2.5	6.6	13.7	13.7	13.7	4.4	2.8	5.4	22.3	20.7	23.6	2.6	3.2	2.3
MT	23.4	23.7	23.1	22.9	21.8	23.7	12.4	11.6	13.1	14.0	14.7	13.4	21.0	17.8	24.4	17.8	19.0	16.8
NL	5.4	4.7	6.0	5.3	5.1	5.5	4.7	4.2	5.1	6.4	5.4	7.3	23.9	24.1	23.7	4.5	4.0	4.9
AT	14.3	10.9	16.9	12.8	5.1	16.8	7.5	7.0	8.0	15.4	12.6	17.5	21.4	20.6	22.2	15.6	12.4	17.9
PL	7.3	5.0	8.7	6.1	1.1	8.2	16.4	16.8	16.1	12.1	8.5	14.4	21.1	19.9	22.3	18.3	8.6	22.0
PT	28.5	28.2	28.7	24.0	24.1	24.0	15.8	15.9	15.6	14.3	13.0	15.2	31.3	31.1	31.4	15.9	17.3	15.1
RO	:	:	:	:	:	:	21.6	22.3	20.9	15.1	9.7	18.7	16.8	13.9	19.8	:	:	:
SI	19.7	10.7	25.5	29.5	20.7	33.6	11.1	11.4	10.7	19.6	12.2	24.7	31.2	30.5	32.1	45.2	41.6	47.4
SK	4.5	2.6	5.9	15.7	3.2	19.7	11.3	11.2	11.4	6.1	3.3	7.7	21.2	20.7	21.7	3.5	:	4.6
FI	18.2	10.4	23.8	21.4	15.2	24.4	5.5	6.0	5.1	14.4	9.6	18.2	24.7	26.5	22.9	25.2	23.8	25.8
SE	9.6	5.6	13.4	11.4	8.0	13.0	5.8	6.2	5.3	13.5	7.9	18.8	30.0	29.8	30.1	22.5	12.8	28.2
UK	26.3	22.0	29.8	19.8	21.3	18.9	9.7	9.2	10.2	18.0	15.8	19.9	23.5	24.2	22.8	10.7	9.5	11.6

Data source: Eurostat. Note: : - not available

Table A2-9: Impact of imputed rents: percentage increase in disposable income when augmented with imputed rents (2013) and percentage points change in the at-risk-of poverty rates when including imputed rents for the home-owners aged 65 and over (2013)

Member State	Percentage (%) increase in disposable income when augmented with imputed rents for the owners aged 65 or over	Percentage points change in the at-risk-of poverty rates when including imputed rents for the home-owners aged 65 and over
EU-28	17.8	-7.0
BE	20.4	-12.7
BG	26.1	-2.9
CZ	1.0	-0.3
DK	30.8	-12.7
DE	23.3	-7.2
EE	11.0	-7.1
IE	31.2	-8.2
EL	25.0	-10.4
ES	24.2	-10.9
FR	13.8	-4.6
HR	2.8	-0.8
IT	25.0	-10.4
CY	21.2	-14.7
LV	9.6	-5.5
LT	16.3	-5.2
LU	17.2	-3.5
HU	24.0	-3.1
MT	9.4	-8.8
NL	1.0	-4.6
AT	13.4	-4.8
PL	22.3	-6.6
PT	3.4	:
RO	2.5	-0.1
SI	14.7	-6.1
SK	16.8	-9.5
FI	19.4	-8.9
SE	15.6	-13.2
UK	20.4	-12.6

Source: OECD calculation based on EU-SILC 2013 (August 2014). Note: : - data not available. Poverty is computed with respect to a threshold of 60% of the median equivalised household income. However, OECD calculation uses the square root scale to equalise the income while Eurostat uses a different equivalence scale. The OECD-modified scale gives different weights to the members of the households (1 to the household head, 0.5 to each additional adult member, and 0.3 to each child).

Table A2-10: Financial wealth by age groups, 2013

Member State	The share of financial assets on total gross assets			Percentage of households holding debts			Net wealth (means), EUR thousands		
	55-64	65-74	75+	55-64	65-74	75+	55-64	65-74	75+
Average	17.3	17.8	22.0	43.1	23.7	7.7	344.4	283.6	220.9
BE	32.4	32.0	37.3	36.5	19.6	6.4	436.3	500.5	432.4
DE	19.6	21.5	25.7	53.3	27.6	8.7	330.7	248.5	166.8
EL	7.7	7.1	7.0	39.3	20.7	9.5	187.1	151.6	114.3
ES	12.7	9.9	10.3	47.3	21.8	9.4	467.0	331.6	265.8
FR	19.5	24.3	30.0	45.1	27.0	6.8	343.2	324.6	241.2
IT	12.0	9.1	11.2	23.7	12.2	2.7	394.8	324.9	237.1
CY	9.6	9.5	9.7	64.6	30.5	3.3	964.9	581.2	229.9
LU	12.4	9.5	17.8	55.4	28.0	9.1	855.3	1245.8	882.2
MT	18.1	15.4	17.4	34.3	9.3	2.0	452.1	257.7	270.5
NL	27.7	25.0	41.7	58.7	51.2	33.9	209.3	225.9	271.1
AT	17.0	21.1	18.0	32.1	20.0	9.1	342.7	246.5	191.4
PT	12.4	12.2	15.5	33.4	12.6	3.3	237.3	166.3	135.4
SI	6.2	3.4	8.1	42.8	20.6	12.8	163.2	115.1	113.7
SK	10.0	6.6	:	17.3	7.1	0.0	94.8	71.6	76.5
FI	16.1	16.9	18.3	57.4	32.0	14.2	234.0	225.0	167.0

Data source: The Eurosystem Household Finance and Consumption Survey. Results from the first wave. European Central Bank. Statistics paper series. No 2 / April 2013. Note: data available for 15 Member States

Table A2-11: Self-reported unmet needs for medical examination (reasons: too expensive or too far to travel or waiting list)

Member State	2013			2008			2013			2013		
	People aged 65 or over			From 65 to 74 years	From 75 to 84 years	85 years or over	From 65 to 74 years	From 75 to 84 years	85 years or over	The main reasons of self-reported unmet needs for medical examination, poorest income quintile of people aged 65 or over		
	First quintile of equivalised income	Third quintile of equivalised income	Fifth quintile of equivalised income							Too expensive	Waiting list	Too far to travel
				<i>First quintile of equivalised income</i>								
EU-28	7.5	4.3	2.0	:	:	:	7.3	8.2	6.0	5.2	1.6	0.8
BE	1.7	0.8	:	0.6	0.8	:	2.0	2.1	:	1.4	:	0.3
BG	17.2	9.6	2.5	30.7	26.2	16.4	17.4	16.9	17.2	11.6	2.4	3.3
CZ	2.1	0.9	:	1.5	1.2	:	1.2	3.5	1.6	0.5	0.4	1.3
DK	0.8	0.5	:	:	1.0	:	:	0.9	2.9	0.4	0.4	:
DE	3.6	0.6	0.2	3.9	1.4	:	2.8	4.9	4.4	1.7	1.3	0.6
EE	12.3	8.3	11.8	10.5	12.2	17.1	12.6	12.5	8.3	1.5	9.8	1.0
IE	3.5	2.6	1.4	2.0	1.2	0.9	2.9	2.0	11.1	0.3	3.2	:
EL	20.2	14.2	1.7	13.4	12.6	15.7	18.1	24.6	16.1	17.9	1.4	0.9
ES	2.2	0.3	0.1	0.5	0.3	1.0	2.2	2.4	1.4	1.7	0.4	0.2
FR	4.8	1.5	0.2	3.6	1.7	1.4	6.2	5.3	:	3.9	0.4	0.5
HR	14.4	3.3	2.1	:	:	:	14.0	15.5	12.1	5.1	0.7	8.7
IT	17.9	6.9	2.2	13.1	11.4	12.2	19.2	18.7	11.8	15.1	2.6	0.3
CY	3.7	3.5	:	3.9	3.5	6.8	6.0	1.8	2.9	3.7	:	:
LV	28.8	19.3	7.9	24.9	19.0	9.4	32.0	27.0	19.9	23.8	1.7	3.2
LT	8.5	6.0	4.1	9.1	13.4	15.8	9.8	7.2	7.9	1.9	5.1	1.5
LU	5.5	1.2	:	:	:	:	8.0	2.7	:	5.5	:	:
HU	6.1	1.6	0.5	7.1	6.3	5.9	8.1	2.4	4.2	3.7	0.6	1.8
MT	1.0	0.6	:	1.5	0.7	:	1.7	:	:	0.5	0.3	0.1
NL	1.0	0.2	:	:	:	:	0.5	0.5	4.9	0.1	0.2	0.7
AT	0.7	:	0.2	1.5	1.1	3.5	1.1	0.4	:	0.6	:	0.1
PL	18.3	13.5	11.8	13.7	15.4	11.6	18.9	17.4	16.9	9.8	6.7	1.7
PT	4.8	2.8	1.2	3.2	2.0	2.7	3.7	5.7	5.2	3.1	0.4	1.3
RO	34.2	23.6	12.6	33.4	41.3	34.6	23.6	42.1	44.7	30.9	0.3	3.0
SI	0.1	:	:	:	0.7	:	:	:	1.0	:	0.1	:
SK	2.8	4.0	5.0	3.2	6.3	2.3	1.4	5.7	:	1.6	1.0	0.3
FI	7.1	6.7	3.9	4.5	0.3	2.1	9.4	5.4	6.3	0.3	6.8	:
SE	0.9	0.9	0.8	2.3	0.5	0.7	1.2	1.2	:	0.4	0.2	0.2
UK	1.9	1.7	1.8	0.7	0.7	1.4	1.6	2.0	2.3	0.1	1.3	0.5

Data source: Eurostat. Note: Other reasons are not included (No time; Didn't know any good doctor or specialist; Fear of doctor, hospital, examination or treatment; Wanted to wait and see if problem got better on its own; Other reasons; : - not available).

Table A2-12: Employment rate of older people (by age groups and gender) in the EU-28, in 2007

MS	50-54 years			55-59 years			60-64 years			65-69 years			70-74 years			75+ years		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
EU-28	74.9	83.1	66.9	57.4	67.1	48.2	29.1	37.7	21.1	9.6	12.9	6.7	4.9	6.9	3.4	1.2	2.0	0.7
BE	72.4	83.8	61.2	49.3	59.6	39.3	17.0	22.8	11.4	3.3	5.2	1.7	1.9	3.1	:	1.0	1.7	0.6
BG	75.2	77.0	73.5	59.6	64.5	55.3	23.7	37.5	11.7	6.6	10.5	3.5	3.0	4.9	:	0.7	:	:
CZ	84.9	87.8	82.0	63.3	77.3	50.1	25.7	38.3	14.6	9.4	13.6	6.2	4.1	6.0	2.7	1.1	2.1	0.6
DK	85.2	88.1	82.2	80.7	84.5	76.8	38.8	46.6	31.0	12.5	18.4	6.9	5.9	9.2	3.1	:	:	:
DE	79.7	85.2	74.2	68.1	76.0	60.5	33.4	42.1	25.2	7.1	9.2	5.2	3.3	4.4	2.3	0.9	1.7	0.5
EE	84.8	83.4	86.0	75.6	75.6	75.6	42.0	39.2	44.0	28.7	27.6	29.3	9.2	13.3	7.0	:	:	:
IE	72.7	83.7	61.8	61.1	75.1	46.9	45.6	60.0	31.1	18.7	27.1	10.4	9.1	15.5	3.3	3.3	7.3	:
EL	67.2	86.8	48.2	53.0	73.2	32.9	30.9	43.0	19.8	10.4	16.3	5.3	3.7	6.0	1.7	1.0	1.8	0.5
ES	68.3	84.6	52.0	55.2	73.0	38.0	32.9	45.4	21.3	5.2	7.5	3.1	1.7	2.7	0.9	0.4	0.7	0.2
FR	81.0	86.4	75.9	55.7	58.6	53.1	15.1	16.0	14.4	3.2	4.1	2.3	1.3	1.9	0.9	0.3	0.4	:
HR	63.4	74.1	52.7	46.7	61.7	32.5	23.4	32.5	15.6	7.8	8.2	7.5	6.3	7.2	5.7	2.5	4.1	1.7
IT	70.1	87.6	53.1	45.6	58.6	33.2	19.2	28.7	10.3	7.3	12.0	3.1	3.1	5.6	1.0	0.9	1.9	0.3
CY	78.7	92.3	65.2	67.2	83.1	52.1	45.7	63.4	28.8	19.8	33.2	7.8	10.2	17.0	4.4	5.1	8.6	:
LV	80.9	82.7	79.3	72.2	74.8	70.2	41.5	51.7	34.5	23.9	32.1	18.8	12.0	17.4	9.2	:	:	:
LT	78.2	79.5	77.1	68.0	71.3	65.4	36.1	47.6	27.8	12.5	17.7	9.1	3.9	:	:	:	:	:
LU	71.8	89.8	53.7	44.1	48.4	39.9	8.9	10.5	7.2	:	:	:	:	:	:	:	:	:
HU	69.6	71.0	68.2	48.0	57.2	40.0	13.1	17.9	9.4	4.9	6.7	3.6	1.2	2.1	:	:	:	:
MT	54.6	84.1	24.5	44.6	69.8	19.8	11.8	21.3	:	3.9	7.5	:	:	:	:	:	:	:
NL	80.7	89.7	71.7	68.5	80.6	56.2	31.1	39.9	22.2	10.2	14.6	5.9	5.1	8.5	2.4	1.7	2.9	0.9
AT	78.0	82.4	73.7	52.4	65.0	40.7	16.9	23.8	10.4	7.1	9.3	5.2	4.9	6.4	3.7	2.1	4.4	0.9
PL	63.2	70.1	56.7	36.7	50.4	24.5	18.3	26.5	11.5	8.5	12.3	5.9	5.3	7.8	3.7	1.8	3.2	1.1
PT	73.6	82.4	65.3	58.9	65.7	52.6	42.1	50.2	35.1	27.1	31.8	23.1	20.5	27.3	15.2	11.4	16.5	8.3
RO	65.5	74.6	56.9	49.2	60.4	39.0	30.8	35.9	26.4	28.7	33.3	25.1	23.8	27.7	21.0	:	:	:
SI	74.2	78.7	69.4	45.2	60.7	29.7	17.0	22.1	12.5	12.8	15.4	10.4	9.6	11.9	8.1	5.3	8.7	3.7
SK	75.8	79.7	72.0	50.2	70.6	31.8	15.4	25.8	7.1	2.3	2.5	2.2	:	:	:	:	:	:
FI	81.8	79.9	83.7	68.0	65.7	70.4	39.0	41.4	36.8	9.7	13.3	6.6	3.9	6.5	1.8	:	:	:
SE	85.8	87.5	84.0	80.6	83.1	78.2	60.8	64.6	56.9	14.7	19.1	10.5	6.5	9.7	3.7	:	:	:
UK	80.4	84.9	76.0	69.6	74.9	64.4	44.6	57.0	32.7	15.7	20.7	11.1	6.5	8.8	4.4	1.6	2.6	1.0

Data source: Eurostat. Note: Reporting country

Table A2-13: Employment rate of older people (by age groups and gender) in the EU-28, in 2013

MS	50-54 years			55-59 years			60-64 years			65-69 years			70-74 years			75+ years		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
EU-28	76.3	81.9	70.9	65.1	72.0	58.4	34.3	41.8	27.4	11.2	14.7	8.1	5.5	7.5	3.8	1.2	2.1	0.7
BE	76.4	83.7	69.3	59.8	66.6	53.2	22.5	27.2	18.0	4.1	5.9	2.6	2.2	3.5	1.1	1.3	2.1	0.8
BG	73.1	72.2	74.0	62.6	62.0	63.2	32.4	41.6	24.6	7.8	11.0	5.3	2.2	3.5	:	:	:	:
CZ	86.9	89.4	84.4	73.5	82.0	65.2	30.1	42.7	18.5	9.7	12.6	7.5	5.0	6.3	3.9	1.0	1.8	0.5
DK	83.6	84.8	82.4	78.8	82.0	75.5	45.0	51.5	38.6	15.1	20.3	9.8	5.5	8.2	3.1	:	:	:
DE	84.0	87.7	80.3	77.1	81.7	72.8	50.8	58.2	43.9	12.8	16.5	9.4	5.5	7.6	3.8	1.6	2.6	0.9
EE	81.2	81.4	81.0	75.8	71.1	79.6	53.4	51.8	54.6	28.6	27.1	29.6	13.6	17.5	11.4	:	:	:
IE	69.1	76.2	62.2	60.5	67.3	53.9	41.5	50.7	32.5	16.7	23.4	10.1	10.0	15.2	5.1	3.3	6.6	:
EL	56.9	71.5	43.7	45.9	60.1	32.7	24.1	31.2	17.7	6.3	9.2	3.6	2.1	3.2	1.1	0.5	1.0	:
ES	64.1	71.9	56.4	54.5	63.4	45.8	30.6	36.6	24.9	4.5	5.4	3.7	1.2	1.4	1.0	0.3	0.5	0.2
FR	81.5	85.7	77.5	68.6	72.1	65.3	23.2	24.5	22.1	5.6	6.9	4.3	1.7	2.3	1.3	0.3	0.5	0.3
HR	62.7	66.9	58.6	49.2	56.9	41.9	24.9	31.3	19.2	7.3	9.1	5.7	4.4	6.7	2.8	1.6	2.5	1.1
IT	69.9	83.2	56.9	58.4	70.4	46.9	25.1	33.9	16.7	7.8	12.4	3.6	3.6	6.1	1.5	0.9	1.9	0.2
CY	70.4	80.7	59.9	63.5	73.3	53.6	37.4	50.8	24.0	13.7	19.0	8.9	9.0	13.9	4.6	3.5	7.6	:
LV	76.5	74.7	78.0	72.1	70.9	73.1	40.9	40.0	41.4	19.1	20.4	18.4	11.6	14.7	10.0	:	:	:
LT	76.0	76.0	76.0	67.0	68.1	66.0	37.8	41.5	35.1	11.9	16.3	9.0	5.8	:	:	:	:	:
LU	80.4	91.2	69.7	52.8	57.5	48.1	18.7	25.6	11.9	5.7	9.0	:	:	:	:	:	:	:
HU	74.1	74.2	74.0	57.6	64.8	51.4	15.5	21.0	11.1	4.9	6.4	3.8	1.5	2.8	:	:	:	:
MT	60.9	84.0	38.1	53.2	77.5	29.1	20.0	31.2	8.8	7.0	12.2	:	4.1	7.6	:	:	:	:
NL	80.3	86.2	74.4	72.3	81.2	63.5	47.6	59.0	36.1	13.1	19.1	7.2	5.5	8.8	2.4	1.7	3.2	0.6
AT	83.0	86.5	79.4	63.6	73.1	54.4	21.5	30.3	13.3	9.0	11.3	7.0	5.8	8.1	4.0	2.1	3.9	0.9
PL	70.8	74.3	67.4	55.3	64.4	46.9	24.0	36.0	13.7	9.4	13.4	6.3	4.5	6.6	3.1	1.4	2.7	0.8
PT	71.2	74.9	67.9	57.5	64.5	51.2	35.9	42.2	30.3	20.3	27.6	14.3	15.4	22.7	9.7	8.2	14.1	4.6
RO	70.4	79.3	61.7	53.2	64.5	42.9	29.1	36.4	22.9	21.6	22.7	20.6	20.4	22.3	19.0	:	:	:
SI	77.3	77.4	77.3	47.5	57.2	38.0	16.8	23.3	10.2	8.2	10.6	6.1	6.1	8.0	4.8	2.5	3.9	1.7
SK	76.6	78.1	75.1	64.3	71.7	57.3	20.7	31.2	11.7	3.1	4.3	2.3	1.7	:	:	:	:	:
FI	82.4	81.0	83.8	73.6	70.1	76.8	44.0	43.9	44.1	12.2	15.5	9.2	4.9	7.5	2.5	:	:	:
SE	86.8	88.2	85.4	82.7	85.5	79.9	66.1	69.9	62.2	18.5	23.1	14.0	9.1	12.2	6.3	:	:	:
UK	80.8	84.3	77.4	72.6	77.2	68.1	46.4	55.8	37.2	20.6	25.6	15.9	8.6	11.2	6.2	2.2	3.4	1.4

Data source: Eurostat. Note: Reporting country

Table A2-14: Duration of working life (by gender), 2001-2013

MS	2001			2004			2007			2010			2013		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
EU-28	32.9	36.3	29.3	33.3	36.4	30.0	34.1	37.1	30.9	34.5	37.3	31.6	35.1	37.7	32.5
BE	29.5	33.5	25.4	30.5	33.7	27.2	31.9	34.8	28.9	32.5	35.0	29.9	32.4	34.7	30.1
BG	30.1	31.5	28.6	29.9	31.5	28.3	31.6	33.2	30.0	31.5	33.1	29.9	32.0	33.2	30.7
CZ	33.4	36.5	30.2	33.3	36.3	30.2	33.8	37.1	30.3	33.9	37.3	30.4	34.7	37.7	31.5
DK	38.0	39.8	36.1	38.9	40.8	36.8	39.5	41.2	37.8	39.4	41.0	37.8	38.9	40.2	37.6
DE	34.6	37.7	31.2	34.9	37.9	31.8	36.4	39.2	33.4	36.8	39.4	34.1	37.8	40.1	35.4
EE	32.8	33.4	32.3	33.9	34.3	33.6	35.1	35.8	34.4	35.8	36.1	35.5	36.2	36.6	35.7
IE	33.3	39.4	26.8	33.7	39.3	27.8	35.5	40.4	30.4	34.3	38.2	30.0	34.5	38.3	30.5
EL	31.0	37.2	24.1	31.6	37.3	25.8	31.7	37.0	26.1	32.3	36.9	27.4	32.0	36.0	27.9
ES	30.3	36.8	23.5	32.0	37.3	26.5	33.7	38.1	29.0	34.5	37.6	31.1	34.8	37.1	32.3
FR	31.8	34.4	29.1	32.7	35.0	30.3	33.4	35.4	31.3	34.1	36.0	32.2	34.7	36.5	32.8
HR	30.4	33.2	27.6	31.4	34.2	28.4	31.3	33.8	28.7	31.2	33.3	29.1	31.0	33.1	28.8
IT	28.6	34.7	22.3	29.8	35.5	23.8	29.6	35.1	23.8	29.7	34.8	24.2	30.3	34.9	25.4
CY	35.1	40.3	29.5	36.1	41.1	30.7	36.5	40.9	31.6	36.9	40.7	33.1	36.2	39.8	32.5
LV	32.0	32.8	31.2	33.3	34.5	32.0	34.7	35.7	33.6	34.5	34.5	34.5	34.8	35.0	34.6
LT	32.9	33.3	32.4	32.6	33.1	32.0	31.5	31.5	31.4	33.1	32.8	33.5	34.1	34.1	34.2
LU	28.9	34.0	23.6	29.7	33.8	25.6	30.7	34.1	27.1	31.6	35.2	28.1	32.6	35.8	29.3
HU	27.5	30.3	24.6	28.0	30.4	25.5	28.8	31.2	26.3	29.3	31.3	27.3	30.8	33.0	28.4
MT	28.8	39.6	17.3	28.0	38.5	17.1	29.0	38.1	19.6	30.3	38.7	21.6	32.5	39.4	24.9
NL	36.1	40.1	32.0	37.2	40.6	33.6	38.7	41.8	35.5	39.0	41.8	36.2	39.8	42.4	37.0
AT	33.5	37.1	29.7	33.6	36.5	30.6	36.0	39.1	32.8	36.3	38.9	33.6	37.0	39.3	34.5
PL	31.4	33.5	29.1	30.3	32.6	27.8	30.2	32.8	27.5	31.6	34.1	29.0	32.2	34.7	29.6
PT	36.1	39.3	32.7	36.3	39.1	33.3	37.0	39.3	34.6	36.9	38.6	35.1	36.6	38.3	34.9
RO	35.3	36.9	33.6	31.9	34.1	29.7	31.8	34.2	29.3	31.6	34.2	28.9	32.0	34.6	29.2
SI	32.0	33.9	30.0	33.2	34.8	31.4	33.9	35.6	32.1	34.2	35.9	32.6	33.7	35.2	32.1
SK	32.6	35.2	29.8	32.6	35.2	29.8	32.0	34.9	29.0	32.4	35.2	29.5	32.9	35.6	30.0
FI	36.7	37.5	35.8	36.5	37.3	35.7	36.8	37.4	36.2	36.8	37.5	36.2	37.2	37.7	36.6
SE	38.3	39.3	37.2	38.4	39.5	37.3	39.8	41.0	38.5	40.0	41.6	38.4	40.9	42.1	39.6
UK	36.7	40.0	33.2	37.1	40.2	33.8	37.7	40.9	34.4	37.9	40.8	34.8	38.4	41.1	35.5

Data source: Eurostat

Table A2-15: Part-time employment by age groups (25-49 and 50-69) and average age at which people first received an old-age pension (years), 2012

MS	Part time employment by age group (as share of total employment)						Average age at which people first received an old-age pension (years)		
	25-49			50-69			Total	Men	Women
	Total	Men	Women	Total	Men	Women			
EU-28	17.0	6.1	29.9	21.8	10.9	35.1	59.1	59.4	58.8
BE	22.0	6.0	40.4	32.1	15.6	53.8	60.8	60.9	60.6
BG	1.8	1.7	1.8	3.1	2.5	3.7	57.5	58.1	57.0
CZ	4.0	1.2	7.7	8.1	5.3	11.7	58.9	60.8	57.7
DK	17.2	7.7	27.6	21.5	11.6	33.0	62.0	62.2	61.7
DE	25.2	7.6	45.6	29.6	11.5	50.9	61.1	61.2	61.0
EE	7.0	3.5	11.0	12.4	6.2	17.3	59.5	60.7	58.7
IE	19.3	9.9	29.7	27.4	14.4	44.2	60.9	60.9	60.8
EL	7.3	4.5	11.1	6.8	3.8	11.9	57.8	58.0	57.5
ES	14.0	6.0	23.5	11.5	4.4	20.8	61.8	61.7	61.9
FR	16.1	4.8	28.5	20.6	9.1	32.9	58.9	58.6	59.3
HR	4.3	3.5	5.2	11.6	9.5	14.3	57.7	60.1	56.0
IT	17.5	6.1	32.9	13.6	6.7	24.1	58.0	57.8	58.4
CY	8.4	5.2	11.6	11.9	9.2	15.8	61.5	61.2	61.9
LV	7.0	4.9	9.1	11.4	9.2	13.1	59.5	60.5	58.9
LT	7.7	5.9	9.3	10.8	8.7	12.7	59.5	60.6	58.9
LU	16.9	3.3	33.5	22.9	6.7	46.1	58.9	58.7	59.3
HU	5.5	3.3	8.3	9.8	7.9	11.8	58.5	59.8	57.5
MT	11.3	2.8	24.5	16.5	10.0	36.5	59.1	59.1	58.8
NL	42.6	15.4	73.1	48.8	25.2	80.3	62.7	62.7	62.7
AT	26.0	6.7	47.2	26.6	10.4	47.2	58.5	59.3	57.8
PL	5.1	2.6	8.1	11.2	7.9	15.3	57.0	58.5	56.1
PT	8.1	5.7	10.6	20.3	16.8	24.2	59.9	59.6	60.3
RO	7.3	7.1	7.5	13.8	11.6	16.6	56.9	58.0	56.0
SI	6.0	3.5	8.7	11.2	8.4	14.8	56.6	58.3	55.2
SK	3.2	2.2	4.5	5.5	3.9	7.6	57.4	59.8	56.1
FI	9.3	4.7	14.5	16.3	13.9	18.7	61.4	61.4	61.5
SE	21.3	9.3	34.7	27.0	16.0	39.3	63.6	63.6	63.6
UK	21.8	6.6	39.6	31.2	17.0	47.6	58.3	58.0	58.6

Data source: Eurostat, Labour force survey statistics – transition from work to retirement, July 2014.

Table A2-16: Gender gap (difference between women and men) in employment rate for people aged 55-64, percentage points

MS	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Change (2004-2014), p.p.
EU-28	18.7	17.9	17.8	17.9	18.1	16.9	16.0	15.0	14.5	14.1	13.7	-5.0
BE	18.1	19.6	17.7	16.9	16.5	15.2	16.4	14.4	12.9	11.9	11.4	-6.7
BG	17.2	20.0	18.4	17.3	18.1	14.9	12.6	11.1	9.5	8.5	8.5	-8.7
CZ	27.1	28.4	27.4	26.1	27.5	24.6	22.9	21.7	21.3	21.1	21.0	-6.1
DK	15.1	12.1	12.8	12.0	13.7	13.2	9.7	8.5	10.1	9.7	11.3	-3.8
DE	16.7	16.0	15.8	16.0	15.7	15.2	14.5	13.9	13.7	12.3	11.4	-5.3
EE	-4.0	1.4	-2.0	-1.7	4.2	-1.8	-3.4	-0.6	-2.3	-2.2	2.0	6.0
IE	30.7	28.4	27.9	28.1	25.2	20.1	16.1	14.2	13.1	15.9	16.7	-14.0
EL	32.3	32.9	32.6	32.1	31.7	30.0	27.4	24.8	21.6	20.0	19.0	-13.3
ES	33.3	31.7	31.3	29.4	29.3	24.3	21.4	18.2	16.1	14.2	13.4	-19.9
FR	9.7	5.8	4.7	4.5	4.7	4.9	4.8	5.1	5.8	5.3	3.5	-6.2
HR	19.6	19.2	18.7	24.5	22.5	19.6	22.0	21.9	20.3	14.0	18.5	-1.1
IT	23.2	21.9	21.9	22.0	21.4	21.3	21.5	20.1	19.6	19.6	19.9	-3.3
CY	38.3	39.3	35.0	32.2	31.5	30.6	28.0	28.4	25.3	22.8	20.2	-18.1
LV	10.7	9.0	10.1	10.9	6.5	-1.2	-1.5	2.0	0.7	0.6	-0.1	-10.8
LT	17.4	17.6	10.3	13.2	12.8	7.7	6.6	6.9	7.4	4.9	4.5	-12.9
LU	16.1	13.4	10.9	7.0	9.4	17.1	16.4	15.7	13.1	15.9	14.8	-1.3
HU	13.3	13.9	14.6	14.3	12.4	12.4	9.2	7.4	9.7	12.7	14.4	1.1
MT	42.1	39.3	39.4	35.3	35.2	34.1	35.9	36.4	36.8	35.2	35.9	-6.2
NL	23.9	21.7	20.8	21.4	21.5	20.7	21.7	19.4	19.0	20.2	19.9	-4.0
AT	17.8	16.7	17.4	19.5	19.6	18.8	16.9	16.0	16.7	17.6	17.9	0.1
PL	15.2	16.2	19.4	22.0	23.4	22.4	21.0	20.6	20.1	20.3	20.2	5.0
PT	16.6	14.5	15.4	14.4	14.3	14.7	12.0	12.2	9.6	12.5	12.2	-4.4
RO	10.6	13.6	15.5	16.7	18.6	18.2	17.3	16.4	18.1	18.2	19.0	8.4
SI	21.6	24.6	23.5	23.1	23.6	21.6	21.0	16.8	15.7	16.6	12.8	-8.8
SK	30.6	32.2	30.9	31.3	32.5	28.8	25.3	21.1	20.0	17.6	15.9	-14.7
FI	1.9	0.1	0.5	0.1	1.3	-1.7	-1.3	-0.4	-3.1	-4.0	-4.6	-6.5
SE	4.3	5.3	5.4	5.9	6.7	6.5	7.1	6.3	6.7	6.6	5.0	0.7
UK	18.0	17.9	17.0	17.4	18.3	16.9	15.6	14.6	14.4	13.8	13.4	-4.6

Data source: own calculations based on data from Eurostat

Table A2-17: Gender gap (difference between women and men) in part-time employment (for people aged 20-64), percentage points

MS	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Change (2004-2014), p.p.
EU-28	23.2	23.6	23.7	23.7	23.5	23.5	23.6	23.6	23.7	23.8	23.5	0.3
BE	34.5	33.4	34.1	33.5	33.5	33.3	33.7	34.1	34.6	33.8	32.9	-1.7
BG	0.9	0.8	1.0	0.8	0.7	0.7	0.4	0.4	0.5	1.0	0.6	-0.3
CZ	6.2	6.4	6.4	6.2	6.2	6.4	6.8	6.6	6.4	7.5	7.0	0.7
DK	21.1	20.8	22.4	22.6	22.2	23.0	24.1	23.0	21.0	20.3	19.5	-1.6
DE	36.4	37.5	37.9	38.2	37.9	37.2	37.2	37.3	37.1	38.3	37.9	1.5
EE	3.8	4.6	5.9	6.4	5.5	6.3	7.2	8.6	8.2	6.9	5.2	1.5
IE	25.9	6.2	24.5	24.9	24.4	23.3	23.1	22.6	21.5	21.5	21.3	-4.6
EL	6.4	6.9	7.3	7.4	7.3	7.3	6.8	5.9	7.1	7.2	6.5	0.1
ES	15.2	19.0	18.3	18.1	17.9	17.6	17.4	17.0	17.5	17.5	17.9	2.6
FR	25.2	24.8	24.8	25.0	24.0	24.1	23.7	23.6	23.6	23.8	23.3	-1.9
HR	3.5	5.4	3.3	3.7	3.7	3.8	4.3	3.6	2.3	1.8	2.6	-0.8
IT	20.2	21.3	22.1	22.3	22.9	23.2	23.9	23.8	24.3	24.3	24.3	4.1
CY	9.0	10.1	8.5	7.3	7.3	7.5	6.6	6.1	6.5	7.1	6.3	-2.7
LV	5.6	4.1	3.0	2.9	3.3	2.6	3.3	3.2	4.4	3.9	4.3	-1.4
LT	3.6	3.7	4.0	3.2	3.4	2.4	2.5	3.2	3.7	3.9	4.2	0.6
LU	34.2	36.1	34.0	34.8	35.7	30.5	32.4	31.5	31.4	31.0	30.9	-3.3
HU	3.0	3.2	2.9	3.0	2.8	3.5	4.0	4.3	5.1	4.8	4.2	1.2
MT	13.5	15.8	17.0	20.5	20.8	18.9	19.2	20.0	20.4	20.0	21.7	8.2
NL	55.7	55.9	55.2	55.0	55.3	54.9	54.6	54.8	54.6	53.5	52.9	-2.8
AT	33.9	34.6	35.3	35.8	35.5	36.3	36.3	36.9	37.7	37.1	37.8	3.9
PL	5.8	6.6	6.2	6.2	6.0	6.0	6.1	5.9	6.2	6.0	6.0	0.3
PT	9.2	9.5	8.6	9.0	10.0	8.9	7.4	6.6	5.8	5.7	4.9	-4.4
RO	0.8	0.3	0.0	0.8	1.4	1.3	0.3	1.5	1.2	0.9	1.2	0.4
SI	4.0	4.0	4.4	3.5	4.2	4.5	6.0	5.2	6.0	6.3	7.0	3.0
SK	2.7	2.7	3.3	3.2	2.8	2.0	2.6	2.9	2.7	2.8	3.0	0.3
FI	9.0	9.1	9.6	9.7	9.0	9.3	9.4	9.1	9.6	9.8	9.4	0.4
SE	24.6	27.6	28.0	27.8	28.6	27.6	27.4	26.8	25.7	24.6	24.1	-0.5
UK	34.9	33.2	33.0	32.4	31.6	31.5	31.6	31.3	30.9	30.1	30.2	-4.7

Data source: own calculations based on data from Eurostat

Table A2-18: Gender pay gap¹⁶⁷ (difference between men and women) in hourly pay in unadjusted form in %¹⁶⁸

MS	%							Change (2007-2013), p.p.
	2007	2008	2009	2010	2011	2012	2013	
EU-28	:	:	:	16.1	16.4	16.5	16.4	:
BE	10.1	10.2	10.1	10.2	10.2	10.0	9.8	-0.3
BG	12.1	12.3	13.3	13.0	13.0	14.7	13.5	1.4
CZ	23.6	26.2	25.9	21.6	22.6	22.2	22.1	-1.5
DK	17.7	17.1	16.8	15.9	16.3	16.8	16.4	-1.3
DE	22.8	22.8	22.6	22.3	22.2	22.4	21.6	-1.2
EE	30.9	27.6	26.6	27.7	27.3	30.0	29.9	-1.0
IE	17.3	12.6	12.6	13.9	11.7	14.4	:	:
EL	21.5	22.0	:	15.0	:	:	:	:
ES	18.1	16.1	16.7	16.2	17.9	19.3	19.3	1.2
FR	17.3	16.9	15.2	15.6	15.6	15.4	15.2	-2.1
HR	:	:	:	5.7	3.4	2.9	7.4	:
IT	5.1	4.9	5.5	5.3	5.8	6.7	7.3	2.2
CY	22.0	19.5	17.8	16.8	16.4	16.2	15.8	-6.2
LV	13.6	11.8	13.1	15.5	13.6	13.8	14.4	0.8
LT	22.6	21.6	15.3	14.6	11.9	12.6	13.3	-9.3
LU	10.2	9.7	9.2	8.7	8.7	8.6	8.6	-1.6
HU	16.3	17.5	17.1	17.6	18.0	20.1	18.4	2.1
MT	7.8	9.2	7.7	7.2	6.2	6.5	5.1	-2.7
NL	19.3	18.9	18.5	17.8	17.9	16.9	16.0	-3.3
AT	25.5	25.1	24.3	24.0	23.7	23.4	23.0	-2.5
PL	14.9	11.4	8.0	4.5	5.5	6.4	6.4	-8.5
PT	8.5	9.2	10.0	12.8	12.8	14.8	13.0	4.5
RO	12.5	8.5	7.4	8.8	11.0	9.7	9.1	-3.4
SI	5.0	4.1	-0.9	0.9	2.3	2.5	3.2	-1.8
SK	23.6	20.9	21.9	19.6	20.5	21.5	19.8	-3.8
FI	20.2	20.5	20.8	20.3	19.6	19.4	18.7	-1.5
SE	17.8	16.9	15.7	15.4	15.8	15.9	15.2	-2.6
UK	20.8	21.4	20.6	19.5	20.1	19.1	19.7	-1.1

Data source: own calculations based on data from Eurostat [earn_gr_gpgr2]

¹⁶⁷ The unadjusted Gender Pay Gap (GPG) represents the difference between average gross hourly earnings of male paid employees and of female paid employees as a percentage of average gross hourly earnings of male paid employees.

¹⁶⁸ NACE Rev. 2 (structure of earnings survey methodology) [earn_gr_gpgr2]

Table A2-19: Gender gap (difference between men and women) in duration of working life¹⁶⁹, years

MS	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Change (2004-2013)
EU-28	6.4	6.4	6.2	6.2	6.1	5.9	5.7	5.5	5.4	5.2	-1.2
BE	6.5	6.5	6.1	5.9	5.6	5.4	5.1	5.0	5.1	4.6	-1.9
BG	3.2	3.5	3.0	3.2	3.6	3.6	3.2	2.6	2.4	2.5	-0.7
CZ	6.1	6.4	6.4	6.8	7.0	6.9	6.9	6.7	6.6	6.2	0.1
DK	4.0	3.7	3.3	3.4	3.5	3.2	3.2	3.1	2.9	2.6	-1.4
DE	6.1	6.2	5.8	5.8	5.7	5.5	5.3	5.0	5.0	4.7	-1.4
EE	0.7	0.4	0.8	1.4	1.8	1.3	0.6	0.7	0.9	0.9	0.2
IE	11.5	10.8	10.6	10.0	9.8	8.6	8.2	7.9	7.8	7.8	-3.7
EL	11.5	11.1	11.0	10.9	10.8	10.0	9.5	9.0	8.2	8.1	-3.4
ES	10.8	10.5	9.7	9.1	8.5	7.3	6.5	5.8	5.2	4.8	-6.0
FR	4.7	4.4	4.3	4.1	4.0	3.8	3.8	3.8	3.9	3.7	-1.0
HR	5.8	4.9	4.5	5.1	4.8	4.2	4.2	5.0	4.6	4.3	-1.5
IT	11.7	11.5	11.3	11.3	10.9	10.7	10.6	10.3	9.9	9.5	-2.2
CY	10.4	10.8	10.4	9.3	9.2	8.3	7.6	7.5	7.5	7.3	-3.1
LV	2.5	1.9	1.6	2.1	1.3	0.7	0.0	0.6	0.3	0.4	-2.1
LT	1.1	0.6	0.1	0.1	0.4	-0.2	-0.7	-0.2	-0.5	-0.1	-1.2
LU	8.2	8.1	7.5	7.0	6.8	7.6	7.1	6.7	6.1	6.5	-1.7
HU	4.9	4.7	4.8	4.9	4.8	4.6	4.0	4.4	4.3	4.6	-0.3
MT	21.4	20.1	19.8	18.5	17.6	17.4	17.1	16.7	15.3	14.5	-6.9
NL	7.0	6.8	6.6	6.3	6.0	5.8	5.6	5.3	5.2	5.4	-1.6
AT	5.9	6.2	6.1	6.3	5.9	5.2	5.3	5.4	5.2	4.8	-1.1
PL	4.8	4.9	5.3	5.3	5.4	5.4	5.1	5.2	5.1	5.1	0.3
PT	5.8	4.9	4.9	4.7	4.5	4.0	3.5	4.2	3.8	3.4	-2.4
RO	4.4	4.8	4.7	4.9	5.2	5.2	5.3	4.7	5.3	5.4	1.0
SI	3.4	3.8	3.3	3.5	3.0	3.1	3.3	3.0	2.8	3.1	-0.3
SK	5.4	6.1	6.1	5.9	5.7	6.1	5.7	6.0	5.9	5.6	0.2
FI	1.6	1.3	1.2	1.2	1.5	0.7	1.3	1.6	1.3	1.1	-0.5
SE	2.2	2.5	2.6	2.5	2.6	2.6	3.2	2.7	2.5	2.5	0.3
UK	6.4	6.5	6.3	6.5	6.5	6.1	6.0	5.8	5.9	5.6	-0.8

Data source: own calculations based on data from Eurostat

¹⁶⁹ In unadjusted form. Industry, construction and services (except public administration, defense, compulsory social security). Data source: Eurostat [earn_gr_ggpr2]

Table A2-20: Gender pension gap, 2012

MS	Gender Gap in Pensions (%)			Gender Gap in Pensions (%) : pensioners aged 65-79 years		Gender Gap in pension coverage rate
	<i>Pensioners aged 65-79 years</i>	<i>Pensioners aged 65+</i>	<i>Elderly aged 65-79 years</i>	<i>Median pension</i>	<i>Mean pension</i>	<i>Persons aged 65-79</i>
EU-27	40.2	38.5	44.3	44.9	40.2	6.8
BE	27.0	27.5	40.9	20.6	27.0	18.8
BG	36.2	35.3	36.3	36.8	36.2	0.2
CZ	14.3	13.7	13.8	11.2	14.3	-0.7
DK	6.5	9.2	6.5	1.2	6.5	3.9
DE	44.6	45.1	46.8	44.9	44.6	3.9
EE	3.6	5.2	3.6	0.9	3.6	0.0
IE	41.0	38.2	52.5	29.0	41.0	18.5
EL	22.6	25.1	32.7	22.8	22.6	12.3
ES	33.2	32.2	52.1	34.8	33.2	27.7
FR	37.6	36.8	38.9	32.7	37.6	2.1
HR	24.2	25.2	23.5	33.3	24.2	-0.8
IT	35.7	31.3	45.7	40.5	35.7	15.4
CY	37.7	35.2	37.3	35.6	37.7	-0.7
LV	15.7	16.2	15.2	10.5	15.7	-0.6
LT	12.1	12.3	10.8	10.9	12.1	-1.4
LU	45.5	43.6	47.5	50.4	45.5	3.6
HU	15.3	15.7	15.6	12.3	15.3	0.3
MT	18.5	18.8	48.8	22.6	18.5	36.5
NL	46.0	40.0	45.9	48.4	46.0	-0.2
AT	41.8	38.9	49.1	45.6	41.8	12.1
PL	24.3	24.6	25.3	25.9	24.3	1.4
PT	34.5	32.0	37.3	31.9	34.5	4.2
RO	28.9	30.7	33.9	30.1	28.9	6.9
SI	22.3	25.6	15.3	23.2	22.3	-7.6
SK	8.9	7.2	8.8	5.0	8.9	-0.1
FI	26.1	26.5	25.6	25.0	26.1	-0.7
SE	31.1	30.1	31.0	25.4	31.1	-0.1
UK	42.3	40.9	42.2	42.7	42.3	-0.1

Data source: ENEGE

Table A3-1: Aggregate replacement ratio (in 2005, 2008 and 2013), Benefit ratio (2013) and Gross aggregate replacement rate (2013)

Member State	Aggregate replacement ratio (1)									Benefit ratio (2)	Gross aggregate replacement rate (2)
	2005			2008			2013			2013	2013
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Total
EU-28	:	:	:	:	:	:	0.56	0.58	0.54	46.9*	47.5*
BE	0.42	0.45	0.47	0.45	0.44	0.47	0.47	0.47	0.49	42.5	:
BG	0.60	0.64	0.59	0.34	0.37	0.36	0.39	0.46	0.37	34.2	29.5
CZ	0.51	0.49	0.58	0.51	0.48	0.56	0.56	0.56	0.59	42.8	32.2
DK	0.35	0.32	0.39	0.41	0.38	0.44	0.44	0.42	0.46	42.5	39.7
DE	0.46	0.47	0.51	0.44	0.46	0.47	0.47	0.46	0.49	44.6	42.5
EE	0.47	0.40	0.54	0.45	0.37	0.54	0.50	0.40	0.58	30.4	40.1
IE	0.46	0.40	0.51	0.49	0.46	0.55	0.00	0.00	0.00	27.9	32.1
EL	0.49	0.56	0.47	0.41	0.48	0.44	0.60	0.60	0.67	65.6	38.7
ES	0.57	0.62	0.62	0.49	0.54	0.48	0.60	0.62	0.50	59.7	79.0
FR	0.57	0.62	0.52	0.65	0.28	0.91	0.64	0.64	0.62	51.3	50.6
HR	:	:	:	0.47	0.56	0.43	0.37	0.39	0.37	30.8	27.9
IT	0.58	0.64	0.49	0.51	0.58	0.39	0.62	0.65	0.51	58.8	:
CY	0.29	0.34	0.34	0.33	0.38	0.37	0.40	0.45	0.39	64.4	:
LV	0.61	0.55	0.69	0.30	0.25	0.34	0.47	0.46	0.51	27.7	33.4
LT	0.47	0.50	0.44	0.44	0.45	0.46	0.48	0.48	0.51	35.1	:
LU	0.63	0.58	0.58	0.58	0.54	0.59	0.78	0.76	0.91	51.3	:
HU	0.61	0.60	0.64	0.61	0.61	0.61	0.61	0.66	0.58	40.8	33.0
MT	0.47	0.47	0.38	0.41	0.43	0.39	0.56	0.57	0.45	48.3	49.4
NL	0.43	0.48	0.52	0.43	0.49	0.51	0.49	0.55	0.46	35.9	29.8
AT	0.69	0.70	0.69	0.61	0.61	0.56	0.59	0.63	0.57	41.2	51.0
PL	0.58	0.66	0.57	0.56	0.65	0.53	0.60	0.68	0.60	47.9	53.0
PT	0.60	0.58	0.64	0.51	0.66	0.49	0.59	0.67	0.59	61.8	:
RO	:	:	:	0.49	0.54	0.45	0.65	0.72	0.65	37.0	:
SI	0.42	0.52	0.38	0.44	0.50	0.40	0.46	0.50	0.43	33.8	:
SK	0.55	0.53	0.56	0.54	0.54	0.55	0.61	0.59	0.66	45.7	51.7
FI	0.46	0.46	0.46	0.49	0.48	0.49	0.49	0.50	0.49	52.1	:
SE	0.60	0.62	0.56	0.62	0.64	0.58	0.58	0.62	0.54	42.1	35.6
UK	0.42	0.42	0.43	0.43	0.45	0.44	0.53	0.54	0.53	36.4	:

Data sources: (1) Eurostat; (2) The 2015 Ageing Report. Note: Ratio of income from pensions of persons aged between 65 and 74 years and income from work of persons aged between 50 and 59 years; : - not available; * - weighted average

Table A3-2: Current Theoretical Replacement Rates (Base case I and Base case II), 2013

MS	Base case I: 40 years up to age 65												Base case II: 40 years up to the SPA												
	Low				Average				High				Low				Average				High				
	Net		Gross		Net		Gross		Net		Gross		Net		Gross		Net		Gross		Net		Gross		
	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	
BE	93.3	93.3	63.1	63.1	78.6	78.6	54.4	54.4	58.7	58.7	37.1	37.1	93.3	93.3	63.1	63.1	78.6	78.6	54.4	54.4	58.7	58.7	37.1	37.1	
BG	62.9	70.0	49.3	54.9	62.3	69.3	48.5	54.3	54.0	61.3	43.2	48.0	57.9	57.9	45.4	45.4	57.3	57.3	44.9	44.9	50.6	50.6	39.7	39.7	
CZ	78.5	90.6	64.7	74.7	62.2	72.1	48.8	56.5	40.7	47.5	30.3	35.3	70.4	70.4	58.0	58.0	55.6	55.6	43.5	43.5	36.2	36.2	26.9	26.9	
DK	94.1	94.1	69.6	69.6	68.4	68.4	47.7	47.7	40.8	40.8	26.3	26.3	94.1	94.1	69.6	69.6	68.4	68.4	47.7	47.7	40.8	40.8	26.3	26.3	
DE	51.6	51.6	39.9	39.9	57.0	57.0	39.9	39.9	48.9	48.9	29.9	29.9	51.9	51.9	40.1	40.1	57.3	57.3	40.1	40.1	49.2	49.2	30.1	30.1	
EE	85.4	107.2	65.2	83.8	61.9	77.1	46.1	58.4	36.1	44.2	26.4	32.4	70.2	88.2	53.6	68.9	50.9	63.4	37.9	48.0	29.7	36.3	21.6	26.7	
IE	100.6	100.6	91.5	91.5	83.1	83.1	72.9	72.9	62.5	62.5	45.5	45.5	100.6	100.6	91.5	91.5	83.1	83.1	72.9	72.9	62.5	62.5	45.5	45.5	
EL	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
ES	97.4	97.4	88.2	88.2	96.2	96.2	88.2	88.2	86.3	86.3	76.8	76.8	97.4	97.4	88.2	88.2	96.2	96.2	88.2	88.2	86.3	86.3	76.8	76.8	
FR	80.2	80.2	67.9	67.9	80.2	80.2	67.9	67.9	56.2	56.2	48.0	48.0	80.2	80.2	67.9	67.9	80.2	80.2	67.9	67.9	56.2	56.2	48.0	48.0	
HR	59.5	64.1	44.6	48.0	55.5	59.7	38.5	41.5	45.1	48.3	28.9	31.1	59.5	59.5	44.6	44.6	55.5	55.5	38.5	38.5	45.1	45.1	28.9	28.9	
IT	80.8	80.8	70.8	70.8	80.2	80.2	70.8	70.8	63.9	63.9	52.8	52.8	80.9	80.6	70.9	70.6	80.3	80.0	70.9	70.6	64.0	63.7	52.9	52.6	
CY	64.0	64.0	60.0	60.0	58.0	58.0	52.0	52.0	50.0	50.0	40.0	40.0	64.0	64.0	60.0	60.0	58.0	58.0	52.0	52.0	50.0	50.0	40.0	40.0	
LV	95.0	95.0	69.2	69.2	71.9	71.9	52.9	52.9	57.2	57.2	44.8	44.8	85.9	85.9	61.0	61.0	65.0	65.0	46.6	46.6	51.2	51.2	39.5	39.5	
LT	77.5	88.3	61.8	70.3	61.6	70.0	47.6	54.2	39.6	44.9	30.0	34.1	76.2	76.0	60.8	60.7	52.6	52.4	40.7	40.6	33.9	33.7	25.7	25.6	
LU	109.3	109.3	98.7	98.7	105.4	105.4	92.4	92.4	75.7	75.7	65.2	65.2	106.0	106.0	95.1	95.1	102.5	102.5	88.8	88.8	73.3	73.3	62.6	62.6	
HU	107.0	107.0	70.1	70.1	100.8	100.8	65.6	65.6	80.3	80.3	50.7	50.7	90.7	90.7	59.4	59.4	85.4	85.4	55.6	55.6	68.1	68.1	43.0	43.0	
MT	78.5	78.5	66.9	66.9	79.0	79.0	65.8	65.8	44.8	44.8	34.1	34.1	78.5	78.5	66.9	66.9	79.0	79.0	65.8	65.8	44.8	44.8	34.1	34.1	
NL	115.0	115.0	105.0	105.0	114.0	114.0	98.0	98.0	82.0	82.0	69.0	69.0	115.0	115.0	105.0	105.0	114.0	114.0	98.0	98.0	82.0	82.0	69.0	69.0	
AT	84.6	94.0	70.2	80.3	85.1	93.7	70.2	80.2	77.2	84.9	64.0	72.0	84.6	84.6	70.2	70.2	85.1	85.1	70.2	70.2	77.2	77.2	64.0	64.0	
PL	85.8	85.8	74.6	74.6	74.2	74.2	64.1	64.1	59.8	59.8	51.5	51.5	85.8	83.9	74.6	72.8	74.2	73.1	64.1	63.1	59.8	54.2	51.5	46.6	
PT	90.0	90.0	74.8	74.8	92.3	92.3	74.7	74.7	85.0	85.0	68.8	68.8	90.0	90.0	74.7	74.7	92.3	92.3	74.7	74.7	85.0	85.0	68.8	68.8	
RO	84.1	72.3	62.7	51.8	73.1	62.1	55.4	45.9	61.4	51.2	47.5	38.6	84.1	72.3	62.7	51.8	73.1	62.1	55.4	45.9	61.4	51.2	47.5	38.6	
SI	66.4	69.8	45.7	48.1	57.3	60.3	39.4	41.5	57.3	60.3	39.4	41.5	66.4	69.8	45.7	48.1	57.3	60.3	39.4	41.5	57.3	60.3	39.4	41.5	
SK	78.9	80.9	63.9	65.6	76.0	77.9	58.8	60.3	62.0	63.6	45.9	47.1	66.9	66.9	54.2	54.2	64.4	64.4	49.8	49.8	52.6	52.6	38.9	38.9	
FI	81.3	81.3	73.2	73.2	69.5	69.5	62.2	62.2	62.6	62.6	54.6	54.6	81.3	81.3	73.2	73.2	69.5	69.5	62.2	62.2	62.6	62.6	54.6	54.6	
SE	91.2	91.2	77.8	77.8	69.3	69.3	69.4	69.4	74.6	74.6	68.1	68.1	91.2	91.2	77.8	77.8	69.3	69.3	69.4	69.4	74.6	74.6	68.1	68.1	
UK	92.7	101.8	76.0	93.9	83.4	88.0	66.4	80.2	57.9	59.8	43.4	51.2	92.7	83.3	76.0	67.4	83.4	73.4	66.4	57.8	57.9	50.8	43.4	37.8	

Data source: Member States; Note: M – men, W – women; : - not available (not provided by the Member State)

Table A3-3: Current Theoretical Replacement Rates (cases of "Increased SPA" and "AWG career length"), 2013

MS	Increased SPA: from age 25 to SPA								AWG career length case							
	Low				Average				Low				Average			
	Net		Gross		Net		Gross		Net		Gross		Net		Gross	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
BE	93.3	93.3	63.1	63.1	78.6	78.6	54.4	54.4	84.0	80.0	56.3	53.5	73.0	71.9	47.7	46.5
BG	55.9	50.6	43.8	40.4	55.3	51.1	43.4	40.0	59.8	58.4	46.9	45.8	59.2	57.8	46.4	45.3
CZ	66.3	62.3	54.7	51.4	52.2	48.9	40.9	38.4	73.1	73.1	60.3	60.3	57.8	57.8	45.3	45.3
DK	94.1	94.1	69.6	69.6	68.4	68.4	47.7	47.7	94.1	107.8	69.6	87.2	68.4	75.7	47.7	58.6
DE	52.1	52.1	40.3	40.3	57.6	57.6	40.3	40.3	56.8	50.1	43.9	38.8	62.8	55.4	43.9	38.8
EE	68.6	85.6	52.4	67.0	49.2	61.0	36.7	46.2	70.2	89.6	53.6	70.1	50.9	64.2	37.9	49.1
IE	100.6	100.6	91.5	91.5	83.1	83.1	72.9	72.9	100.0	100.0	91.5	91.5	82.6	82.6	72.9	72.9
EL	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
ES	97.4	97.4	88.2	88.2	96.2	96.2	88.2	88.2	86.4	91.4	74.3	82.0	81.7	89.1	74.3	82.0
FR	80.2	80.2	67.9	67.9	80.2	80.2	67.9	67.9	72.9	63.6	61.6	53.9	74.1	63.6	62.7	53.9
HR	59.5	53.2	44.6	39.8	55.5	49.6	38.5	34.4	55.9	55.7	41.9	41.7	52.1	51.9	36.2	36.1
IT	84.5	76.3	74.5	66.2	83.9	75.7	74.5	66.2	72.6	69.4	63.1	59.8	72.1	68.9	63.1	59.8
CY	64.0	64.0	60.0	60.0	58.0	58.0	52.0	52.0	64.0	67.0	60.0	62.0	58.0	55.0	52.0	51.0
LV	78.2	78.2	55.5	55.5	61.1	61.1	43.0	43.0	98.3	94.0	72.3	68.3	73.8	70.9	54.6	52.0
LT	62.8	59.6	50.1	47.5	49.9	47.3	38.6	36.6	67.0	68.9	53.4	55.0	53.3	54.7	41.2	42.4
LU	96.4	96.4	84.8	84.8	93.5	93.5	78.5	78.5	102.6	100.4	91.3	89.0	99.3	97.3	85.0	82.8
HU	85.6	85.6	56.1	56.1	80.6	80.6	52.5	52.5	96.1	90.7	63.0	59.4	90.6	85.5	58.9	55.6
MT	78.5	78.5	66.9	66.9	79.0	79.0	65.8	65.8	78.5	78.9	66.9	67.3	79.0	79.0	65.8	66.2
NL	115.0	115.0	105.0	105.0	114.0	114.0	98.0	98.0	115.0	115.0	105.0	105.0	114.0	114.0	98.0	98.0
AT	84.6	74.0	70.2	61.4	85.1	77.1	70.2	61.4	81.6	86.7	67.7	72.0	82.9	86.7	67.7	72.1
PL	87.0	76.7	75.7	66.4	75.5	66.6	65.2	57.4	93.6	75.7	81.5	65.5	82.3	65.7	71.3	56.6
PT	90.0	90.0	74.8	74.8	92.3	92.3	74.7	74.7	86.2	83.6	71.3	71.4	87.4	86.4	71.3	71.4
RO	81.2	67.4	62.2	56.3	71.3	59.5	52.4	41.2	78.7	66.2	58.3	53.6	68.1	57.1	50.4	40.9
SI	64.2	64.8	44.2	44.6	55.4	55.9	38.1	38.5	63.5	64.0	43.7	44.1	54.8	55.3	37.7	38.1
SK	61.9	61.0	50.1	49.4	59.6	58.8	46.1	45.4	65.2	50.4	52.8	40.9	62.8	48.6	48.6	37.6
FI	81.3	81.3	73.2	73.2	69.5	69.5	62.2	62.2	77.3	76.6	68.7	67.4	65.5	63.8	58.2	56.4
SE	91.2	91.2	77.8	77.8	69.3	69.3	69.4	69.4	92.4	90.6	82.6	78.0	75.1	70.5	76.2	70.7
UK	92.7	81.2	76.0	66.7	83.4	71.4	66.4	57.2	93.1	96.8	76.4	88.8	84.0	83.7	66.9	75.9

Data source: Member States; Note: M – men, W – women; : - not available (not provided by the Member State)

Table A3-4: Estimates of pension wealth, 2012

MS	Gender gap in pensions	Age at which first pension is drawn		Life expectancy at 65		Length of retirement		Gender gap in pension wealth		
		Men	Women	Men	Women	Men	Women	Discount rate:		
								2 %	3 %	5 %
BE	27.0	60.9	60.6	17.6	21.1	21.7	25.5	17.1	18.3	20.4
BG	36.2	58.1	57.0	14.0	17.3	20.9	25.3	25.8	27.1	29.2
CZ	14.3	60.8	57.7	15.7	19.2	19.9	26.5	-7.4	-4.6	0.0
DK	6.5	62.2	61.7	18.0	21.0	20.8	24.3	-5.7	-4.3	-1.8
DE	44.6	61.2	61.0	17.5	20.2	21.3	24.2	38.7	39.4	40.6
EE	3.6	60.7	58.7	14.9	20.1	19.2	26.4	-24.1	-20.6	-14.8
IE	41.0	60.9	60.8	18.1	21.0	22.2	25.2	34.8	35.6	36.9
EL	22.6	58.0	57.5	18.0	20.8	25.0	28.3	15.0	16.0	17.8
ES	33.2	61.7	61.9	18.6	22.5	21.9	25.6	24.5	25.6	27.4
FR	37.6	58.6	59.3	18.9	22.9	25.3	28.6	31.5	32.4	33.8
HR	24.2	60.1	56.0	15.0	18.7	19.9	27.7	1.8	4.7	9.6
IT	35.7	57.8	58.4	18.4	22.0	25.6	28.6	30.1	30.9	32.2
CY	37.7	61.2	61.9	18.3	20.8	22.1	23.9	33.8	34.2	35.0
LV	15.7	60.5	58.9	13.8	18.4	18.3	24.5	-6.6	-3.9	0.5
LT	12.1	60.6	58.9	14.3	19.2	18.7	25.3	-12.0	-9.1	-4.2
LU	45.5	58.7	59.3	18.6	22.0	24.9	27.7	40.9	41.5	42.6
HU	15.3	59.8	57.5	14.5	18.1	19.7	25.6	-4.3	-1.9	2.2
MT	18.5	59.1	58.8	18.1	21.3	24.0	27.5	9.5	10.8	12.8
NL	46.0	62.7	62.7	18.0	20.9	20.3	23.2	39.9	40.6	41.8
AT	41.8	59.3	57.8	17.9	21.2	23.6	28.4	33.0	34.2	36.2
PL	24.3	58.5	56.1	15.4	19.6	21.9	28.5	7.2	9.5	13.3
PT	34.5	59.6	60.3	17.6	21.2	23.0	25.9	28.1	29.0	30.3
RO	28.9	58.0	56.0	14.5	17.7	21.5	26.7	15.8	17.5	20.3
SI	22.3	58.3	55.2	17.1	20.9	23.8	30.7	5.8	8.2	12.1
SK	8.9	59.8	56.1	14.7	18.4	19.9	27.3	-16.8	-13.5	-7.9
FI	26.1	61.4	61.5	17.8	21.4	21.4	24.9	16.8	17.9	19.8
SE	31.1	63.6	63.6	18.6	21.1	20.0	22.5	24.2	25.0	26.3
UK	42.3	58.0	58.6	18.4	20.8	25.4	27.2	39.2	39.6	40.3

Data sources: own calculations, ENEGE, Eurostat

Table A5-1: Prospective Theoretical Replacement Rates (Base case I and Base case II), 2053

MS	Base case I: 40 years up to age 65												Base case II: 40 years up to the SPA											
	Low				Average				High				Low				Average				High			
	Net		Gross		Net		Gross		Net		Gross		Net		Gross		Net		Gross		Net		Gross	
	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W
BE	82.7	82.7	86.5	86.5	74.7	74.7	49.5	49.5	54.9	54.9	33.6	33.6	82.7	82.7	56.5	56.5	74.7	74.7	49.5	49.5	54.9	54.9	33.6	33.6
BG	83.3	90.8	62.5	68.1	83.3	90.8	62.5	68.1	38.1	37.1	38.2	37.2	83.3	78.7	62.5	59.9	83.3	78.7	62.5	59.9	38.1	36.2	38.2	36.3
CZ	64.0	64.0	50.9	50.9	50.9	50.9	38.3	38.3	31.1	31.1	22.4	22.4	72.8	72.8	57.9	57.9	58.1	58.1	43.8	43.8	35.6	35.6	25.7	25.7
DK	:	:	:	:	:	:	:	:	:	:	:	:	95.3	95.3	81.6	81.6	73.3	73.3	63.5	63.5	73.3	73.3	60.2	60.2
DE	66.7	66.7	49.5	49.5	67.6	67.6	49.5	49.5	50.7	50.7	36.9	36.9	74.3	74.3	56.4	56.4	67.3	67.3	49.2	49.2	55.5	55.5	36.7	36.7
EE	64.7	64.7	52.1	52.1	55.9	55.9	46.7	46.7	37.0	37.0	31.6	31.6	64.7	64.7	52.1	52.1	55.9	55.9	46.7	46.7	36.9	36.9	31.6	31.6
IE	34.3	34.3	29.9	29.9	38.4	38.4	29.9	29.9	41.5	41.5	20.0	20.0	82.2	82.2	78.0	78.0	68.7	68.7	62.7	62.7	65.0	65.0	38.5	38.5
EL	51.4	51.4	56.2	56.2	47.0	47.0	47.2	47.2	51.4	51.4	56.2	56.2	39.2	39.2	38.7	38.7	43.0	43.0	46.1	46.1	29.0	29.0	26.3	26.3
ES	87.8	87.8	79.5	79.5	86.8	86.8	79.5	79.5	75.7	75.7	67.1	67.1	87.8	87.8	79.5	79.5	86.8	86.8	79.5	79.5	75.7	75.7	67.1	67.1
FR	59.8	59.8	50.4	50.4	59.8	59.8	50.4	50.4	43.0	43.0	36.6	36.6	66.0	66.0	55.6	55.6	66.0	66.0	55.6	55.6	47.3	47.3	40.3	40.3
HR	49.1	49.1	36.8	36.8	40.2	40.2	27.9	27.9	32.6	32.6	20.9	20.9	50.8	50.8	38.0	38.0	41.7	41.7	29.0	29.0	33.8	33.8	21.6	21.6
IT	70.8	70.8	60.7	60.7	70.2	70.2	60.7	60.7	79.2	79.2	69.1	69.1	82.9	82.9	73.0	73.0	82.3	82.3	73.0	73.0	99.2	99.2	90.2	90.2
CY	:	:	:	:	:	:	:	:	:	:	:	:	70.0	70.0	63.0	63.0	70.0	70.0	61.0	61.0	59.0	59.0	47.0	47.0
LV	51.7	51.7	43.9	43.9	51.2	51.2	43.9	43.9	38.2	38.2	32.8	32.8	51.7	51.7	43.9	43.9	51.2	51.2	43.9	43.9	38.2	38.2	32.8	32.8
LT	86.4	86.4	67.7	67.7	71.3	71.3	53.9	53.9	47.2	47.2	34.9	34.9	86.4	86.4	67.7	67.7	71.3	71.3	53.9	53.9	47.2	47.2	34.9	34.9
LU	101.3	101.3	90.9	90.9	95.3	95.3	83.6	83.6	72.4	72.4	59.2	59.2	96.7	96.7	85.8	85.8	91.1	91.1	78.6	78.6	69.0	69.0	55.4	55.4
HU	81.9	81.9	53.7	53.7	81.9	81.9	53.7	53.7	61.4	61.4	40.2	40.2	81.9	81.9	53.7	53.7	81.9	81.9	53.7	53.7	61.4	61.4	40.2	40.2
MT	82.4	82.4	70.5	70.5	73.8	73.8	60.8	60.8	38.6	38.6	30.4	30.4	82.4	82.4	70.5	70.5	73.8	73.8	60.8	60.8	38.6	38.6	30.4	30.4
NL	21.3	21.3	25.7	25.7	47.6	47.6	42.8	42.8	37.2	37.2	40.4	40.4	92.2	92.2	94.0	94.0	90.6	90.6	87.9	87.9	55.1	55.1	62.9	62.9
AT	85.5	85.5	71.2	71.2	86.1	86.1	71.2	71.2	67.1	67.1	53.4	53.4	85.5	85.5	71.2	71.2	86.1	86.1	71.2	71.2	67.1	67.1	53.4	53.4
PL	38.1	38.1	31.8	31.8	37.7	37.7	31.8	31.8	29.0	29.0	24.5	24.5	41.1	41.1	34.4	34.4	40.7	40.7	34.4	34.4	32.2	32.2	27.4	27.4
PT	64.8	64.8	52.6	52.6	66.5	66.5	52.1	52.1	51.3	51.3	36.2	36.2	77.6	77.6	64.1	64.1	79.5	79.5	63.5	63.5	60.8	60.8	44.8	44.8
RO	43.6	46.6	33.8	36.1	41.1	43.9	31.8	34.0	16.7	16.7	17.4	17.4	43.6	41.8	33.8	32.4	41.1	40.1	31.8	31.0	21.3	20.8	17.1	16.6
SI	61.7	65.0	41.1	43.3	60.9	63.6	38.7	40.7	39.9	41.7	30.4	32.0	61.7	65.0	41.1	43.3	60.9	63.6	38.7	40.7	39.9	39.0	30.4	29.7
SK	62.4	62.4	51.2	51.2	59.5	59.5	46.7	46.7	49.0	49.0	27.6	27.6	69.4	69.4	57.0	57.0	66.1	66.1	51.8	51.8	54.0	54.0	30.4	30.4
FI	62.5	62.5	52.5	52.5	59.1	59.1	50.8	50.8	49.8	49.8	39.9	39.9	62.5	62.5	52.5	52.5	59.1	59.1	50.8	50.8	49.8	49.8	39.9	39.9
SE	68.9	68.9	65.1	65.1	55.3	55.3	55.1	55.1	50.9	50.9	45.4	45.4	68.9	68.9	65.1	65.1	55.3	55.3	55.1	55.1	50.9	50.9	45.4	45.4
UK	33.6	33.6	26.8	26.8	35.9	35.9	26.8	26.8	27.8	27.8	18.9	18.9	90.6	90.6	74.9	74.9	76.1	76.1	60.0	60.0	49.4	49.4	36.2	36.2

Data source: Member States (BE, DK, ES, FR, HR, IT, CY, LT, HU, MT, AT, PL, FI, SE, UK) and the OECD; Note: M – men, W – women; : - not available

Table A5-2: Prospective Theoretical Replacement Rates (cases of "Increased SPA" and "AWG career length"), 2053

MS	Increased SPA: from age 25 to SPA								AWG career length case							
	Low				Average				Low				Average			
	Net		Gross		Net		Gross		Net		Gross		Net		Gross	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
BE	82.7	82.7	56.5	56.5	74.7	74.7	49.5	49.5	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.
BG	83.3	75.7	62.5	56.7	83.3	75.7	62.5	56.7	85.7	75.7	64.3	56.7	85.7	75.7	64.3	56.7
CZ	76.9	76.9	61.1	61.1	61.4	61.4	46.3	46.3	72.6	72.6	57.7	57.7	57.9	57.9	43.7	43.7
DK	101.9	101.9	89.9	89.9	81.7	81.7	71.4	71.4	102.7	100.0	90.8	88.0	77.3	74.6	67.3	64.6
DE	76.4	76.4	57.3	57.3	74.4	74.4	56.1	56.1	77.4	72.0	58.2	53.4	76.6	71.8	58.2	53.4
EE	64.7	64.7	52.1	52.1	55.9	55.9	46.7	46.7	68.4	66.6	55.8	54.0	59.7	57.8	50.5	48.6
IE	84.2	84.2	81.2	81.2	71.4	71.4	65.8	65.8	40.0	38.9	34.8	33.9	44.6	43.4	34.8	33.9
EL	51.4	51.4	56.2	56.2	47.0	47.0	47.2	47.2	53.2	52.4	58.3	57.4	49.7	48.6	50.0	48.9
ES	87.8	87.8	79.5	79.5	86.8	86.8	79.5	79.5	86.0	85.5	74.0	76.8	81.3	83.4	74.0	76.8
FR	69.0	69.0	58.1	58.1	69.0	69.0	58.1	58.1	65.4	56.4	55.1	47.5	65.4	56.4	55.1	47.5
HR	52.9	52.9	39.6	39.6	43.5	43.5	30.2	30.2	48.0	43.5	36.0	32.6	39.2	35.8	27.2	24.8
IT	89.6	89.6	80.1	80.1	89.3	89.3	80.1	80.1	81.6	77.4	69.4	67.4	78.7	76.8	69.4	67.4
CY	73.0	73.0	66.0	66.0	75.0	75.0	66.0	66.0	69.0	68.0	62.0	61.0	71.0	68.0	62.0	61.0
LV	51.7	51.7	43.9	43.9	51.2	51.2	43.9	43.9	56.2	53.9	47.9	45.9	55.7	53.5	47.9	45.9
LT	86.4	86.4	67.7	67.7	71.3	71.3	53.9	53.9	89.7	82.1	70.3	64.3	74.3	67.8	56.0	51.2
LU	88.0	88.0	76.6	76.6	83.7	83.7	70.3	70.3	93.7	92.7	82.7	81.6	88.7	87.9	75.8	74.9
HU	81.9	81.9	53.7	53.7	81.9	81.9	53.7	53.7	87.3	80.4	57.2	52.7	87.3	80.4	57.2	52.7
MT	82.4	82.4	70.5	70.5	73.8	73.8	60.8	60.8	80.9	78.0	68.7	66.3	72.1	69.9	59.3	57.2
NL	93.3	93.3	95.3	95.3	92.5	92.5	90.0	90.0	97.9	24.3	100.9	28.3	101.1	51.8	99.3	47.0
AT	85.5	85.5	71.2	71.2	86.1	86.1	71.2	71.2	88.4	80.1	73.8	66.4	88.2	81.7	73.8	66.4
PL	43.0	43.0	36.2	36.2	43.4	43.4	36.8	36.8	48.2	41.2	40.9	34.6	47.9	40.8	40.9	34.6
PT	82.0	82.0	68.3	68.3	84.2	84.2	67.6	67.6	80.6	74.0	67.0	60.1	82.7	75.0	66.3	59.5
RO	43.6	40.8	33.8	31.6	41.1	39.1	31.8	30.2	43.6	40.8	33.5	31.3	41.1	39.1	31.5	30.0
SI	61.7	65.0	41.1	43.3	60.9	63.6	38.7	40.7	60.7	63.9	40.5	42.6	60.1	62.8	38.1	40.1
SK	73.1	73.1	60.3	60.3	69.6	69.6	54.6	54.6	65.9	60.7	54.4	50.1	63.0	57.9	49.6	45.6
FI	62.5	62.5	52.5	52.5	59.1	59.1	50.8	50.8	61.0	61.1	50.5	49.8	58.6	57.1	50.2	48.5
SE	68.9	68.9	65.1	65.1	55.3	55.3	55.1	55.1	69.4	76.0	69.2	65.7	59.0	55.9	59.2	55.9
UK	94.7	94.7	78.8	78.8	80.4	80.4	63.8	63.8	36.2	36.2	29.0	29.0	38.8	38.8	29.0	29.0

Data source: Member States (BE, DK, ES, FR, HR, IT, CY, LT, HU, MT, AT, PL, FI, SE, UK) and the OECD; Note: p.n.a. – pension not available

Table A5-3: Prospective Theoretical Replacement Rates ("Longer career I: from age 25 to 67" and "Shorter career I: from age 25 to 63"), 2053

MS	Longer career I: from age 25 to 67								Shorter career I: from age 25 to 63							
	Low				Average				Low				Average			
	Net		Gross		Net		Gross		Net		Gross		Net		Gross	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
BE	88.5	88.5	60.4	60.4	77.1	77.1	52.4	52.4	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.
BG	96.9	106.2	72.7	79.7	96.9	106.2	72.7	79.7	p.n.a.	73.8	p.n.a.	55.3	p.n.a.	73.8	p.n.a.	55.3
CZ	73.2	73.2	58.2	58.2	58.4	58.4	44.0	44.0	54.7	54.7	43.5	43.5	43.2	43.2	32.6	32.6
DK	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.
DE	75.7	75.7	56.7	56.7	74.4	74.4	56.1	56.1	58.7	58.7	43.6	43.6	61.0	61.0	43.6	43.6
EE	79.4	79.4	67.1	67.1	69.7	69.7	60.5	60.5	55.6	55.6	44.8	44.8	49.1	49.1	39.9	39.9
IE	38.9	38.9	33.9	33.9	43.4	43.4	33.9	33.9	30.4	30.4	26.4	26.4	34.0	34.0	26.4	26.4
EL	52.1	52.1	48.3	48.3	48.1	48.1	48.3	48.3	47.7	47.7	44.0	44.0	43.8	43.8	44.0	44.0
ES	90.7	90.7	85.9	85.9	90.9	90.9	85.9	85.9	79.7	79.7	67.6	67.6	74.7	74.7	67.6	67.6
FR	69.0	69.0	58.1	58.1	69.0	69.0	58.1	58.1	51.0	51.0	43.0	43.0	51.0	51.0	43.0	43.0
HR	52.9	52.9	39.6	39.6	43.5	43.5	30.2	30.2	42.9	42.9	32.1	32.1	35.2	35.2	24.4	24.4
IT	77.1	77.1	67.0	67.0	76.4	76.4	67.0	67.0	66.6	66.6	56.1	56.1	66.1	66.1	56.1	56.1
CY	65.0	65.0	59.0	59.0	65.0	65.0	57.0	57.0	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.
LV	57.8	57.8	49.3	49.3	57.4	57.4	49.3	49.3	49.0	49.0	41.5	41.5	48.5	48.5	41.5	41.5
LT	103.1	103.1	80.7	80.7	84.9	84.9	64.1	64.1	75.3	75.3	59.0	59.0	62.1	62.1	46.9	46.9
LU	101.3	101.3	90.9	90.9	95.3	95.3	83.6	83.6	96.4	96.4	85.6	85.6	91.2	91.2	78.7	78.7
HU	96.3	96.3	63.1	63.1	96.3	96.3	63.1	63.1	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.
MT	82.4	82.4	70.5	70.5	73.8	73.8	60.8	60.8	78.6	78.6	66.8	66.8	69.0	69.0	57.1	57.1
NL	113.2	113.2	95.3	95.3	92.5	92.5	90.0	90.0	19.8	19.8	24.5	24.5	45.4	45.4	40.7	40.7
AT	94.7	94.7	81.0	81.0	94.4	94.4	81.0	81.0	72.9	72.9	60.7	60.7	76.6	76.6	60.7	60.7
PL	43.7	43.7	36.8	36.8	43.4	43.4	36.8	36.8	36.3	36.3	30.2	30.2	35.9	35.9	30.2	30.2
PT	76.3	76.3	62.9	62.9	78.1	78.1	62.3	62.3	52.9	52.9	43.0	43.0	55.6	55.6	42.5	42.5
RO	49.2	49.2	38.1	38.1	45.8	45.8	35.5	35.5	42.4	42.4	32.8	32.8	40.5	40.5	31.3	30.2
SI	69.5	69.5	46.3	46.3	67.4	67.4	43.6	43.6	54.7	54.7	36.5	36.5	54.6	54.6	34.3	34.3
SK	73.1	78.9	60.3	61.5	69.6	77.4	54.8	57.6	55.8	60.4	46.1	47.1	53.2	59.3	42.0	44.1
FI	67.4	67.4	58.7	58.7	64.8	64.8	57.2	57.2	57.7	57.7	46.2	46.2	53.5	53.5	44.2	44.2
SE	69.3	69.3	70.0	70.0	59.6	59.6	60.2	60.2	49.8	49.8	47.5	47.5	48.7	48.7	47.5	47.5
UK	38.8	38.8	31.0	31.0	41.5	41.5	31.0	31.0	30.1	30.1	24.0	24.0	32.2	32.2	24.0	24.0

Data source: Member States (BE, DK, ES, FR, HR, IT, CY, LT, HU, MT, AT, PL, FI, SE, UK) and the OECD; Note: p.n.a. – pension not available

Table A5-4: Prospective Theoretical Replacement Rates ("Longer career II: from age 25 to SPA+2" and "Shorter career II: from age 25 to SPA-2"), 2053

MS	Longer career II: from age 25 to SPA+2								Shorter career II: from age 25 to SPA-2							
	Low				Average				Low				Average			
	Net		Gross		Net		Gross		Net		Gross		Net		Gross	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
BE	88.5	88.5	60.4	60.4	77.1	77.1	52.4	52.4	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.
BG	96.9	78.7	72.7	59.0	96.9	78.7	72.7	59.0	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.
CZ	87.9	87.9	69.9	69.9	70.4	70.4	53.1	53.1	68.9	68.9	54.8	54.8	54.8	54.8	41.4	41.4
DK	107.0	107.0	94.8	94.8	86.9	86.9	76.2	76.2	101.2	101.2	89.3	89.3	75.9	75.9	65.9	65.9
DE	85.3	85.3	65.2	65.2	84.0	84.0	65.2	65.2	66.7	66.7	49.5	49.5	67.6	67.6	49.5	49.5
EE	79.4	79.4	67.1	67.1	69.7	69.7	60.5	60.5	55.6	55.6	44.8	44.8	49.1	49.1	39.9	39.9
IE	87.4	87.4	86.3	86.3	76.3	76.3	70.9	70.9	36.6	36.6	31.8	31.8	40.8	40.8	31.8	31.8
EL	52.1	52.1	48.3	48.3	48.1	48.1	48.3	48.3	47.7	47.7	44.0	44.0	43.8	43.8	44.0	44.0
ES	90.7	90.7	85.9	85.9	90.9	90.9	85.9	85.9	79.7	79.7	67.6	67.6	74.7	74.7	67.6	67.6
FR	73.3	73.3	61.8	61.8	73.3	73.3	61.8	61.8	59.8	59.8	50.4	50.4	59.8	59.8	50.4	50.4
HR	57.4	57.4	43.0	43.0	47.3	47.3	32.9	32.9	49.1	49.1	36.8	36.8	40.2	40.2	27.9	27.9
IT	91.7	91.7	82.1	82.1	91.7	91.7	82.1	82.1	81.3	81.3	72.0	72.0	81.3	81.3	72.0	72.0
CY	76.0	76.0	68.0	68.0	78.0	78.0	69.0	69.0	66.0	66.0	59.0	59.0	67.0	67.0	58.0	58.0
LV	57.8	57.8	49.3	49.3	57.4	57.4	49.3	49.3	49.0	49.0	41.5	41.5	48.5	48.5	41.5	41.5
LT	103.1	103.1	80.7	80.7	84.9	84.9	64.1	64.1	75.3	75.3	59.0	59.0	62.1	62.1	46.9	46.9
LU	93.6	93.6	82.6	82.6	88.7	88.7	75.9	75.9	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.
HU	96.3	96.3	63.1	63.1	96.3	96.3	63.1	63.1	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.
MT	82.4	82.4	70.5	70.5	73.8	73.8	60.8	60.8	78.6	78.6	66.8	66.8	69.0	69.0	57.1	57.1
NL	98.1	98.1	101.1	101.1	101.4	101.4	99.6	99.6	21.3	21.3	25.7	25.7	47.6	47.6	42.8	42.8
AT	94.7	94.7	81.0	81.0	94.4	94.4	81.0	81.0	72.9	72.9	60.7	60.7	76.6	76.6	60.7	60.7
PL	47.7	47.7	40.4	40.4	47.4	47.4	40.4	40.4	39.7	39.7	33.2	33.2	39.3	39.3	33.2	33.2
PT	102.9	102.9	88.2	88.2	104.1	104.1	87.3	87.3	71.0	71.0	57.6	57.6	72.2	72.2	57.1	57.1
RO	49.2	41.4	38.1	36.1	45.8	43.9	35.5	34.0	42.4	0.0	32.8	0.0	40.5	0.0	31.3	0.0
SI	69.5	73.1	46.3	48.7	67.4	70.4	43.6	45.8	54.7	62.2	36.5	35.4	54.6	56.9	34.3	33.3
SK	81.5	81.5	67.2	67.2	77.7	77.7	61.2	61.2	62.4	62.4	51.2	51.2	59.5	59.5	46.7	46.7
FI	67.4	67.4	58.7	58.7	64.8	64.8	57.2	57.2	57.7	57.7	46.2	46.2	53.5	53.5	44.2	44.2
SE	69.3	69.3	70.0	70.0	59.6	59.6	60.2	60.2	49.8	49.8	47.5	47.5	48.7	48.7	47.5	47.5
UK	95.6	95.6	87.8	87.8	79.4	79.4	71.2	71.2	36.0	36.0	28.8	28.8	38.6	38.6	28.8	28.8

Data source: Member States (BE, DK, ES, FR, HR, IT, CY, LT, HU, MT, AT, PL, FI, SE, UK) and the OECD; Note: p.n.a. – pension not available

Table A5-5: Prospective Theoretical Replacement Rates ("Career break for unemployment: 1, 2 or 3 years"), 2053

MS	Low												Average											
	Net						Gross						Net						Gross					
	Men			Women			Men			Women			Men			Women			Men			Women		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
BE	82.4	82.0	81.7	82.4	82.0	81.7	56.2	56.1	55.8	56.2	56.1	55.8	73.2	72.8	72.4	73.2	72.8	72.4	48.5	48.2	48.0	48.5	48.2	48.0
BG	83.3	77.4	73.4	73.8	71.7	67.8	62.5	59.6	57.9	55.3	55.2	53.7	83.3	77.4	73.4	73.8	71.7	67.8	62.5	59.6	57.9	55.3	55.2	53.7
CZ	75.1	73.4	71.7	75.1	73.4	71.7	60.4	59.8	59.1	60.4	59.8	59.1	60.1	58.9	57.7	60.1	58.9	57.7	45.9	45.5	45.1	45.9	45.5	45.1
DK	101.1	100.2	99.4	101.1	100.2	99.4	89.1	88.3	87.6	89.1	88.3	87.6	80.8	79.9	79.1	80.8	79.9	79.1	70.6	69.7	68.9	70.6	69.7	68.9
DE	75.6	75.5	75.1	75.6	75.5	75.1	56.6	56.5	56.1	56.6	56.5	56.1	74.1	73.8	72.4	74.1	73.8	72.4	55.8	55.5	54.0	55.8	55.5	54.0
EE	62.6	61.5	60.4	62.6	61.5	60.4	50.4	49.5	48.6	50.4	49.5	48.6	54.2	53.3	52.4	54.2	53.3	52.4	45.0	44.1	43.2	45.0	44.1	43.2
IE	83.5	82.9	78.1	83.5	82.9	78.1	80.2	79.1	78.1	80.2	79.1	78.1	70.4	69.4	68.7	70.4	69.4	68.7	64.8	63.7	62.7	64.8	63.7	62.7
EL	51.4	51.4	51.4	51.4	51.4	51.4	56.2	56.2	56.2	56.2	56.2	56.2	47.0	47.0	47.0	47.0	47.0	47.0	47.2	47.2	47.2	47.2	47.2	47.2
ES	87.8	87.6	86.4	87.8	87.6	86.4	79.4	79.2	77.8	79.4	79.2	77.8	86.7	86.5	85.0	86.7	86.5	85.0	79.4	79.2	77.7	79.4	79.2	77.7
FR	68.7	68.5	68.1	68.7	68.5	68.1	57.9	57.7	57.4	57.9	57.7	57.4	68.7	68.5	68.1	68.7	68.5	68.1	57.9	57.7	57.4	57.9	57.7	57.4
HR	51.6	50.4	49.2	51.6	50.4	49.2	38.7	37.8	36.8	38.7	37.8	36.8	42.5	41.5	40.4	42.5	41.5	40.4	29.5	28.8	28.1	29.5	28.8	28.1
IT	89.5	87.9	86.4	89.5	87.9	86.4	79.9	78.2	76.5	79.9	78.2	76.5	89.1	87.4	85.7	89.1	87.4	85.7	79.9	78.2	76.5	79.9	78.2	76.5
CY	73.0	71.0	71.0	73.0	71.0	71.0	65.0	64.0	64.0	65.0	64.0	64.0	75.0	73.0	72.0	75.0	73.0	72.0	65.0	64.0	63.0	65.0	64.0	63.0
LV	51.1	50.5	49.8	51.1	50.5	49.8	43.4	42.8	42.3	43.4	42.8	42.3	50.6	50.0	49.4	50.6	50.0	49.4	43.4	42.8	42.3	43.4	42.8	42.3
LT	85.8	83.8	83.2	85.8	83.8	83.2	67.2	65.7	65.2	67.2	65.7	65.2	70.7	69.1	68.5	70.7	69.1	68.5	53.4	52.2	51.7	53.4	52.2	51.7
LU	87.6	87.3	85.8	87.6	87.3	85.8	76.3	76.0	74.3	76.3	76.0	74.3	83.4	83.1	81.6	83.4	83.1	81.6	70.0	69.7	68.0	70.0	69.7	68.0
HU	80.4	78.9	77.3	80.4	78.9	77.3	52.7	51.7	50.6	52.7	51.7	50.6	80.4	78.9	77.3	80.4	78.9	77.3	52.7	51.7	50.6	52.7	51.7	50.6
MT	73.5	73.5	73.5	73.5	73.5	73.5	61.4	61.4	61.4	61.4	61.4	61.4	73.8	73.8	73.8	73.8	73.8	73.8	60.8	60.8	60.8	60.8	60.8	60.8
NL	92.7	92.2	91.6	92.7	92.2	91.6	94.7	94.0	93.4	94.7	94.0	93.4	91.5	90.5	89.6	91.5	90.5	89.6	88.9	87.9	86.8	88.9	87.9	86.8
AT	84.8	84.0	83.2	84.8	84.0	83.2	70.7	70.0	69.3	70.7	70.0	69.3	85.6	85.0	84.4	85.6	85.0	84.4	70.7	70.0	69.3	70.7	70.0	69.3
PL	42.6	41.5	40.4	42.6	41.5	40.4	35.9	34.9	33.9	35.9	34.9	33.9	42.3	41.1	40.0	42.3	41.1	40.0	35.9	34.9	33.9	35.9	34.9	33.9
PT	77.6	77.5	77.4	77.6	77.5	77.4	64.2	64.1	64.0	64.2	64.1	64.0	79.5	79.5	79.4	79.5	79.5	79.4	63.5	63.5	63.4	63.5	63.5	63.4
RO	42.5	40.4	38.3	36.4	36.4	35.0	33.4	32.5	31.6	30.7	30.6	29.0	40.0	38.0	36.0	33.1	33.1	31.6	31.4	30.5	29.7	29.4	29.3	27.7
SI	61.2	60.7	59.2	73.0	73.1	75.6	41.1	41.1	41.1	43.3	43.3	43.3	60.5	60.1	58.8	68.1	68.2	68.4	38.7	38.7	38.7	40.7	40.7	40.7
SK	71.9	70.6	68.8	71.9	70.6	68.8	59.0	57.9	53.9	59.0	57.9	53.9	68.3	67.1	62.2	68.3	67.1	62.2	53.6	52.5	48.8	53.6	52.5	48.8
FI	62.4	62.3	61.9	62.4	62.3	61.9	52.3	52.2	51.6	52.3	52.2	51.6	58.8	58.6	57.7	58.8	58.6	57.7	50.5	50.2	49.1	50.5	50.2	49.1
SE	64.9	64.7	64.4	64.9	64.7	64.4	64.8	64.6	64.3	64.8	64.6	64.3	54.9	54.5	54.1	54.9	54.5	54.1	54.6	54.2	53.8	54.6	54.2	53.8
UK	93.5	92.4	91.2	93.5	92.4	91.2	77.7	76.6	75.6	77.7	76.6	75.6	79.1	77.9	76.7	79.1	77.9	76.7	62.7	61.6	60.5	62.7	61.6	60.5

Data source: Member States (BE, DK, ES, FR, HR, IT, CY, LT, HU, MT, AT, PL, FI, SE, UK) and the OECD.

Table A5-6: Prospective Theoretical Replacement Rates ("Career break due to child-care: 0, 1, 2 or 3 years, women"), 2053

MS	Low								Average							
	Net				Gross				Net				Gross			
	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3
BE	82.7	82.2	81.8	81.4	46.1	56.1	55.8	55.5	74.7	73.2	72.9	72.7	49.5	48.4	48.1	47.7
BG	73.8	73.8	73.8	73.8	55.3	55.3	55.3	55.3	73.8	73.8	73.8	73.8	55.3	55.3	55.3	55.3
CZ	76.9	76.9	76.9	76.9	61.1	61.1	61.1	61.1	61.4	61.4	61.4	61.4	46.3	46.3	46.3	46.3
DK	101.9	101.5	100.4	99.4	89.9	89.6	88.5	87.6	81.7	81.3	80.3	79.3	71.4	71.0	70.1	69.2
DE	76.0	76.0	75.8	75.3	57.1	57.0	56.9	56.5	75.6	74.1	74.0	73.4	56.9	55.8	55.7	55.3
EE	64.7	65.0	64.0	63.1	52.1	51.4	50.6	49.9	55.9	56.7	56.0	55.2	46.7	46.0	45.2	44.4
IE	84.2	83.6	82.9	82.3	81.2	80.2	79.1	78.1	71.4	70.4	69.4	68.7	65.8	64.8	63.7	62.7
EL	51.4	51.4	51.4	51.4	56.2	56.2	56.2	56.2	47.0	47.0	47.0	47.0	47.2	47.2	47.2	47.2
ES	87.8	87.8	87.7	87.5	79.5	79.5	79.3	79.0	86.8	86.7	86.6	86.4	79.5	79.5	79.3	79.0
FR	77.6	77.2	76.8	76.4	65.3	65.0	64.6	64.3	77.6	77.2	76.8	76.4	65.3	65.0	64.6	64.3
HR	52.9	52.9	52.5	51.2	39.6	39.6	39.3	38.4	43.5	43.5	42.9	41.9	30.2	30.2	29.8	29.1
IT	91.4	91.2	90.7	87.8	80.1	79.8	79.4	76.3	89.3	89.0	88.5	85.5	80.1	79.8	79.4	76.3
CY	73.0	72.0	72.0	72.0	65.0	65.0	65.0	64.0	72.0	71.0	70.0	69.0	64.0	64.0	63.0	62.0
LV	51.7	50.5	48.8	47.8	43.9	43.1	42.2	41.3	51.2	49.2	48.2	47.0	43.9	42.9	42.1	41.0
LT	86.4	86.1	85.7	85.2	67.7	67.4	67.1	66.7	71.3	70.9	70.5	70.0	53.9	53.6	53.3	52.9
LU	88.0	88.0	88.0	88.0	76.6	76.6	76.6	76.6	83.7	83.7	83.7	83.7	70.3	70.3	70.3	70.3
HU	81.9	81.9	81.9	81.9	53.7	53.7	53.7	53.7	81.9	81.9	81.9	81.9	53.7	53.7	53.7	53.7
MT	82.4	82.4	82.4	80.7	70.5	70.5	70.5	65.9	73.8	73.8	73.8	73.7	60.8	60.8	60.8	60.8
NL	93.3	92.7	92.2	91.6	93.1	94.7	94.0	93.4	92.5	91.5	90.5	89.6	87.8	88.9	87.9	86.8
AT	95.2	93.8	92.3	90.9	81.7	79.9	78.1	76.4	92.0	90.5	89.0	87.5	78.2	76.4	74.6	72.9
PL	43.7	43.5	43.2	43.0	36.8	36.7	36.3	36.2	43.4	43.2	42.8	42.6	36.8	36.7	36.3	36.2
PT	82.0	77.6	77.5	77.4	68.3	64.2	64.1	64.0	84.2	79.5	79.5	79.3	67.6	63.5	63.4	63.3
RO	40.8	40.8	40.8	40.8	31.6	31.6	31.6	31.6	39.1	39.1	39.1	39.1	30.2	30.2	30.2	30.2
SI	65.0	65.0	65.0	60.2	43.3	43.3	43.3	41.1	63.6	63.6	63.6	59.6	40.7	40.7	40.7	38.7
SK	73.1	72.5	72.0	71.5	60.3	59.8	59.4	59.0	69.6	69.1	68.6	68.0	54.6	54.3	54.0	53.6
FI	62.5	62.6	62.3	62.3	52.5	52.5	52.1	52.2	59.1	59.1	58.4	58.5	50.8	50.8	50.0	50.1
SE	69.2	69.1	69.0	69.0	66.4	66.2	65.8	65.6	56.1	55.9	55.6	55.4	55.9	55.8	55.4	55.1
UK	94.7	93.5	92.4	91.2	78.8	77.7	76.6	75.6	80.4	79.1	77.9	76.7	63.8	62.7	61.6	60.5

Data source: Member States (BE, DK, ES, FR, HR, IT, CY, LT, HU, MT, AT, PL, FI, SE, UK) and the OECD.

Table A5-7: Prospective Theoretical Replacement Rates ("Early retirement due to disability" and "Early retirement due to unemployment"), 2053

MS	Early retirement due to disability								Early retirement due to unemployment							
	Low				Average				Low				Average			
	Net		Gross		Net		Gross		Net		Gross		Net		Gross	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
BE	80.9	80.9	55.2	55.2	71.7	71.7	47.4	47.4	80.9	80.9	55.2	55.2	71.7	71.7	47.4	47.4
BG	80.8	75.3	60.6	56.4	80.8	75.3	60.6	56.4	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.	p.n.a.
CZ	75.3	75.3	58.0	58.0	54.1	54.1	43.9	43.9	67.2	67.2	54.5	54.5	54.5	54.5	42.0	42.0
DK	98.9	98.9	86.8	86.8	78.5	78.5	68.4	68.4	99.4	99.4	87.2	87.2	78.9	78.9	68.7	68.7
DE	71.2	71.2	52.9	52.9	58.1	58.1	41.2	41.2	74.7	74.7	55.8	55.8	70.0	70.0	51.7	51.7
EE	64.7	64.7	52.1	52.1	55.9	55.9	46.7	46.7	58.5	58.5	47.2	47.2	51.0	51.0	41.8	41.8
IE	82.2	82.2	78.0	78.0	68.7	68.7	62.6	62.6	82.2	82.2	78.0	78.0	68.7	68.7	62.6	62.6
EL	51.4	51.4	56.2	56.2	47.0	47.0	47.2	47.2	51.4	51.4	56.2	56.2	47.0	47.0	47.2	47.2
ES	89.7	89.7	84.0	84.0	89.7	89.7	84.0	84.0	78.1	78.1	65.5	65.5	72.8	72.8	65.5	65.5
FR	70.6	70.6	59.5	59.5	70.6	70.6	59.5	59.5	70.6	70.6	59.5	59.5	70.6	70.6	59.5	59.5
HR	46.2	46.2	34.6	34.6	43.1	43.1	29.9	29.9	38.3	38.3	28.7	28.7	31.6	31.6	21.9	21.9
IT	82.9	82.9	73.0	73.0	82.3	82.3	73.0	73.0	75.8	75.8	66.6	66.6	75.2	75.2	66.6	66.6
CY	69.0	69.0	62.0	62.0	69.0	69.0	60.0	60.0	68.0	68.0	61.0	61.0	68.0	68.0	59.0	59.0
LV	47.8	47.8	41.2	41.2	46.3	46.3	40.3	40.3	45.3	45.3	39.0	39.0	44.8	44.8	39.0	39.0
LT	90.7	90.7	71.0	71.0	73.4	73.4	55.5	55.5	70.4	70.4	55.1	55.1	59.6	59.6	45.0	45.0
LU	77.1	77.1	65.6	65.6	74.1	74.1	60.3	60.3	82.5	82.5	70.9	70.9	78.3	78.3	64.6	64.6
HU	74.8	74.8	49.0	49.0	74.8	74.8	49.0	49.0	81.9	81.9	53.7	53.7	81.9	81.9	53.7	53.7
MT	90.5	90.5	76.2	76.2	76.9	76.9	62.3	62.3	90.5	90.5	76.2	76.2	76.9	76.9	62.3	62.3
NL	93.3	93.3	95.3	95.3	92.5	92.5	90.0	90.0	93.3	93.3	95.3	95.3	92.5	92.5	90.0	90.0
AT	64.5	64.5	53.7	53.7	70.2	70.2	53.7	53.7	81.4	81.4	67.9	67.9	83.1	83.1	67.9	67.9
PL	36.5	36.5	30.3	30.3	36.1	36.1	30.3	30.3	36.7	36.7	30.4	30.4	36.2	36.2	30.4	30.4
PT	68.9	68.9	55.9	55.9	70.3	70.3	55.4	55.4	77.6	77.6	64.2	64.2	79.6	79.6	63.6	63.6
RO	43.6	38.4	33.8	31.6	41.1	36.4	31.8	31.6	34.5	34.5	30.0	30.0	33.4	33.4	29.1	29.1
SI	59.1	62.2	41.1	43.3	58.8	61.4	38.7	40.7	56.9	59.8	41.1	43.3	56.8	59.3	38.7	40.7
SK	63.7	63.7	54.6	54.6	62.1	62.1	50.6	50.6	60.3	60.3	53.5	53.5	58.1	58.1	49.3	49.3
FI	58.7	58.7	46.2	46.2	51.7	51.7	42.1	42.1	59.0	59.0	46.7	46.7	51.8	51.8	42.2	42.2
SE	68.9	68.9	65.1	65.1	55.2	55.2	55.1	55.1	67.9	67.9	62.7	62.7	52.9	52.9	52.4	52.4
UK	87.8	87.8	76.4	76.4	73.8	73.8	61.4	61.4	87.8	87.8	76.4	76.4	73.8	73.8	61.4	61.4

Data source: Member States (BE, DK, ES, FR, HR, IT, CY, LT, HU, MT, AT, PL, FI, SE, UK) and the OECD; Note: p.n.a. – pension not available

Table A5-8: Prospective Theoretical Replacement Rates ("Pension rights of surviving spouses" and "Inflation: 10 years after retirement"), 2053

MS	Pension rights of surviving spouses		Inflation: 10 years after retirement			
	Low		Average			
	Net	Gross	Net		Gross	
	Women		Men	Women	Men	Women
BE	113.7	80.8	66.7	66.7	44.2	44.2
BG	103.6	81.3	71.8	63.8	56.3	50.0
CZ	115.6	96.2	57.1	57.1	44.0	44.0
DK	101.9	89.9	79.4	79.4	69.3	69.3
DE	96.9	76.5	69.7	69.7	51.4	51.4
EE	106.0	94.1	49.9	49.9	40.6	40.6
IE	84.2	81.2	68.3	68.3	60.8	60.8
EL	98.1	108.2	37.3	37.3	37.4	37.4
ES	143.0	142.2	76.0	76.0	68.3	68.3
FR	87.4	73.7	59.2	59.2	49.9	49.9
HR	69.7	48.4	41.4	41.4	28.8	28.8
IT	93.3	86.1	76.0	76.0	68.2	68.2
CY	129.0	152.0	69.0	69.0	60.0	60.0
LV	51.7	43.9	45.3	45.3	39.4	39.4
LT	87.3	68.4	65.7	65.7	50.9	50.9
LU	149.1	136.6	77.7	77.7	65.3	65.3
HU	106.5	69.8	68.3	68.3	44.7	44.7
MT	88.6	80.4	62.0	62.0	53.3	53.3
NL	101.7	122.0	90.5	90.5	90.0	90.0
AT	129.2	124.6	74.1	74.1	64.1	64.1
PL	55.5	47.4	39.1	39.1	33.0	33.0
PT	98.1	90.4	69.7	69.7	57.7	57.7
RO	40.8	31.6	33.5	33.5	27.0	27.0
SI	65.0	43.3	59.0	59.0	38.7	38.7
SK	94.1	75.0	62.4	62.4	46.7	46.7
FI	85.3	81.9	53.8	53.8	44.6	44.6
SE	68.9	65.1	50.4	50.4	50.1	50.1
UK	147.5	128.6	74.8	74.8	58.8	58.8

Data source: Member States (BE, DK, ES, FR, HR, IT, CY, LT, HU, MT, AT, PL, FI, SE, UK) and the OECD

Table A5-9: Current and prospective Theoretical Replacement Rates ("Short career, 30 year career"), 2013 and 2053

MS	Current TRRs (2013)				Prospective TRRs (2053)							
	Low				Low				Average			
	Net		Gross		Net		Gross		Net		Gross	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
BE	74.5	74.5	49.8	49.8	64.1	64.1	42.9	42.9	62.3	62.3	36.9	36.9
BG	43.4	43.4	34.0	34.0	38.0	33.6	38.0	34.1	38.0	33.6	38.0	34.1
CZ	52.1	53.7	45.2	46.6	60.3	60.3	48.5	48.5	47.9	47.9	36.5	36.5
DK	:	:	:	:	91.8	91.8	76.5	76.5	67.8	67.8	58.3	58.3
DE	56.1	56.1	39.3	39.3	72.2	72.2	53.6	53.6	60.1	60.1	42.8	42.8
EE	42.5	42.5	33.9	33.9	52.0	52.0	41.8	41.8	45.6	45.6	36.4	36.4
IE	:	:	:	:	79.3	79.3	73.4	73.4	65.4	65.4	58.0	58.0
EL	:	:	:	:	44.4	44.4	48.4	48.4	39.4	39.4	39.5	39.5
ES	69.5	69.5	59.0	59.0	P.n.a.	P.n.a.	P.n.a.	P.n.a.	P.n.a.	P.n.a.	P.n.a.	P.n.a.
FR	56.4	56.4	47.7	47.7	46.2	46.2	39.0	39.0	46.2	46.2	39.0	39.0
HR	44.6	44.6	33.4	33.4	37.9	37.9	28.4	28.4	31.2	31.2	21.7	21.7
IT	84.7	84.7	51.9	53.1	65.7	65.7	55.5	55.5	65.0	65.0	55.5	55.5
CY	56.0	56.0	52.0	52.0	58.0	58.0	52.0	52.0	57.0	57.0	50.0	50.0
LV	66.4	66.4	47.1	47.1	39.4	39.4	32.9	32.9	38.9	38.9	32.9	32.9
LT	51.6	51.6	41.1	41.1	66.0	66.0	51.7	51.7	54.2	54.2	41.0	41.0
LU	78.9	78.9	69.5	69.5	77.4	77.4	65.8	65.8	74.2	74.2	60.4	60.4
HU	77.5	77.5	50.8	50.8	69.6	69.6	45.6	45.6	69.6	69.6	45.6	45.6
MT	78.5	78.5	66.9	66.9	82.0	82.0	70.0	70.0	73.4	73.4	60.5	60.5
NL	79.6	79.6	67.5	67.5	68.4	68.4	88.8	88.8	65.0	65.0	79.3	79.3
AT	61.2	48.9	50.8	40.6	64.1	64.1	53.4	53.4	69.9	69.9	53.4	53.4
PL	80.2	70.5	69.6	61.0	33.7	33.7	27.8	27.8	33.2	33.2	27.8	27.8
PT	68.7	68.7	55.6	55.6	60.6	60.6	49.2	49.2	62.6	62.6	48.7	48.7
RO	77.3	67.2	58.1	48.3	24.6	21.7	25.4	23.0	22.9	20.7	23.6	22.0
SI	51.9	55.4	35.7	38.1	46.2	48.6	41.1	43.2	46.1	48.5	38.6	40.6
SK	50.2	50.2	40.6	40.6	65.2	65.2	52.8	52.8	59.7	59.7	46.1	46.1
FI	77.7	77.7	66.0	66.0	59.6	59.6	47.9	47.9	49.2	49.2	39.1	39.1
SE	88.2*	88.2*	70.4	70.4	68.0	68.0	56.3	56.3	47.8	47.8	46.4	46.4
UK	82.3	76.3	65.3	60.2	84.5	84.5	69.1	69.1	70.3	70.3	54.8	54.8

Data source: Member States (BE, DK, ES, FR, HR, IT, CY, LT, HU, MT, AT, PL, FI, SE, UK) and the OECD: Notes: * – including housing supplement (17.00 p.p.), p.n.a. – pension not available; : - data not available

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Annex 8. Views of the European Social Partners



COMMENT

The 2015 Pension Adequacy Report European Commission – Social Protection Committee

- Provision of adequate pensions, particularly in the long-term is only possible if the system is sustainable both for governments and for employers as contributors to mandatory systems and as providers of occupational pensions.
- The report makes an important observation that current pensioners' living standards have largely been maintained over the crisis and even in those countries where pensions have been reduced, in general the relative position of pensioners has not deteriorated. The recognition that living standards in old age also depend on other factors, e.g. financial assets, is an important element, also taking into account household incomes overall.
- So the issue is ensuring that adequate pensions can continue to be provided for future generations. In the context of increased life expectancy, this would not be possible without reforms. Rather than raising taxes and social security contributions paid by employers and those in employment, which places a large burden on companies and the working population, particularly younger generations, it is more beneficial to increase contributions by ensuring that more people are working and people work longer.
- And this is recognized in the report - increases in pensionable ages are more likely to create win-win scenarios and are a good way to avoid a trade-off between adequacy and financial sustainability.
- Therefore, as stated in the report, policies enabling women and men to postpone their retirement by working to higher ages will be important for most, if not all, Member States.
- Furthermore, extension of the working age can help counteract the decline in labour supply due to population ageing, which is a key issue for employers who lack skilled workers. As rightly recognized in the report, labour participation at all working ages and growing productivity will also be essential elements for maintaining the level of economic output which supports the high standard of social protection in Europe.
- There have already been a wide range of reforms to public pension systems. Whilst pension provision remains a national competence, we support the European Semester process and use of Country Specific Recommendations to encourage national pension reforms and longer working lives.
- Reforms have had a positive impact if, as noted in the report, overall spending on public pensions is no longer expected to be higher in 2060 than presently. However, as stated, there are differences between member states and in several spending will increase significantly by 2060. Furthermore, these calculations are built on the premise that employment rates will rise, whereas this requires further work. There is therefore still room for further reforms and across more countries.
- Of course, as well as being sustainable, pension systems also need to include safeguards against poverty risks. As stated in the report, protection needs to be balanced with incentives to remain longer in work.

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- This also means that pension adequacy and sustainability very much depend on developments in labour markets and at the workplace.
- To make longer working lives a reality, the first condition is for companies to be able to create jobs. This requires framework conditions which are conducive to hiring workers, including older workers. In this context, it is important to ensure flexibility in the use of different types of employment contract, for example the possibility to combine part-time work with partial retirement, to avoid overly strict employment protection legislation, which acts as a disincentive to hiring workers, and to avoid too strong emphasis on seniority based pay systems, which is a clear disincentive to hiring older workers.
- As stated in the report, ensuring that employment regulations allow workers to move between jobs and aligning labour costs with productivity are important.
- Of course action also has to be taken at the workplace jointly between employers and workers to make longer working lives a reality and to promote active ageing. This includes measures to sustain workers' employability over the lifecourse, for example concerning skills, health and safety, and flexible working arrangements.
- European Social Partners are committed to this issue - as part of our new work programme we have agreed to negotiate a framework agreement on fostering active ageing and an intergenerational approach.
- A particular issue which is identified in the report is where career patterns fail to match rising pensionable ages or meet contribution period requirements. This is the case for those at the margins of the labour market, those who may not have full careers, such as women, and now in particular young people, many of whom are unemployed.
- In these cases, as stated in the report, support is necessary however this must be combined with labour market reforms to improve access to, inclusion and retention on the labour market.
- We also note the gender gap in pensions highlighted in the report. We agree on the need to tackle this, whilst recognizing that there are large differences between member states. Equalising pension ages between men and women is important, but this is also about ensuring that women are able to enter and remain on the labour market and be economically independent. We believe that developing ways to reconcile work and family lives, like flexible contractual arrangements and flexible working time arrangements, as well as improving availability of childcare are more beneficial in this respect than introducing new forms of leave. We are optimistic that change will occur in this area, as more women are now coming onto the labour market.
- The report also positively recognizes the importance of occupational pensions in providing adequate incomes in retirement. In this context, it rightly acknowledges that all pension arrangements entail exposure to certain risks - not one type of arrangement more than another. Whilst funded schemes are reliant on financial markets, statutory pay-as-you-go systems rely on a sufficient level of employment, which we still need to work at in Europe. The key is designing systems to deal with such risks, which is for national governments and where appropriate, social partners.
- European Social Partners in their In-depth Employment Analysis highlight that occupational pensions will play a greater role in the future adequacy and sustainability of pension systems overall. Where appropriate, there should be a mix in the sources of income in retirement, taking into account national specificities. Occupational pensions, which are often the responsibility of the social partners at national, sectoral or company level, should remain a good and cost-effective option for employers to provide to their employees.

Brussels, September 2015

CEEP's comments on The 2015 Pension Adequacy Report: current and future income adequacy in old age in the EU

European Commission – Social Protection Committee

CEEP welcomes the publication of the 2015 Pension Adequacy Report. This comprehensive work from the Social Protection Committee of the EPSCO Council and DG EMPL should effectively complete the picture of the 2015 ageing report from the Economic Policy Committee. It was indeed critical to assess the effects of the different recovery packages implemented in the EU Member States, not only through their ability for ensuring the sustainability of Pension systems but also via their effects on Pensioners resources.

- We fully agree that there is not one balance between pension pillars that should be applied to all EU countries as they share different economic and demographic realities as well as different institutional set-ups. The solution lies for each Member State to find the right policy-mix and balance between the different pension pillars.
- Higher unemployment along with slower productivity and wage growth, have affected negatively both the tax and contributory base of pension systems, reducing the revenues that pension system rely on. Furthermore, the very high level of long-term unemployment in Europe can negatively affect the accruals of pension entitlements, having an adverse effect on individual pensions.
- The report makes it appear as crucial to monitor the length of the period of unemployment and actively promote a reasonable return to the labour market thanks to efficient partnership between PES, employers, municipalities and social services.
- It is well recognised in the report that increasing the pensionable ages has a key role for reaching both the adequacy and sustainability of Pension Systems. It is therefore important that Member States reduce the risk of older workers being forced into early exit pathways from the labour market, including early retirement and unemployment.

- The European social partners will soon contribute to this by negotiating an autonomous framework agreement on active ageing and an inter-generational approach as part of their new social dialogue work programme 2015-2017. We will carefully examine in this framework measures such as flexible working hours, gradual transitions into retirement, skills upgrading/updating, and/or preventive health and safety regulations and measures such as workplace physical and organisational adaptations aiming to lengthen work ability and thus contribute to address the difficulties of older workers to stay in activity.
- CEEP supports the recognition of occupational Pension as providing adequate incomes in retirement. Indeed, the development of workplace pension scheme through collective agreement have two important key features. This form of collective capitalisation is based on a social purpose and creates a strong link employers and their employees. When this dialogue is functional, it allows for better adaptation to the economic outlook. Pension funds managed by the Social Partners can therefore balance generations interests and also safeguard the principle of solidarity of risks between participants.
- The crisis should be used as an opportunity to carry out long-term oriented reforms that do not confront pensioners by a fait accompli which would make it very difficult for them to adapt to new circumstances.
- The Pension adequacy report helps realise that the different Pension oriented recovery packages implemented at the national level seem to have secured some ground for a thriving economy to supply the income that can pay for pensions. But another reality is that they have also reduced the hard-won public finance improvements intended to provide room for extra-expenditure to address ageing and this lost-ground will have to be regained.
- CEEP notes the important gender pay gap highlighted in the Pension Adequacy report. To address this imbalance the dual approach, specific actions and gender mainstreaming, is essential. Sex disaggregated statistics is a necessary tool to raise visibility and monitor progress. Women's economic engagement is central to their personal financial independence and protection from the risk of poverty, in particular for ensuring an adequate old-age pension.
- CEEP finally very much welcomes the recognition of the added value of quality in-kind benefits and public-services as a key factor for assessing the adequacy of pensions. Services such as health care, social services and long-term care are a precondition for the implementation of comprehensive and integrated social investment strategies providing recipients with tailor-made support (the report rightfully mentions the absolute necessity of available childcare institutions as a key example).

UEAPME comments

2015 Pension Adequacy Report "Income adequacy in old age" Social Protection Committee

1. UEAPME welcomes the 2015 Pension Adequacy Report of the Social Protection Committee which takes the right approach, when focusing on the need for structural reforms but at the same time leaving room for different ways of adapting systems.
2. Both for the purposes of adequate old-age income of European citizens and the sustainability of public finances it is key to apply the appropriate mix of policies and measures for each Member State. The EU challenges created by the financial and economic crisis and the demographic change due to an ageing population require a serious in-depth search for adequate measures and incentives for Member States.
3. There is not one single system that can be applied in all Member States. Different policy measures work in different countries but there is a similar need for pension reforms in all Member States. As the report rightly states, there are many common challenges and concerns. This exercise is undertaken to a large part because of an ageing population and longer life expectancy. In that light, linking the statutory pension age to life expectancy is part of a necessary and effective solution to overcome current challenges.
4. Pension reforms are clearly a competence of the Member States. Nevertheless, on the European level there is also a clear necessity to work together through the Open Method of Coordination. Using the Country Specific Recommendations in the European Semester process is an effective means to support and encourage the Member States in this area.
5. The report is very comprehensive and addresses many aspects related to old-age income. It is important that when this income is calculated, other sources of income than those through pensions are taken into account, as well as the overall household income.

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6. With regard to the technical assumptions underpinning the report, UEAPME points at the arbitrary nature of predictions on future interest and return rates. The 3% which the report is currently using might be rather optimistic, with possible big impacts on future replacement rates. Lower interest rates may in the meantime also have caused serious risks for the financial stability of occupational pension institutions (IORP). Financial stability on the long term can therefore not be taken for granted.
7. It is also important not to lose sight of the need to develop supplementary pension schemes (occupational and private savings) in several Member States, in addition to public pensions which still remain the main pillar. A multi-pillar system releases the pressure that exists on state pensions which heavily rely on sufficient levels of employment. Supplementary pension schemes make individuals less dependent on state pensions and can thus contribute significantly to providing an adequate old-age income. It is striking that still in only 7 Member States the share of supplementary pension schemes in the gross TRRs is higher than 10%.
8. An essential part of ensuring future adequate incomes in old age will be to facilitate longer working lives. Easy ways to effectively leave the labour market before reaching the statutory pension age should therefore be avoided and in several Member States early retirement schemes should be removed. At the same time, it is also important to focus on employability of older workers. Adult education and continuous training are essential to raise also the level of basic skills and to adapt to changing skills needs.
9. Fuller careers are needed for future cohorts, including women. In this respect it will be necessary to address in some Member States the earlier statutory retirement age of women. Fuller working lives and smaller pension gaps for women are also achieved by improving the reconciliation of work and family life, notably through the provision of more and affordable childcare facilities as foreseen by the Barcelona targets.
10. UEAPME welcomes the emphasis that is put on the cooperation with social partners to deliver on longer working lives and work on both the demand and supply side of late-career labour markets. The European social partners will contribute to this effort in particular through the negotiation of an autonomous framework agreement on active ageing and an inter-generational approach as part of their new social dialogue work programme 2015-2017.

23/09/2015

2015 PENSION ADEQUACY REPORT

ETUC's contribution

ETUC very much welcomes the Report's focus on the benefit side of pension schemes. For many years now, even in key documents the very purpose of pension policy to provide people with decent income in old age has been widely neglected.

The ETUC very much hopes that future Adequacy Reports will maintain this path.

ETUC wants to underline the Report's analysis of how reforms impact on pension adequacy for people retiring today and in the future, as well as its emphasis on labor market issues, on gender and on older people's access to economic resources beyond pensions.

ETUC firmly believes that public schemes are the best variant of pension schemes to ensure adequate, safe and sustainable pensions, both for current pensioners and for younger generations. Public pension schemes that cover all, with public financing, based on solidarity between groups and on solidarity between generations.

Unfortunately, most recent and prior reforms aimed nearly exclusively at cost containment in public pension schemes and, at least until 2008, at shifting cost to supplementary occupational or private schemes.

The Ageing Report's cost-projections clearly signal to what extent this strategy has been implemented. Despite the sharp increase in the number of people over 65, average public pension expenditure for EU28 is not expected to be higher in 2060 than today.

As a consequence, replacement rates from public schemes are expected to decrease significantly in the majority of Member States. It is very important that the Pension Adequacy Report frankly addresses this issue and adverts to significant risks for the future adequacy of incomes in old age: a warning ETUC has been putting forward for many years now.

It is very important too that the Report addresses the shocking 40 % of the gender pension gap and points to causes such as gender differences in employment, pay, working hours and career duration. Hereby, the urgency of trade union claims for reconciliation of employment and family life and equal pay for equal work once again is confirmed.

Regarding legal retirement age, ETUC rejects the idea that national parliaments should hand over their regulatory competence to mathematical formulas referring to criteria such as average life expectancy. There is need for debate and discussion before changing the legal retirement age. Such a process must involve the social partners at national level.

A very positive element of the Report is its emphasis on good labor market integration of those of working age as a precondition for decent old-age protection. ETUC insists that policy responses to working longer must include fighting unemployment, improving working conditions and access to lifelong learning across all ages. It has to be noted in this context, that fostering active ageing is one of the key priorities in the 2015-2017 work programme of the European Social Partners.

As stated in the Report, special attention has to be paid to older women and men, who for personal or work related reasons are unable to remain in the labor market up to the statutory retirement age. The ETUC, furthermore, claims that arduous working conditions must be taken into account.

The findings of the Report clearly prove the necessity to reverse the downward trend of benefit levels in public schemes and the necessity to safeguard and strengthen the first pillar. Benefits from public schemes need to reach a level which ensures a decent living standard. Occupational pension schemes based on collective agreements are very important in many Member States to supplement public pensions. Yet, they cannot take their place.

The Report correctly notes that the prospect of the current low interest rates being maintained over a long period represents a major challenge for all prefunded schemes and that, in many such schemes, there is need for more cost-effectiveness, safety and transparency.

Regarding the Report's proposals for future activities and for preparing the Adequacy Report 2018, the ETUC expresses its interest in all issues mentioned. This is particularly true as regards the stated intention to investigate in more depth those population groups identified as at risk of suffering from insufficient incomes in old age and the intention to focus on prevention measures that enhance the employment opportunities of older workers.

Further aspects of continuous discussion should be around the right balance between years spent in work and years spent in retirement. The ETUC wants to reiterate its conviction that the increase of the effective retirement age should be the focus of any political effort to keep people longer in employment in good health. A revised definition of the indicator 'average duration of working life' could be envisaged.

Annex 9. Views of the AGE Platform Europe, a member of the Social Platform



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Brussels, 23 September 2015

AGE Platform Europe comments on the 2015 Pension Adequacy Report in view of informing debate at the EPSCO on 5th of October 2015

On behalf of AGE Platform Europe and our members, we thank you for the opportunity to submit the present note in addition to the key concerns and recommendations on pension adequacy – raised during the informal meeting between Social Platform and the Social Protection Committee on 17-18 September 2015 in Luxembourg. We hope that our contribution will be found useful for the further debate on the 2015 Pension Adequacy Report and for the SPC key messages to the upcoming Employment, Social Policy, Health and Consumer Affairs Council (EPSCO) on 5 October 2015.

AGE congratulates the Social Protection Committee (SPC) for its comprehensive stocktaking of adequacy challenges identified in the report and proposed for further consideration in EU and national debates on pension reforms. The recent Pension Adequacy Report brings a complementary perspective to the 2015 Ageing Report 2015 drafted by the Economic Policy Committee by providing a very useful assessment of the social dimension in pension reforms.

We welcome your efforts to address the issue of pension adequacy since so far little attention has been paid to the impact of pension reforms on social realities faced by older people. According to our members' feedback in several Member States current reforms will have a significant cumulative negative impact on the living standards of current and future pensioners.

Therefore, AGE strongly supports SPC efforts to bring the issue of pension adequacy on the table and warns national policy makers against further pension reforms aimed exclusively at ensuring more financial sustainability. While AGE members acknowledge the need to reform, the aim should be to make pension systems more efficient in ensuring an adequate income in old age, fairer to all generations and population groups, including women, and affordable for all.

The current exclusive focus on pension sustainability starts to affect significantly older people's fundamental rights. Within the European Semester, any recommendation on fiscal consolidation, structural reforms and modernisation of social protection should respect Member States' endeavour to reform their pension systems to achieve better adequacy for all, fight against old age poverty and combat gender inequalities in old age.

We recommend that more attention is paid to:



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1. The gender pay, career and pension gaps

We are pleased that gender and employment related issues have received due attention in both the 2015 Ageing Report and SPC key messages. We would like however to urge national governments to come with further measures to effectively combat the aggravated discrimination faced by older women and address the unacceptably high gender pension gap, currently standing at almost 40% in the EU. In addition to measures needed to support employment of women of childbearing age, it is also urgent to introduce measures to help older women remain in the labour market until statutory retirement age. This means that measures to help workers reconcile work and family care duties should not be limited to increasing childcare offer but should also increase eldercare facilities to cover all informal care workers' needs. Yet, with the current austerity context, both child and eldercare are sectors where cuts are introduced to reduce public budget deficit. Such austerity measures have a direct detrimental impact on women and force mainly older women to retire earlier than wished. Therefore, AGE Platform calls on Member States and Commission to:

- Enforce gender pay and career equality through employment-related measures such as investment in child and eldercare – in order to ensure an adequate retirement income for women in the future;
- Introduce transitional measures to address the unacceptable gender pension gap affecting currently older women, in particular the very old;
- Enhance equality in access to pension rights for all, by monitoring the implementation of the EU Directives 2000/78 and 2006/54 and through the Europe 2020 framework to combat more effectively age and gender discrimination faced by older women in employment;
- Adopt a carer's leave directive to better accommodate career breaks for anyone who needs to provide informal care for a young child, a disabled relative or older dependent parent.

2. Align statutory retirement age to the healthy life expectancy

If adjustment mechanisms are to be introduced to follow gains in life expectancy, AGE calls on Member States to:

- Link statutory retirement age to the healthy life expectancy rather than life expectancy. Life expectancy increases in the EU, but the healthy life year indicator is not increasing in parallel and is even decreasing in some countries. Between 2010 and 2013, healthy life years indicator reduced by 1.1 years for women and 0.4 years for men on average in the EU. As mentioned in DG SANTE website, Healthy Life Years is a solid indicator to monitor health as a productivity/economic factor.

3. Strengthen pensions adequacy to guarantee access to affordable services

Whilst pensions are being reduced in many member states, out-of-pocket health care costs are increasing. Consequently, not only low and medium-income pensioners struggle to access quality health and LTC because their pension is no longer sufficient to cover essential services such as healthcare. There erosion of pensioners' income has been accelerated due to the rolling back in the provision of many social services. AGE calls on Member States to:



- Preserve universal access to affordable social services (including health and long-term care) in order to avoid that pensioners have to choose between eating and care. Older people's well-being and dignity are at stake in some countries;
- Increase public investment in child and eldercare services to support employment of workers of all ages who have informal caring duties;
- Develop reference budgets for older people to better assess pension adequacy at different ages and assess the affordability of the services one needs to live and age in dignity (across the whole life span);
- For the population over 65 years, reference budgets should be broken by gender and age in order to prevent the "feminisation" of poverty in old age and the income erosion among the oldest old.

4. Protect consumers in the decumulation phase of their supplementary pension pot

In the last decade there has been a strong shift from DB to DC schemes and most of DC schemes have only started to pay out pension pots a few years ago. The market has reacted by developing decumulation products that have become too complex to enable ordinary older consumers to make a sensible choice on their own about what to do with their pension savings.

Annuities are the most important and de facto the most common way of decumulating one's pension savings – at the same time being the least transparent features of supplementary pensions. There are obvious signs that the annuities markets are "dysfunctional" from the consumers' perspective. AGE calls on Members States to:

- Improve annuity markets in terms of simplicity, standardisation, transparency, cost-efficiency and transferability of contract (switching) in order to provide better services to consumers in the decumulation phase;
- Monitor pension decumulation practices and ensure that consumers are adequately informed and protected against misselling. While annuity products have been criticized, there are also substitute or replacement strategies (asset management based products, income drawdown products, home equity release schemes, property investments etc.) which involve considerable risks for retirees and uncertainties tied to low transparency, lack of independent advice on individualized mix of products in retirement, blurred fee structure and outcome certainty.

About AGE Platform Europe

AGE Platform Europe is a European network of organisations of seniors and representing over 40 million older people in Europe. AGE aims to voice and promote the interests of the 190 million citizens aged 50+ in the European Union and to raise awareness of the issues that concern them most. www.age-platform.eu



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This 2015 edition of the Pension Adequacy Report, published in two volumes, assesses the degree to which pensions manage to provide older people with adequate income and poverty protection. Having examined the role of pensions in current living standards, the report discusses the impact of recent pension reforms, analyses the future risks to adequate old-age incomes and makes suggestions as to how these risks might be addressed by Member States, notably by women and men postponing their retirement by working to higher ages and by saving more. The report also underlines the need for mechanisms to protect those unable to have sufficiently long careers and to save adequately.

While the main report, published as volume I, is devoted to a comparative analysis of pension adequacy at EU-28 level, a detailed discussion of pension adequacy in each of the 28 Member States is given in volume II. This publication is available in electronic format in English only.

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